EVACUATING ELDERLY AND DISABLED PASSENGERS FROM PUBLIC TRANSPORTATION VEHICLE EMERGENCIES.

Senior Services of Snohomish County
Everett, Washington 98204

March 1991

Project No. WA 8-70

Trainer's Handbook
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This manual is intended to assist the trainer in developing and conducting a program for training public transportation vehicle drivers in some basic principles for evacuating elderly and disabled passengers. The information includes a curriculum outline, suggestions on use of the video component portion of the training module and identifies policy areas. Related to evacuation which transit systems may wish to consider, a bibliography and resource directory is also provided. A section containing instructional guides is provided to assist the less experienced.

A section on optional techniques for evacuating passengers while remaining in their wheelchairs, although not recommended, is offered for systems who see the need for such training.

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EVACUATING
ELDERLY AND DISABLED
PASSENGERS FROM
PUBLIC TRANSPORTATION VEHICLE
EMERGENCIES

Trainer's Handbook

March 1991

Prepared by
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In Cooperation with
Snohomish County Transportation Authority (SNO-TRAN)
Lynnwood, WA 98036

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This handbook constitutes the third component of the training module Evacuating Elderly and Disabled From Public Transportation Vehicle Emergencies. The first component is the Participant's Handbook, the second is the video training module. This third component is intended to offer the transit system manager or safety/training staff some practical suggestions on using these components in conducting an evacuation training program for their system personnel.

It is believed that teaching evacuation techniques is best done in a well planned and well organized training program. Training will be most effective when done in a highly structured classroom setting. Additionally, the training must include the opportunity to practice most of the evacuation techniques under close, competent supervision. This handbook is devoted to achieving the above.
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**QUICK FAHRENHEIT-CELCIUS TEMPERATURE CONVERSION**

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For more exact and/or other conversion factors, see NBS Miscellaneous Publication 286, Units of Weights and Measures. Price $2.50. SD Catalog No. C13 10 286.
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INTRODUCTION

The Trainer’s Handbook is designed to provide transportation systems with suggestions on effectively integrating the Participant’s Handbook and the Video Training Module into training their personnel in vehicle evacuation techniques.

It is anticipated the trainer will be someone who is already familiar with basic training techniques.

The Trainer’s Handbook contains four major sections described below:

I. Trainer’s Guide -- Use of the training components in a formal, facilitated training program.

II. Policy Considerations -- suggests some of the policy issues relative to evacuation that transportation systems may wish to consider when renewing or developing evacuation policies.

III. Optional Evacuation Techniques -- contains methods which can be taught if systems decide they need to be prepared to physically lift a wheelchair together with the passenger from a vehicle.

IV. Resource Information -- contains a bibliography of pertinent information relevant to evacuation training. A subsection includes suggested sources for equipment and/or supplies noted in the training materials.
I. Trainer's Guide

Materials for this section are divided into seven units noted below.

- The Training Materials
- The Class
  - Class size
  - Student background
  - Class participation
  - Presentation
- The Training Curriculum
- The Practice Session
- Training Equipment Requirements
- Critique
- Instructional Guides

A. Training Materials

The audience for the training materials will be (1) drivers, (2) dispatchers and (3) managers and/or safety/training personnel. The target audience will vary widely in educational level. The Participant's Handbook is designed for approximately a 7th to 8th grade reading level. However, the video has a slightly higher comprehension level at about 10th-11th grade.

The training module is comprised of three elements.

1. Participant's Handbook -- a handbook intended as the primary training resource. The intent of this element is for it to be self-contained, thus serving as a refresher training resource in addition to being the primary training element.

2. Video Training Module -- the second element summarizes the Participant's Handbook. In addition, it demonstrates Proper Body Mechanics and Basic Evacuation Techniques in preparation for the practice training session.

3. Trainer's Handbook -- the third element is designed to:
   a. Provide the less experienced trainer a curriculum guide as an aid in conducting an effective evacuation training program.
   b. Provide both the inexperienced and more experienced trainer a set of Instructional Guides that identify the essential points to be covered in the practice training session portion of the training program.
   c. Offer suggestions in a number of other areas related to developing and conducting an evacuation training program.

A universal lament of transit systems is the amount of time devoted to training. Evacuation training will require its share of time. However, the design of these training materials takes into consideration the training time concern.

1. The Participant's Handbook is a detailed, self-contained unit suitable for self-study and a refresher training tool.

2. It presents a number of evacuation techniques but prioritizes selected techniques which permit systems to tailor evacuation training according to the time available. This is done by concentrating on fewer techniques.

3. It divides the video into two segments which provides a logical break point. The first segment can be presented to a larger audience. The second segment focuses on the basic evacuation techniques in preparation for the practice training session.

The video summarizes much of the information in the Participant's Handbook. Because of this it is not a substitute for the handbook. The video has at least two specific uses.

a. As a classroom tool both during the lecture/discussion or pre-practice session segment. It can also be used during the practice training sessions to demonstrate techniques prior to practice.

b. The video also lends itself to use as a refresher training tool for all staff.
It should be noted the techniques are demonstrated on film in a setting comparable to that which might be used during practice sessions.

One comment that might be anticipated is "why were techniques not performed on board vehicles?" First, there is insufficient space to permit filming at the desired camera angles in order to best show the technique. Secondly, there is a wide variety of vehicle doors, seating and wheelchair placement configurations in use today. Thus the decision was made to show the techniques in a general setting. Because of this, at the conclusion of the practice session trainers may wish to discuss specific evacuation techniques in the context of the vehicles being operated by their system. For example, if your system operates vans, which of the techniques would a driver use for a specific situation?

At some point drivers need to realize there will very possibly be emergency situations where they will not be able to help a passenger no matter how well trained or how strong they may be.

Another point to remember is that very large passengers both in size and weight will be encountered. The techniques presented anticipates this and gives the driver a wide range of choices to deal with this problem during evacuation emergencies.

B. The Class
The evacuation training program is intended to be carried out in an instructor-led classroom environment.

Although the training program is directed at drivers, non-driving staff such as supervisors, dispatchers and some management personnel will benefit from participation in this training. Non-driving staff need not participate in the practice training session unless they will conduct training sessions in the future.

The following Sections discuss some aspects of class management.

1. Class Size
The sessions and the presentation of the video can accommodate any number of students which is convenient for the available space and which encourages student participation through questions and discussions.

The practice training is a different matter since students are paired. Students trade off and perform each technique once as the driver and once in the role of the passenger. Thus, 12 and no more than 16 students are recommended for the practice training session. Each additional pair of students adds considerably to the length of the practice training session. Large practice sessions will interfere with students observing demonstrations and assembling to hear questions and discussions.

An alternative is to have additional instructors but each instructor should not have more than 6 to 8 pairs of students to supervise.

These limits on class size are for reasons of safety. Such sessions must be closely supervised to preclude "horseplay" or students performing techniques without proper supervision. It is better for drivers to learn their capabilities and limits under competent supervision in practice training sessions rather than when faced with an actual evacuation emergency.

2. Student Characteristics
For safety reasons it is well to be aware of physical limitations any student may have. The evacuation techniques can be physically demanding and may place stress upon the back, hips or knees.
Students should be asked to make any physical limitations known to the instructor before the practice training session.

Students should also be told that there may be some techniques which they may feel they cannot or should not perform. They should be encouraged to let the instructor know if they have any doubts.

3. Class Participation
Students should be encouraged to ask questions if something is unclear. Opportunities should be provided to discuss problems. However, as the instructor you must maintain control of the class. Some students may have had advanced first-aid, EMT, or even paramedic training, and may want to use techniques differently than the way they are being taught in the class. As the instructor you can point out that you realize there are other techniques and even other ways of performing techniques being taught. However, both for consistency in training and for safety, this class will be limited to training in the techniques described in the Participant’s Handbook.

Some drivers will have considerable experience in areas such as transporting elderly or disabled persons and they should be encouraged to share their knowledge. By using their ability to recognize key characteristics of certain disabilities, they can add practical suggestions and enhance the classroom experience for other students.

As previously noted, the instructor must be alert to maintain class control and not allow individuals to dominate the class. It is easy for the class to be sidetracked thus eating into class time.

4. Presentation
The following suggests some things to be considered when presenting the materials.

a. Know your materials. Maintaining class interest and attention is essential. Reading your materials or memorizing your presentation can be deadly and quickly lead to loss of class interest. Notes are fine, but should be used only to jog your memory. Constant reference to notes can be disconcerting to a class.

b. Show your enthusiasm. An instructor should be enthusiastic about the material. Being thoroughly familiar with the subject matter reduces the tendency to give presentations in a monotone. A monotone voice can suggest boredom to the class. If you seem bored, it will be hard to convince the class of the value and seriousness of the need for evacuation training.

c. Use of local specialized training resources.
Most communities have fire stations manned by either paid or volunteer staff. Fire service personnel have received training in most of the evacuation techniques. In addition, during their training drills, they will have usually had significant amounts of practice and will be skilled in the use of most techniques. It is strongly recommended that local fire departments be encouraged to participate in evacuation training programs. Participation by fire personnel can be as training assistants during the practice training session or as demonstrators of each technique. Both uses will help conserve time and make good use of their skills.

NOTE: Some firemen may wish to use techniques not contained in the Participant’s Handbook because they are more familiar to them. However, for the sake of consistency in training and ease of refresher training use only those techniques contained in the Participant’s Handbook.

There are several significant benefits to fire departments resulting from their participation.
(1) They will gain an understanding of the kinds of problems presented by elderly and disabled passengers using the local transit system.
(2) They can become familiar with the kinds of vehicles used by the local transit system.
(3) They will gain some insight as to the kind of on-board safety equipment used by their local system.
(4) They will understand how to better direct the driver to assist them once they arrive on the scene and assume command of the emergency.
(5) Local fire departments can be a valuable resource by helping to formulate systems emergency plans, evacuation policies, etc.

C. The Training Curriculum

The evacuation training curriculum is divided into two major units. The first unit consists of two sessions. The first session consists of lectures/discussions which covers the materials up to, and including Section 7.0 (Basic Principles of Proper Body Mechanics), in the Participant’s Handbook. The second session entails use of the Video Training Module. The first unit will require between 3 and 3.5 hours to complete depending upon class size, class interaction, etc. The second unit is the practice training session which will vary in length, depending upon class size.

For the first two sessions, class size is limited by the available space and the extent to which class interaction is desired. However, the practice training session is predicated upon a class of 12 to 16 students per instructor.

Suggestions for conducting a practice training session will be found in Part D, The Practice Training Session, page 8.

At the end of this Trainer’s Handbook a section on Optional Techniques has been included. These are optional techniques which could be included if your system clearly perceives situations where they might be needed. Because they are so risky, it is recommended they be practiced and demonstrated only if the trained staff is available and all risks identified. This information has not been included in the curriculum.

The following training curriculum outline will provide an easy-to-use guide and a check list to help the instructor be sure all materials are covered.

Some of the techniques under Section 8.4 (Selected Basic Evacuation Techniques), have a small star placed in front of them. The stars (•) denote the priority techniques. Taken together, these are the minimum number of techniques to be included if a system finds it necessary to shorten its’ training session.

When presenting Section 3, (The Evacuation Decision), you may wish to discuss weather factors and their effect upon the evacuation decision in your local region. The variability of weather from one region to another makes it difficult to cover particular weather conditions to apply to all regions.

2.0 Reasons For Training — 5 to 10 minutes
   2.1 Training Objectives
   2.2 Training Materials
   2.3 Training Program Description

3.0 The Evacuation Decision — 10 to 12 minutes
   3.1 Vehicle Location
   3.2 Nature of the Emergency
   3.3 Evacuating Wheelchair Passengers
   3.4 The Availability of Help
4.0 The Evacuation Process — 12 to 15 minutes
4.1 Policy Considerations
4.2 Communicating with Passengers and Helpers
4.3 Components of the Evacuation Process
4.4 Evacuation Aids
  4.4.1 Tools for Cutting Seat Belts, Webbing Tie-Downs, Clothing, Etc.
  4.4.2 Items for Drags
  4.4.3 Transfer or Sliding Boards

5.0 Handling Precautions For Common Disabling Conditions — 20 minutes
5.1 Introduction
5.2 General Precautions
5.3 Spinal Cord Injuries
  5.3.1 Paraplegia
  5.3.2 Quadriplegia
5.4 Neuromuscular Disorders
  5.4.1 Cerebral Palsy
  5.4.2 Post Polio
  5.4.3 Multiple Sclerosis
  5.4.4 Epilepsy
  5.4.5 Strokes
5.5 Amputations
  5.5.1 Arms
  5.5.2 Legs
5.6 Respiratory Disorders
  5.6.1 Emphysema
  5.6.2 Asthma
5.7 Sensory Disorders
  5.7.1 Vision Impairments
  5.7.2 Hearing Impairments
5.8 Mental/Emotional Disorders
  5.8.1 Mental/Emotional
  5.8.2 Alzheimer’s Disease

6.0 Special Considerations — 15 minutes
6.1 Helping Visually Impaired Passengers
6.2 Helping Hearing Impaired Passengers
6.3 Evacuating the Unconscious Passenger
6.4 Procedures for Handling Known or Possible Infectious Diseases
6.5 Handling Passengers with Oxygen
6.6 Managing Evacuation Following a Roll-Over Accident

7.0 Basic Principles of Proper Body Mechanics — Video 28 minutes. plus an allowance for discussion time.

8.0 Some Basic Evacuation Techniques — 35 minutes, plus discussion time
8.1 Categories of Emergencies
  8.1.1 General Emergencies
  8.1.2 Severe Emergencies
8.2 Planning the Evacuation
8.3 Selecting the Appropriate Evacuation Technique(s)
  8.3.1 Knowing Your Own Capabilities
  8.3.2 The Need for Assistance
8.4 Selected Basic Evacuation Techniques
  8.4.1 Techniques for Assisting Passenger from Seat
    8.4.1.1 Assisting Passenger to Standing Position
      A. Sitting to Standing Position, Driver Only
      B. One Arm Standing Assist
      C. Two Arm Standing Assist
8.4.1.2 Walking Assists
   ★ A. Walking Assist with One Person
   ★ B. Alternative Walking Assist with One Person
   ★ C. Walking Assist with Two Persons

8.4.2 Moving Passenger From Seat or Wheelchair to Floor
   ★ A. Assisted Sitting Drop to the Floor
   ★ B. Using Sliding Board (or Transfer Board) to Reach the Floor.
   ★ C. Cradle Drop or Assisted Roll from Seat to the Floor

8.4.3 Dragging Techniques
   ★ A. Shoulder Drag
   ★ B. Clothing Drag
   ★ C. Blanket or Tarp Drag
   ★ D. Body Loop (or Transfer Belt) Drag
   ★ E. Foot Drag

8.4.4 Carrying Methods; One Person
   ★ A. Cradle Carry
   ★ B. Pack Strap Carry
   ★ C. Piggy Back Carry

8.4.5 Carrying Method: Two Person Extremity Carry
8.4.6 Moving Passenger from Floor Level to Ground Level
   ★ A. Using Dragging Technique on Steps
   ★ B. Standing Slide Assist

8.4.7 Assisting Passengers Back into Wheelchair
   A. Moving Passenger from the Ground into Wheelchair — One Person
   B. Assisting Passenger Back into the Wheelchair — Two Persons

8.4.8 Managing the Passenger in Wheelchair

9.0 Some Features of Wheelchairs Affecting Evacuation — 20 minutes. Discuss mobility aids common to your area.
9.1 Arm Rests
9.2 Leg/Foot Rests
9.3 Seat Features
9.4 Head/Neck Supports
9.5 Wheels
9.6 Three and Four Wheeled Electric Scooter (Platform) Wheelchairs
9.7 Miscellaneous Features : Bumpers, Controls, or Steering Wheels
9.8 Power Features
9.9 Electrical Hazards on Wheelchairs
   9.9.1 Batteries
   9.9.2 Wiring
9.10 Crash Worthiness of Wheelchairs
9.11 Miscellaneous Ambulation (Walking) Aids

10.0 Some On-Board Equipment Which May Affect The Evacuation Process — 15 minutes
10.1 Wheelchair Securement Systems
   10.1.1 Securement Systems Which Attach To Wheelchair Wheels
         A. Spring-Loaded Gates
         B. Rim Pin Locks
   10.1.2 Wheelchair Webbing Securement Systems
         A. Ratchet Type Tightening Devices
         B. Camlock Tightening Devices
         C. Adjusters
   10.1.3 Axle Latches -- Newer, Less Common Securement Device
10.2 Passenger Restraint Systems
10.3 Wheelchair Lift Systems -- 15 minutes. Discuss lifts used in your system
   10.3.1 Power Deployment
   10.3.2 Manual Deployment
   10.3.3 Use of Lift Platform as an Intermediate Step
10.4 Wheelchair Ramps

D. The Practice Training Session
The following are areas of special consideration when planning and setting up the
practice training sessions.
- Objectives
- Site Selection
- Preparation
- Organizing the Class
- Procedures to be Observed when Conducting the Practice Training Session.
- Matching Partners
- Instructional Guides

Student safety is a major consideration and should be foremost in your mind when
planning and conducting a practice training session. The areas of concern focus on
efficient conduct of the practice training session consistent with student safety.

1. Objectives
   Hands-on practice is probably the most important part of the evacuation
   training program. The objectives of this portion of the training are:
   a. To have the drivers, under close supervision, perform all of the basic evacu-
      ation techniques they are physically able to do.
   b. Through such supervised practice, to ensure that the drivers learn the extent
      of their own capabilities and, of equal importance, their own limitations.
   c. By experiencing the procedures from the passenger perspective, drivers gain
      some insights which help them make better evacuation decisions. The net
      result is a trained driver who has the skills and confidence to deal with an
      evacuation emergency should it arise.

A number of evacuation techniques are presented. They were selected, giving
due consideration to the wide variations in drivers, physical and mental
abilities, the variety of equipment drivers may encounter (both on-board and
passenger owned) and the many problems presented by the diversity of elderly
and disabled passengers.

It should be realized that despite the relative simplicity of the techniques
included, some drivers may not be able to perform certain techniques due to
lack of coordination, less physical strength, or possibly a preexisting medical
problem.

Where limitations of time and ability dictate shortening the curriculum, the
following method is suggested.
- Use the self-study option,
- Provide classroom time for questions and discussion,
- Use the video training module and set the following as a basic minimum
  which the drivers must learn during the practice training session.
  - Two Arm Standing Assist
  - Walking Assist with One Person
  - Assisted Sitting Drop to the Floor
  - Cradle Drop
  - Shoulder Drag
  - Blanket or Tarp Drag
  - Body Loop or Transfer Belt Drag
  - Foot Drag
**Cradle Carry**
**Pack Strap Carry**
**Using Dragging Technique on Steps**
**Standing Slide Assist**

2. **Site Selection**
Generally a practice training session should be conducted indoors on a smooth floor. If done outside on grass clothing will become stained. If done on concrete or black top, clothing may be physically damaged as well as heads and elbows. The site should allow ample demonstration space as well as space for students to observe the demonstrations and to be able to gather around for discussion or to deal with questions.

The practice area should be large enough to accommodate two pairs of students practicing at one time. Some techniques such as the drags will permit several pair to practice at one time. Adequate seating should also be available. Steps should be nearby. Building steps with from 3 to 6 steps permit better supervision and allow other students to observe.

It is not feasible to conduct a practice session on board a vehicle. However, demonstrating and practicing a sitting drop to the ground would best be accomplished on a vehicle if the proper vehicle is available. This requires a vehicle with a wide rear exit such as those found on body-on-chassis vehicles.

3. **Preparation**
As previously noted it should be stressed that students let you know of any painful joint problems or other physical conditions which may interfere with performing any of the evacuation techniques.

It is necessary to have a two-passenger bench mounted on a 4' X 8' X 3/4" sheet of plywood. The surface of the plywood should be covered or painted to prevent snagging clothing. See Illustration A for schematic diagram of the unit.

![2 or 3 Passenger Bench Seat](image)

Illustration A: Training Seat for Evacuation Training.

Seat belts are not necessary. Their use consumes a great deal of time without adding anything substantive to the practice session.

A wheelchair with securement can be mounted on the same plywood base. Track mounts are ideal in that protruding hardware is greatly reduced and the seat is easily dismounted if it is necessary to return it to a vehicle.
4. Organizing the Class
Before beginning the practice training session, ask the students to pair up with a partner of approximately the same size. Some mismatches may occur. When they do, then designate another partner to work with the mismatched student. Height and weight should be approximately the same for each pair.

5. Procedures to be Observed when Conducting a Practice Training Session
Safety of students is the instructor's responsibility. In order to maintain class safety, the following rules should be adhered to:
   a. No student "horseplay" should be allowed or tolerated.
   b. Students will not be allowed to practice a technique without supervision.
   c. Do not allow disabled subjects to be used in the class.
   d. Allow the use of only the basic techniques which are part of the curriculum.
   e. Be sure that all equipment to be used is in good working order.
   f. Have adequate personnel available to safely conduct the practice training session. Ideally one instructor (supervisor) for each 6 to 8 pair of students will permit the practice training session to be accomplished relatively quick.

6. Pointers for Conducting Practice Training Sessions *
The following pointers will be helpful to trainers who have had limited experience in conducting practice-type training. These pointers identify easily overlooked techniques.
   a. Always remember that you are teaching the entire class, not just supervising and correcting one student.
   b. When something is being done incorrectly, involve the class. Ask them to describe what the student is doing wrong.
   c. Don't waste a great deal of time correcting a student over and over who doesn't seem to get the hang of the technique. Let the student go back to the class while others practice the technique. When a practice turn comes up again, the student often has a much better understanding of how the technique is to be done.
   d. If a student begins to do something that might harm him or her or the passenger, stop him or her immediately. This is a good point at which to ask the class what the student is doing wrong or how it should be done differently.
   e. Always stand so that you can see exactly what the student is doing and can immediately stop any potentially hazardous moves.
   f. Remember that you are stage manager as well as instructor. You must make sure that the objects and the people involved in the technique can be clearly seen by the rest of the class. If the viewing angle is difficult, you may have to move part of the class to a position where all the students can see.
   g. Always be aware of the class's line of sight. A common mistake is to get your body between the class and what you are trying to demonstrate.
   h. Be sure to speak up loudly and clearly. If much of the practice session is done outside, and your voice is not carrying well, some of the students may not be able to hear you.
   i. Everyone from time to time gets mixed up or performs part of a technique incorrectly. If this happens to you, use it to advantage. Ask the class what you were doing wrong or state this is not the way the technique should be done.
   j. Since words are imprecise and people interpret them differently, sometimes verbal correction is not enough. You must stop the student who is doing the technique incorrectly and redesimulate the correct way it is to be performed.

* Adapted from: Teaching Passenger Assistance Techniques
Transportation Management Associates
Ft. Worth, TX
E. Training Equipment Requirements
In order to properly conduct a training program in effective evacuation techniques, there are some minimum equipment requirements.

For convenience this equipment is listed separately for the classroom segment and the practice training session segments.

1. Classroom Segment.
   a. Trainer’s Handbook
   b. Participant’s Handbook
   c. Video Training Module "Evacuating Elderly and Disabled Passengers from Public Transportation Vehicle Emergencies"
   d. Video Player
   e. Television Monitor
   f. Extension Cord & 3-Prong Adapter
   g. Monitor Stand
   h. Pointer
   i. Policy and Procedure Manual
   (Optional)
   j. Overhead Projector with Transparencies of Key Parts of the Participants Handbook.
   k. Screen

Note: Some instructors may find it convenient to use the material projected on a screen as they talk. It is suggested that transparencies for overhead projection be made for this purpose. A loose leaf version of the Participant’s Handbook is provided in the training module for this purpose.

2. Practice Training Session Segment
   a. A Vehicle Seat (at least a two passenger seat) mounted on a 4’X8’ X3/4” plywood base. (See Illustration A, page 9.)
   b. Wheelchair Securement System typical of your transit system. (This will not be damaged.)
   c. Webbing Cutters
   d. Random lengths of Seat Belt or old wheelchair securement systems for demonstration and practice cutting webbing
   e. Blanket, EVAC-AID or any on-board equipment used for drags common to your system
   f. Standard Adult Wheelchair with Removeable Seat Cushion
   g. Transfer Board or Sliding Board
   h. Transfer Belt or Body Loop, or
   i. Nine foot length of polypropylene or similar soft rope
   j. Building Steps (3 to 6 steps)
   k. Bus with Back Exit (body-on chassis or school bus type vehicle)

F. Critique
Students participating in any training program should have an opportunity to comment on their training experience.

Comments should be elicited immediately following completion of the training program while the experience is fresh in the students’ minds.

Students should be encouraged to focus on things that may enhance the quality of future sessions, the content of the materials and method of delivery.

Many students may never have received recognition for their achievements. Certificates given upon successful completion of evacuation training would convey such recognition and are strongly encouraged. A local high school art instructor, graphic artist, etc., may be willing to design an appropriate certificate, or stock certificates available through office supply houses are readily available and inex-
pensive. Some systems may wish to consider purchasing computer software such as the inexpensive certificate maker which makes customized certificates for a variety of purposes.

G. Instructional Guides
The following Instructional Guides will be helpful when used as a checklist for the techniques to be taught during the practice training session. They are designed to also provide a quick reference which highlights the essential points to be covered for each technique.

As noted on page 5, the stars (★) preceding the name of a technique denote a priority technique.
# INSTRUCTIONAL GUIDE

**SECTION NUMBER** 7.2.1  
**NAME:** Body Mechanics - Bending & Lifting

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                         | 1. Teach how to lift safely       | 1. Keep passenger close to your body  
Lift with your arms and legs  
Do not twist  
2. Avoid or minimize bending at the waist  
Note: For some very tall people bending at the waist is difficult to avoid |

## Notes:

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13
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 7.2.2  **NAME:** Body Mechanics - Stooping and Squatting

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                         | 1. Teach how to squat safely | 1. Avoid stooping  
2. If you can, use a seat or some solid object to push upon to come to a standing position |

**Notes:**
## INSTRUCTIONAL GUIDE

### SECTION NUMBER  7.2.3  NAME:  Body Mechanics - Kneeling

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                         | 1. Protecting the back when kneeling | 1. Use your legs to get in and out of a kneeling position  
2. Stay as close to the passenger as you can to reduce the need to bend your back  
3. Kneeling with only one knee down may be easier  
Note: If possible, use a seat or nearby object to push yourself up |

### Notes:
# INSTRUCTIONAL GUIDE

**SECTION NUMBER**: 7.2.4  
**NAME:** Body Mechanics - Carrying

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                          | 1. Reducing strain on your back  
|                    |                          | 2. Understanding your own limits | 1. Carry passenger close to your body  
|                    |                          |                   | 2. Balance the passenger's weight between each arm  
|                    |                          |                   | 3. Keep your arms close to your sides |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**: 7.2.5  
**NAME**: Body Mechanics - Twisting

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                         | 1. Teach ways to avoid twisting | 1. Assume a position which eliminates or minimizes the need to twist your body  
2. If you need to turn around, take little steps to change the direction of your whole body  
3. Use your arms and legs to do the work — not your back |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**: 7.2.6  
**NAME**: Body Mechanics - Pushing

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               |                         | 1. Demonstrate a useful technique for managing heavy loads | 1. Spread your feet, with one foot slightly forward, to establish a stable base  
2. Bend at your knees and hips to move the object  
3. Keep your elbows close to your body when pushing  
4. Use a rocking motion to get object moving. This is especially helpful with heavy loads |

**Notes:**
## INSTRUCTIONAL GUIDE

### SECTION NUMBER  7.2.7  NAME:  Body Mechanics - Pulling and Dragging

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None                |                         | 1. To provide an effective means of managing loads | 1. Spread your feet with one foot slightly forward to obtain a stable base  
2. Bend at your knees and hips when pulling the passenger  
3. Avoid twisting your body |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**: 8.4.1 A  
**NAME**: Sitting To Standing Position

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Seat or Wheelchair | 3 minutes, each student | 1. Getting passenger up so they can walk to the "best" exit | 1. Position of driver's feet on the outside of the passenger's feet  
2. Stabilizing passenger so their knees cannot buckle  
3. Lift with your legs and arms  
4. Do not attempt to use this technique if passenger is taller or much heavier than you |

**Notes:**
### INSTRUCTIONAL GUIDE

**SECTION NUMBER**  8.4.1.1 B  **NAME:** One Arm Standing Assist

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat or Wheelchair</td>
<td>3 minutes, each student</td>
<td>1. Teach this Standing Assist for passengers who have the use of only one arm or 2. passengers who may be heavier or taller than the driver</td>
<td>1. Block passenger's foot with yours 2. Clasp passenger just above elbow 3. Instruct passenger to clasp your elbow in same way 4. Let passenger shift his or her foot into best position for them 5. Do not just grab passenger's hand 6. Do not pull on passenger's arm 7. They must pull up on you 8. Be sure to shift your body back to allow room for passenger to stand</td>
</tr>
</tbody>
</table>

**Notes:**
# INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.1.1 C  **NAME:** Two Arm Standing Assist

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Seat or Wheelchair, Straight backed chair can be used | 3 minutes, each student | 1. To provide a standing assist technique for use with heavier or taller passengers | 1. Block passenger's foot with yours  
2. Grasp the wrist of your arm parallel to the passenger with your opposite hand  
3. Passenger must pull themselves up  
4. **Do not** pull the passenger to a standing position |

**Notes:**
### INSTRUCTIONAL GUIDE

**SECTION NUMBER**  8.4.1.2.A  **NAME:**  ⭐ Walking Assist - One Person

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat, or start from standing position</td>
<td>3 minutes, each student</td>
<td>1. Assist passenger to walk in a narrow aisle</td>
<td>1. Do not release hold on passenger until you are sure the passenger needs no further assistance</td>
</tr>
</tbody>
</table>

**Notes:**
### INSTRUCTIONAL GUIDE

**SECTION NUMBER:** 8.4.1.2 B  
**NAME:** Alternative Walking Assist -- One Person

<table>
<thead>
<tr>
<th>Points To Emphasize</th>
<th>Objective Sought</th>
<th>Estimated Time Required</th>
<th>Equipment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The loop or belt should be positioned just above the passenger's waist.</td>
<td>Assist passenger to walk in a narrow aisle.</td>
<td>3 minutes, each student</td>
<td>Body Loop or Transfer Belt</td>
</tr>
<tr>
<td>2. Walking behind passenger, grasp body loop (or transfer belt) close to passenger's body.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
<table>
<thead>
<tr>
<th>Points To Emphasize</th>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objective Sought</th>
</tr>
</thead>
</table>
| 1. On most vehicles, space is too confined to use this technique onboard.  
2. Walk in step with the passenger. | None | 3 minutes, each student | How to use an assistant to move a passenger away from the vehicle |
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**  8.4.2 A  **NAME:**  Assisted Sitting Drop To The Floor

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Blanket, tarp or Evac-Aid | 4 minutes, each student | 1. To move the passenger quickly from the seat or wheelchair to the floor | 1. Spread dragging device, if used  
2. Watch passenger's legs so they do not double up under the passenger  
3. Push passenger back against the seat to slow descent to the floor |

**Notes:**
## INSTRUCTIONAL GUIDE

### SECTION NUMBER  8.4.2 B  NAME: Using A Sliding Board To Slide Passenger To Floor

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| 1. Sliding board   | 6 minutes, each student | 1. Method of assisting very large, heavy passengers to reach the floor | 1. Do not attempt if passenger does not use seat cushion  
2. Put dragging device in place, if used  
3. Block bottom of sliding board so it does not slip  
4. Be sure board is under the front edge of the seat cushion  
5. Remove or cut seat belts  
6. Remove or swing footrests out of the way |
| 2. Wheelchair      |                         |                   |                     |
| 3. Wheelchair cushion |                        |                   |                     |
| 4. Evacuation dragging device |  |                   |                     |

### Notes:
# INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.2 C  **NAME:** Cradle Drop Or Assisted Roll To The Floor

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Seat Dragging device | 6 minutes, each student | 1. Minimize need to control passenger's full body weight during move to the floor | 1. Lower feet to the floor after assisting passenger to a side lying position  
2. Kneel on both knees  
3. Let passenger's weight slide onto your thighs  
4. Continue to let the passenger's weight slide to the floor as you move backwards on your knees |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.3 A  **NAME:**  ★ Shoulder Drag

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               | 3 minutes, each student | 1. Move heavy passengers  
2. Keep passenger and driver below smoke/toxic fume level | 1. Point passenger’s head in direction to be dragged  
2. Do not bend or twist the trunk  
3. Keep the spine as straight as possible  
4. Obtain good grip under armpits of passenger  
5. Raise passenger’s shoulders high enough to keep head from contact with the floor |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.3 B  **NAME:** Clothing Drag

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               | 3 minutes, each student | 1. Obtain more secure grip with which to drag passenger  
2. Save time  
3. Protect passenger's head, neck and shoulders | 1. Orient passenger's head towards direction to be dragged  
2. Be sure clothing does not interfere with breathing  
3. Keep head and shoulders off floor |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.3 C  **NAME:** ★ Blanket or Tarp Drag

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Blanket, tarp or Evac-Aid | 4 minutes, each student | 1. Provide a safe technique which almost any driver can perform  
2. Provide an additional technique for moving heavy passengers | 1. First, spread dragging device on floor  
2. Place passenger onto device with head pointing toward exit  
3. Lift head and shoulders to reduce the body surface in contact with floor |

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**: 8.4.3 D  
**NAME**: Body Loop (or Transfer Belt) Drag

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Body Loop or Transfer Belt | 4 minutes, each student | 1. Provide a secure grip on a heavy passenger  
2. Provide good support for the passenger’s head, neck and shoulders | 1. Grasp body loop or belt close to the back of the head so the head is well supported and cannot slip out  
2. Lift head, neck and shoulders off of the floor |

**Notes:**
## INSTRUCTIONAL GUIDE

### SECTION NUMBER 8.4.3 E NAME: ⭐ Foot Drag

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               | 3 minutes, each student | 1. Provide a quick method of dragging when speed is essential | 1. Look for obstacles which may be hooked by the passenger’s arms, etc. and interfere with dragging and may cause injury  
2. Persons with small hands may have difficulty getting a secure grip on the passenger’s ankles  
3. Lift passenger’s legs off the floor to reduce friction |

### Notes:
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.4 A  **NAME:** Cradle Carry

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bench seat</td>
<td>4 minutes, each student</td>
<td>1. Understand your own physical limitations of strength, balance, etc. 2. Provide method for quick removal of a small passenger</td>
<td>1. Position feet slightly apart for a stable position 2. Bend at the knees to pick up the load 3. Keep back straight 4. Keep the load evenly distributed between your arms, with your arms held close to your body</td>
</tr>
</tbody>
</table>

**Notes:**
# INSTRUCTIONAL GUIDE

**SECTION NUMBER:** 8.4.4 B  
**NAME:** Packstrap Carry

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Bench seat         | 4 minutes, each student | 1. Provide a technique for carrying a person larger than you  
2. Offer good visibility of surface you are walking on | 1. Bend sufficiently for passenger's feet to clear the floor  
2. Be sure passenger gains their balance before releasing your hold |

**Notes:**
# INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.4 C  **NAME:** Piggy Back Carry

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| None               | 4 minutes, each student | 1. Offer a method for carrying a passenger heavier than yourself  
2. Provide a method for carrying a heavy passenger a greater distance | 1. Spread your legs to get a stable base.  
2. Be sure passenger regains his or her balance before releasing your hold |

**Notes:**
## INSTRUCTIONAL GUIDE

### SECTION NUMBER 8.4.5  NAME: Two Person Extremity Carry

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4 minutes, each student</td>
<td>1. Teach a technique for quickly moving passengers away from vehicle 2. Teach a technique for use with heavier passengers</td>
<td>1. Difficult to use in tight places 2. Tallest rescuer should be at the passenger's shoulders 3. Coordinate lifting and lowering passenger by using a count of 3, or a similar command</td>
</tr>
</tbody>
</table>

### Notes:
## INSTRUCTIONAL GUIDE

**SECTION NUMBER**  8.4.6 A  **NAME:**  *Using A Dragging Technique On Steps*

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tarp, sturdy blanket or Evac-Aid 2. Wheelchair cushion.</td>
<td>5 minutes, each student</td>
<td>1. Teach method for unassisted removal of passenger from floor to ground level</td>
<td>1. Use wheelchair cushion, heavy jacket or any other padding to protect the passenger's low back area 2. Move one step at a time</td>
</tr>
</tbody>
</table>

**Notes:**
## INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.6 B  **NAME:**  *Standing Slide Assist*

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Bus with unobstructed rear exit such as a body-on-chassis vehicle. | 6 minutes, each student | 1. Teach a method for moving passenger unassisted, from floor to ground level when other exits are not available. | 1. Brace passenger’s legs against your chest as you pull the passenger to a sitting position  
2. Have the passenger grasp your shoulders or place his or her arms around your neck  
3. As the passenger starts to slide downward, push him or her against vehicle to create friction to slow body descent  
4. Use Pack Strap or Piggy Back Carry if passenger size permits |

**Notes:**

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### INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.7 A  **NAME:** Moving Passenger Back Into Wheelchair -- Unassisted

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheelchair</td>
<td>6 minutes, each student</td>
<td>1. Teach a technique for getting passenger back into a wheelchair -- unassisted</td>
<td>1. This is a very difficult technique especially if you are short</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Help drivers to understand their own physical limitations</td>
<td>2. Unlock wheelchair when pulling passenger into chair</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Lock the wheelchair when attempting to lift wheelchair to upright position</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Be careful passenger is not thrown forward out of the chair as the chair becomes upright</td>
</tr>
</tbody>
</table>

**Notes:**
### INSTRUCTIONAL GUIDE

**SECTION NUMBER** 8.4.7 B  **NAME:** Assisting Passenger Back Into Wheelchair - Two Person

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Estimated Time Required</th>
<th>Objectives Sought</th>
<th>Points To Emphasize</th>
</tr>
</thead>
</table>
| Wheelchair         | 4 minutes, each student | 1. Teach method for using assistance to move passenger into a wheelchair if passenger does not have a preferred method and assistance is available | 1. Test lifting to be sure passenger can tolerate weight on heels and knees  
2. Use count of three to coordinate movements  
3. Be sure buttocks can clear wheelchair seat |

**Notes:**
II. Policy Considerations

The purpose of this Section is to identify areas for which transit systems should consider establishing policies and procedures. The focus will be on those areas related to evacuation.

For policy considerations for the broader topic of emergency planning and preparedness the reader is referred to the following

- Emergency Preparedness, U.S. Dept of Transportation, Transportation Systems Center

For information on how to obtain copies of these materials contact the UMTA RTAP National Resource Center at 1-800-527-8279.

This section will help systems that have not adopted appropriate policies and procedures to do so. The information serves also to alert systems to some areas they may have overlooked when reviewing existing policies and procedures.

Operating with clearly written policies and procedures and with well trained personnel will be helpful in assuring an appropriate response to the evacuation emergency. This will enhance overall safety of the system and have a positive impact upon the system’s risk management program. In addition, clear, sensible policies will bolster staff confidence in their ability to deal with evacuation emergencies.

Specific policies will vary greatly because of system location, equipment, manpower, and financial resources. For convenience, policy areas are organized under the following topical headings, but the list is not exhaustive. Systems are encouraged to add to or expand the various areas as issues are identified.

- Operations
  - Pre-trip Inspections
  - Driver
  - Dispatcher
  - Equipment
- Management/Administration

A. Operations

1. Pre-Trip Inspections and Preparation
   a. Do pre-trip inspections include lift deployment or cycling? Leakage of hydraulic fluid from lifts? Availability of handle if manual deployment is possible?
   b. Does the pre-trip inspection include fire extinguisher check?
   c. Are webbing or seat belt cutters provided on vehicle? Is driver responsible to ensure such equipment is in its proper place?
   d. Who is responsible to randomly check that pre-trip inspections are performed properly and that all equipment is in place?
   e. Who is responsible for the inventory of on-board safety equipment on a regular basis?
   f. Is the driver briefed on passengers and their conditions or disabilities?

2. Drivers
   a. Can the driver alone make the decision to evacuate? Are drivers limited to specific conditions before they can make the decision alone?
   b. Are drivers warned of severe weather, e.g., high winds, tornadoes, flooding, severe electrical or rain storms? Before leaving base? When on the road?
   c. Are drivers trained to use on-board extinguishers? Are drivers to attempt to put a fire out? Are the drivers to evacuate first before attempting to put a fire out? Are they instructed to use the extinguisher to protect an exit rather than fight a fire in the engine compartment, wheels, etc?
d. Do drivers receive an opportunity to practice deploying lifts manually, using seat belt cutting devices, actually kicking out a window exit, etc.?

e. Are drivers provided an opportunity for scheduled refresher training in evacuation techniques, policies, and procedures?

f. Is there a policy requiring drivers to use their seat belts? Is there a policy on monitoring seat belt use?

3. Dispatcher
a. Is the dispatcher responsible for authorizing evacuation?

b. Are there written, concise guidelines dictating the evacuation decision?

c. Who in management is notified of the decision to evacuate? When are they notified?

d. Are all phone numbers needed at the time of an evacuation emergency readily and conveniently available to the dispatcher?

e. Are dispatchers part of the evacuation decision? Do they also have guidelines governing their role in the evacuation decision?

f. Are dispatchers on duty while vehicles remain on the road?

4. Equipment
a. Are the vehicles in the system equipped with appropriate evacuation aids, e.g., webbing cutters, blankets, tarps, Evac Aids, transfer board, transfer belt or body loops, etc.?

b. Is there a policy of training drivers when new equipment is added to the system or if equipment is replaced?

c. Are vehicles spot checked by a supervisor to be sure the on-board safety equipment is available on the vehicle?

d. In the event of fire, are your vehicles equipped with automatic engine fire suppression devices?

e. If changes are made in either vehicle equipment or on-board safety equipment, are drivers regularly trained in the use of such new equipment?

B. Management/Administration

1. Are emergency and evacuation policies and procedures regularly reviewed by management?

2. Is there a scheduled review by staff, including drivers and dispatchers, of the policies and procedures noted in Item 1, above.

3. What authority does the driver require, if any, before pulling off the road in the event of hazardous conditions?

4. Are there guidelines for drivers that spell out when they can implement an evacuation decision without approval from base?

5. In the event of a vehicle emergency involving radio failure is the driver properly trained and provided guidelines dealing with such eventualities?

6. Are passengers allowed to use the radio? Under what conditions?

7. Are clear instructions on using the radio highly visible in the cockpit?

8. Who can authorize vehicle evacuation?

9. Is a dispatcher always on duty until all vehicles return to base?

10. If new types of vehicles are added to your system’s fleet, do all drivers receive an orientation on them?

11. Does the system have a policy of debriefing drivers after an evacuation occurs? Who conducts it?

12. If fatalities or serious injuries occur during an evacuation incident, does the systems provide appropriate counseling for the involved driver by qualified professionals?

13. Who is authorized to approve an evacuation decision?

14. Are there established procedures for notifying management of an evacuation decision?

15. Who is designated to handle media relations in the event injuries, fatalities or major property damage occurs?
16. Does the system hold emergency simulation drills to test system readiness and train new personnel?
17. Has your system adopted guidelines that determine when passengers must be evacuated from a vehicle?
18. Are drivers instructed in how to safely use assistance such as passers-by or non-disabled passengers?

III. Optional Evacuation Techniques

If the emergency situation appears serious and places the passenger at risk DO NOT ATTEMPT TO EVACUATE BY LIFTING THE WHEELCHAIR AND PASSENGER TOGETHER TO REMOVE HIM OR HER FROM THE VEHICLE!

There are few reasons, if any, for lifting a wheelchair (of any type) and its user off a bus. To do so is very hazardous under the best of conditions. It should never be attempted under any circumstance unless there is sufficient help available. Lifting the chair and its passenger safely will require more than one person with considerable physical strength and stature.

Lifting a wheelchair and the passenger at the same time to remove them from a bus is included because it is impossible to predict circumstances where it might be necessary. Familiarize yourself with the pitfalls to be remembered and the basic methods involved.

Removing Passengers While They Remain In Their Wheelchair.

Wheelchairs do not withstand the forces resulting from collisions very well. A wheelchair may be damaged to the extent it can only be moved with considerable force and expenditure of time. You may not be able to see the damage easily until you attempt to move it.

Today, wheelchairs are being designed for easy disassembly for the users' convenience. This very flexibility in disassembly creates a serious problem if an attempt is made to lift the wheelchair. Also, most three-wheeled electric scooters are designed so the seat, steering apparatus and batteries can be separated from the chassis or body. Simple knobs or levers lock and/or release the parts. There may not be time to check each one during an emergency. The high center of gravity of three wheelers makes them top heavy, thus they are hard to control when lifting at the chassis and there is a great danger of tipping them over and dumping the passenger out.

IMPORTANT! Electric wheelchairs vary greatly in weight and size but generally they will be too heavy for one person to remove form the vehicle without using a lift.

Lifts may become inoperative following a collision or fire. As a result, the lift exit may not be usable unless the lift can be lowered manually. Know how to manually lower any lift you must use.

If the lift exit is not usable, then there is no choice but to remove passengers from their wheelchairs. In some instances passengers will have life support equipment on their wheelchair. Typically, this will be in the form of a respirator or in some cases oxygen bottles. Some people who use chest respirators have learned emergency breathing techniques in case of a respirator power failure. They may have learned what is commonly called "Frog Breathing". Frog Breathing is simply taking in a mouthful of air by gulping, closing the mouth and swallowing the mouthful of air, just like a frog does, hence the name.

When a passenger is using oxygen, the oxygen supply must be cut off if there is any hint of fire. It should not be turned on again until the passenger is well away from the vehicle. Oxygen is very explosive in the presence of flame or sparks.
Having stated all of the above, there may be occasions when the emergency is less serious and removal of the passenger while in a wheelchair will be your choice. Before beginning actual evacuation, check:

- Be sure you have plenty of help.
- Know where you can get a firm, secure grip on the wheelchair if you must lift it. Avoid arm rests and foot rests that are removable.
- Use the wheels only if you can keep one hand on the frame to prevent the wheelchair from rotating about the axles. **Do not depend upon the wheellocks to prevent such rotation.**

As has been already noted, on buses equipped with a wheelchair lift, the lift can be manually deployed to form an intermediate step by lowering the lift platform approximately halfway between the floor level and the ground level. This will not only markedly reduce the distance a wheelchair must be lowered, but will provide safer footing for anyone who may be assisting in lifting the wheelchair. If the ground area is not level, the lift platform may be lowered the rest of the way manually to help compensate for major terrain problems such as slopes, narrow road shoulders, etc.

Because of the excessive "step heights" noted above, the conventional wheelchairs should be removed facing outward away from the vehicle. This will allow you to use the large rear wheels as "rollers" upon which to lower the weight of the wheelchair and passenger. If the combined weight of the passenger and wheelchair are such that you are sure you can manage them, and no one is available to assist you, then removing the wheelchair by backing it out is an option. However, it is essential to be aware that because of the "step" height, the footrests of the wheelchair will, in all likelihood, hit the edge of the floor or steps. This will tend to push you off balance backward with a high risk of losing control of the wheelchair. This may possibly be avoided by lowering the back of the wheelchair to a horizontal position while at the same time pushing the wheelchair wheels as hard as you can against the step to slow the descent.

CAUTION! Once the axle of the large wheels of the wheelchair passes the edge of the step (when viewed from above), the weight of the wheelchair and passenger will begin to move downward very rapidly. This will make the wheelchair hard to control. It can happen very quickly and can easily catch you by surprise. This will be true whether the wheelchair is removed facing inward or outward.

**A. Removing A Standard Wheelchair Facing Outward, Unassisted.** Note: Always ask the passengers to keep their arms and hands in their laps.

To begin moving the wheelchair outward:

1. Tilt the wheelchair back onto its large wheels by placing one foot on one of the tilt bars located on the bottom, rear frame extension as shown in the illustration. With each hand, firmly grasp the hand grips of the wheelchair. Push your foot down hard on the tilt bar while at the same time pulling sharply backward and downward on the hand grips. Bring the wheelchair into a balanced position. (You will feel the strain ease up on your wrists and become minimal when you have reached a balanced position.)
2. Move the wheelchair into position so the two large wheels are at right angles to the edge of the vehicle "step".
3. Spread your feet apart, with one foot well behind the other so that you have a stable base. Your buttocks should be behind the front foot so that your body weight can be used as a counterweight to help balance the weight of the wheelchair and the passenger.
4. Double check the position of the wheels to be certain they are in line with the edge of the "step". Should the wheels not be square with the edge it will be easy for the wheelchair to tip, making it even more difficult to control as it begins to descend.
5. Begin lowering the wheelchair in its tilted position while holding back on the hand grips.
6. Remember the CAUTION above.

B. Removing A Standard Wheelchair Facing Outward, Assisted
   If you have someone available to assist you:
   1. Show the assistant the points on the wheelchair frame where they can safely take hold. It would be well to point out removable footrests and explain that they can easily come off.
   2. Have the assistant stand on the ground or on the lift platform as appropriate, and face the wheelchair and the passenger.
   3. Instruct the assistant to grasp the wheelchair frame as previously shown.
   4. Tell the assistant to be prepared to move backward by having one foot behind the other and both feet slightly spread for stability.
   5. Have the assistant help slow the descent of the wheelchair while also helping to keep the wheelchair in the tilted position. If the person in the rear should lose his or her footing, the assistant in the front will prevent the chair from tipping forward, throwing the passenger out onto his or her face and risking probable injury.

In all other respects, handling the wheelchair is the same as for the unassisted technique previously described.

C. Removing Non-Standard Wheelchairs, Unassisted
   Wheelchairs which are powered, either conventional styles or three-wheeled electric scooters, are generally too large or too heavy for one person to evacuate unassisted. The models which are powered will require the use of the lift, a ramp or at least one other person to assist in lifting the wheelchair from the vehicle.

   If there is only one wheelchair aboard then use of the lift when manual deployment is an option regardless of the type of wheelchair involved.

   Three-wheeled electric scooters pose a special hazard because of their high center of gravity which makes them top heavy. In addition, the design of the three-wheeled scooters intentionally makes them easy to take apart, thus there is the added risk of seats coming off or twisting if you should attempt to lift it by the seat. The same thing is true with the T-bar steering assembly.

D. Removing A Passenger In A Non-Standard Wheelchair, Assisted.
   As previously described non-standard wheelchairs, such as three-wheeled electric scooters and their four wheeled relatives, must be manually lifted off if the vehicle lift is not available for use during evacuation. A high center of gravity is created when the passenger is seated on the scooter and presents a high risk of tipping over when attempts are made to lift it. An additional concern is the fact that these devices are designed for ease of disassembly, thus the only safe place to lift them is on the main part of the chassis or platform, avoiding bumpers, etc., as lifting points.
If lifting the scooter with the passenger on it is determined to be the best option, be sure to have at least THREE persons available to do the lifting.

1. Deploy the lift platform ALL THE WAY TO THE GROUND. There will not be enough room on the lift platform for two people to stand with the scooter.

NOTE: Many lifts have a rated load capacity of between 600 and 750 pounds. Since there will be as many as three persons assisting, plus the weight of the passenger and the scooter, the rated load may be exceeded by a substantial amount.

2. Place an assistant in position to lift on each side of the scooter platform as it is rolled forward.
3. Have a third person in position to keep the front end of the scooter level.
4. As the assistant in front pulls the scooter forward, each assistant (those lifting at the sides) will have to coordinate their lifting efforts by lifting on a predetermined count. (One, two, three, "lift" is suggested)

CAUTION! The two assistants lifting at the sides of the scooter must be sure they have the scooter balanced between them by test lifting the scooter. This is done by lifting the scooter TWO or THREE inches up and testing the balance. At the same time the person in front can check to be sure the scooter is level front to back.

5. When all three assistants are ready the scooter is lifted on a count of three, or the same count that was used during the test lift(s), and moved until it is clear of the vehicle and then lowered to the ground.

NOTE: If there are four assistants available place two on each side and proceed as described above.

During the time the passenger is being moved, provide reassurance that he or she will not be dropped.

E. Removing Standard Powered Wheelchairs
Removing standard electric wheelchairs in all circumstances will require the assistance of preferably two other persons if it must be lifted to remove it. Since many electric wheelchair users may have impairments which require high and/or reclining backs it will be difficult to work from behind the chair during lifting, especially if tilting is necessary. Ideally, for the sake of maximum safety, there should be one person on each side and one in the front to keep the wheelchair level. REMEMBER: An electric wheelchair is heavy by itself, ranging from approximately 95 pounds to 125 pounds or more plus the weight of the passenger.

Before attempting to lift a standard powered wheelchair make sure to find out whether or not the chair is equipped with removable armrests or legrests.

IMPORTANT: Be sure your assistants understand where to lift on the wheelchair.

To remove an electric wheelchair by lifting:
1. Engage the wheellocks and turn off the power switch.
2. If the lift is deployed be sure it is all the way to the ground.
3. Place a person on each side facing the wheelchair and have a third person in front facing the passenger.
4. The assistants on each side grasp the wheel in one hand and the forward part of the frame just behind the front wheels, while the assistant in front stabilizes the chair.
5. On the predetermined count, pull (drag) the wheelchair forward until clear of the vehicle.
6. Again on a predetermined count, lower the chair to the lift platform or ground as the case may be.

Since the mass of the chair has a lower center of gravity, it will be easier to balance.

As with other maneuvers, talk to the passenger, explain what you are doing and give reassurance that he or she will not be dropped.

IV. Resource Information
For those individuals interested in additional reading in the area of evacuation or emergency preparedness, the following may be available in your transit system's library, your local library or from your State Department of Transportation.

A. General Resources
Training Materials and Resources for Rural and Specialized Transit Systems, UMTA - RTAP National Program
Use the RTAP Hotline for assistance by calling 1-800-527-8279.


B. Emergency Preparedness
System Safety Glossary For Transit — Transportation Systems Center
Prepared for Urban Mass Transportation Administration
Office of Technical Assistance and Safety

Participant Guide - System Safety Planning Seminar
By United States Dept. of Transportation, Transportation Systems Center
Prepared for UMTA (Urban Mass Transportation Administration
Office of Technical Assistance and Safety

Recommended Emergency Preparedness Guidelines for Urban, Rural and Specialized Transit Systems — UMTA - MA 06-0196-91-1
Urban Mass Transportation Administration
Transportation Systems Center, Cambridge, MA

Rehabilitation Nursing Course Syllabus,
Good Samaritan Rehabilitation Center, Good Samaritan Community Health Care, Puyallup, WA., 1988


C. Evacuation and Rescue
Evacuation and Rescue of Elderly and Disabled Passengers From Paratransit Vans and Buses — UMTA-MA-060152-84-3
Urban Mass Transportation Administration
Transportation Systems Center.


D. Equipment and Supply Sources

Tie Tech, Inc., P.O. Box 5226, Lynnwood, WA 98046-5226
Evac-Aid, Safe-Cut, Transfer Belts, Body Loops, Track mounts for seats

Equipment and Supply Sources, Continued

Local Hospital/Sickroom Supply
Transfer Belts, Transfer/Sliding Boards, Blankets

Tent/Awning Supply
Cotton Duck, Seat Belt Webbing

Computer Software
Certificate Maker
Caddylak Systems, Inc.
131 Heartland Blvd.,
P.O. Box W
Brentwood, NJ 11717-0698

W.S. Darley & Co. (Emergency Service Supplier)
2000 Anson Drive
Melrose Park, IL 606160-1087
V Blade Rescue Knife, Blankets, Flash lights

L.N. Curtis & Sons (Emergency Service Supplier)
4133 Broadway
Oakland, CA 94611
Body Belts, Belt Cutters, Blankets, Flash Lights

Check with your local fire department for other suppliers and current prices.
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