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APPENDIX A

Applicable Regulatory Text

49 CFR Parts 37 and 38

PART 37—TRANSPORTATION SERVICES FOR INDIVIDUALS WITH DISABILITIES (ADA)

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Authority: Americans with Disabilities Act of 1990 (42 U.S.C. 12101–12213); 49 U.S.C. 322.

Subpart A—General

§ 37.1 Purpose.

The purpose of this part is to implement the transportation and related provisions of titles II and III of the Americans with Disabilities Act of 1990.

§ 37.3 Definitions.

As used in this part:

Accessible means, with respect to vehicles and facilities, complying with the accessibility requirements of parts 37 and 38 of this title.

The Act or ADA means the Americans with Disabilities Act of 1990 (Pub. L. 101–336, 104 Stat. 327, 42 U.S.C. 12101–12213 and 47 U.S.C. 225 and 611), as it may be amended from time to time.

Administrator means Administrator of the Urban Mass Transportation Administration, or his or her designee.

Alteration means a change to an existing facility, including, but not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, changes or rearrangement in structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, reroofing, painting or wallpapering, asbestos removal, or changes to mechanical or electrical systems are not alterations unless they affect the usability of the building or facility.

Automated guideway transit system or AGT means a fixed-guideway transit system which operates with automated (driverless) individual vehicles or multi-car trains. Service may be on a fixed schedule or in response to a passenger-activated call button.

Auxiliary aids and services includes:

- (1) Qualified interpreters, notetakers, transcription services, written materials, telephone headset amplifiers, assistive listening devices, assistive listening systems, telephones compatible with hearing aids, closed caption decoders, closed and open captioning, text telephones (also known as telephone devices for the deaf, or TDDs), videotext displays, or other effective methods of making aurally delivered materials

available to individuals with hearing impairments;

(2) Qualified readers, taped texts, audio recordings, Brailled materials, large print materials, or other effective methods of making visually delivered materials available to individuals with visual impairments;

(3) Acquisition or modification of equipment or devices; or

(4) Other similar services or actions.

Bus means any of several types of self-propelled vehicles, generally rubber-tired, intended for use on city streets, highways, and busways, including but not limited to minibuses, forty- and thirty-foot buses, articulated buses, double-deck buses, and electrically powered trolley buses, used by public entities to provide designated public transportation service and by private entities to provide transportation service including, but not limited to, specified public transportation services. Self-propelled, rubber-tired vehicles designed to look like antique or vintage trolleys are considered buses.

Commerce means travel, trade, transportation, or communication among the several states, between any foreign country or any territory or possession and any state, or between points in the same state but through another state or foreign country.

Commuter authority means any state, local, regional authority, corporation, or other entity established for purposes of providing commuter rail transportation (including, but not necessarily limited to, the New York Metropolitan Transportation Authority, the Connecticut Department of Transportation, the Maryland Department of Transportation, the Southeastern Pennsylvania Transportation Authority, the New Jersey Transit Corporation, the Massachusetts Bay Transportation Authority, the Port Authority Trans-Hudson Corporation, and any successor agencies) and any entity created by one or more such agencies for the purposes of operating, or contracting for the operation of, commuter rail transportation.

Commuter bus service means fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs. Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation.

Commuter rail car means a rail passenger car obtained by a commuter

authority for use in commuter rail transportation.

Commuter rail transportation means short-haul rail passenger service operating in metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fare, multiple ride, and commutation tickets and by morning and evening peak period operations. This term does not include light or rapid rail transportation.

Demand responsive system means any system of transporting individuals, including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including but not limited to specified public transportation service, which is not a fixed route system.

Designated public transportation means transportation provided by a public entity (other than public school transportation) by bus, rail, or other conveyance (other than transportation by aircraft or intercity or commuter rail transportation) that provides the general public with general or special service, including charter service, on a regular and containing basis.

Disability means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment.

(1) The phrase *physical or mental impairment* means—

(i) Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological, musculoskeletal, special sense organs, respiratory including speech organs, cardiovascular, reproductive, digestive, genito-urinary, hemic and lymphatic, skin, and endocrine;

(ii) Any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities;

(iii) The term *physical or mental impairment* includes, but is not limited to, such contagious or noncontagious diseases and conditions as orthopedic, visual, speech, and hearing impairments; cerebral palsy, epilepsy, muscular dystrophy, multiple sclerosis, cancer, heart disease, diabetes, mental retardation, emotional illness, specific learning disabilities, HIV disease, tuberculosis, drug addiction and alcoholism;

(iv) The phrase *physical or mental impairment* does not include homosexuality or bisexuality.

(2) The phrase *major life activities* means functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and work.

(3) The phrase *has a record of such an impairment* means has a history of, or has been misclassified as having, a mental or physical impairment that substantially limits one or more major life activities.

(4) The phrase *is regarded as having such an impairment* means—

(i) Has a physical or mental impairment that does not substantially limit major life activities, but which is treated by a public or private entity as constituting such a limitation;

(ii) Has a physical or mental impairment that substantially limits a major life activity only as a result of the attitudes of others toward such an impairment; or

(iii) Has none of the impairments defined in paragraph (1) of this definition but is treated by a public or private entity as having such an impairment.

(5) The term *disability* does not include—

(i) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments, or other sexual behavior disorders;

(ii) Compulsive gambling, kleptomania, or pyromania;

(iii) Psychoactive substance abuse disorders resulting from the current illegal use of drugs.

Facility means all or any portion of buildings, structures, sites, complexes, equipment, roads, walks, passageways, parking lots, or other real or personal property, including the site where the building, property, structure, or equipment is located.

Fixed route system means a system of transporting individuals (other than by aircraft), including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including, but not limited to, specified public transportation service, on which a vehicle is operated along a prescribed route according to a fixed schedule.

High speed rail means a rail service having the characteristics of intercity rail service which operates primarily on a dedicated guideway or track not used, for the most part, by freight, including, but not limited to, trains on welded rail, magnetically levitated (maglev) vehicles

on a special guideway, or other advanced technology vehicles, designed to travel at speeds in excess of those possible on other types of railroads.

Individual with a disability means a person who has a disability, but does not include an individual who is currently engaging in the illegal use of drugs, when a public or private entity acts on the basis of such use.

Intercity rail passenger car means a rail car, intended for use by revenue passengers, obtained by the National Railroad Passenger Corporation (Amtrak) for use in intercity rail transportation.

Intercity rail transportation means transportation provided by Amtrak.

Light rail means a streetcar-type vehicle operated on city streets, semi-exclusive rights of way, or exclusive rights of way. Service may be provided by step-entry vehicles or by level boarding.

New vehicle means a vehicle which is offered for sale or lease after manufacture without any prior use.

Operates includes, with respect to a fixed route or demand responsive system, the provision of transportation service by a public or private entity itself or by a person under a contractual or other arrangement or relationship with the entity.

Over-the-road bus means a bus characterized by an elevated passenger deck located over a baggage compartment.

Paratransit means comparable transportation service required by the ADA for individuals with disabilities who are unable to use fixed route transportation systems.

Private entity means any entity other than a public entity.

Public entity means:

(1) Any state or local government;
(2) Any department, agency, special purpose district, or other instrumentality of one or more state or local governments; and

(3) The National Railroad Passenger Corporation (Amtrak) and any commuter authority.

Purchase or lease, with respect to vehicles, means the time at which an entity is legally obligated to obtain the vehicles, such as the time of contract execution.

Public school transportation means transportation by schoolbus vehicles of schoolchildren, personnel, and equipment to and from a public elementary or secondary school and school-related activities.

Rapid rail means a subway-type transit vehicle railway operated on exclusive private rights of way with high level platform stations. Rapid rail also

may operate on elevated or at grade level track separated from other traffic.

Remanufactured vehicle means a vehicle which has been structurally restored and has had new or rebuilt major components installed to extend its service life.

Secretary means the Secretary of Transportation or his/her designee.

Section 504 means section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112, 87 Stat. 394, 29 U.S.C. 794), as amended.

Service animal means any guide dog, signal dog, or other animal individually trained to work or perform tasks for an individual with a disability, including, but not limited to, guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.

Solicitation means the closing date for the submission of bids or offers in a procurement.

Specified public transportation means transportation by bus, rail, or any other conveyance (other than aircraft) provided by a private entity to the general public, with general or special service (including charter service) on a regular and continuing basis.

Station means, with respect to intercity and commuter rail transportation, the portion of a property located appurtenant to a right of way on which intercity or commuter rail transportation is operated, where such portion is used by the general public and is related to the provision of such transportation, including passenger platforms, designated waiting areas, restrooms, and, where a public entity providing rail transportation owns the property, concession areas, to the extent that such public entity exercises control over the selection, design, construction, or alteration of the property, but this term does not include flag stops (i.e., stations which are not regularly scheduled stops but at which trains will stop to board or detrain passengers only on signal or advance notice).

Transit facility means, for purposes of determining the number of text telephones needed consistent with section 10.3.1(12) of appendix A to this part, a physical structure the primary function of which is to facilitate access to and from a transportation system which has scheduled stops at the structure. The term does not include an open structure or a physical structure the primary purpose of which is other than providing transportation services.

UMT Act means the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. App. 1601 *et seq.*).

Used vehicle means a vehicle with prior use.

Vanpool means a voluntary commuter ridesharing arrangement, using vans with a seating capacity greater than 7 persons (including the driver) or buses, which provides transportation to a group of individuals traveling directly from their homes to their regular places of work within the same geographical area, and in which the commuter/driver does not receive compensation beyond reimbursement for his or her costs of providing the service.

Vehicle, as the term is applied to private entities, does not include a rail passenger car, railroad locomotive, railroad freight car, or railroad caboose, or other rail rolling stock described in section 242 of title III of the Act.

Wheelchair means a mobility aid belonging to any class of three or four-wheeled devices, usable indoors, designed for and used by individuals with mobility impairments, whether operated manually or powered. A "common wheelchair" is such a device which does not exceed 30 inches in width and 48 inches in length measured two inches above the ground, and does not weigh more than 600 pounds when occupied.

§ 37.5 Nondiscrimination.

(a) No entity shall discriminate against an individual with a disability in connection with the provision of transportation service.

(b) Notwithstanding the provision of any special transportation service to individuals with disabilities, an entity shall not, on the basis of disability, deny to any individual with a disability the opportunity to use the entity's transportation service for the general public, if the individual is capable of using that service.

(c) An entity shall not require an individual with a disability to use designated priority seats, if the individual does not choose to use these seats.

(d) An entity shall not impose special charges, not authorized by this part, on individuals with disabilities, including individuals who use wheelchairs, for providing services required by this part or otherwise necessary to accommodate them.

(e) An entity shall not require that an individual with disabilities be accompanied by an attendant.

(f) Private entities that are primarily engaged in the business of transporting people and whose operations affect commerce shall not discriminate against any individual on the basis of disability in the full and equal enjoyment of

specified transportation services. This obligation includes, with respect to the provision of transportation services, compliance with the requirements of the rules of the Department of Justice concerning eligibility criteria, making reasonable modifications, providing auxiliary aids and services, and removing barriers (28 CFR 38.301—38.306).

(g) An entity shall not refuse to serve an individual with a disability or require anything contrary to this part because its insurance company conditions coverage or rates on the absence of individuals with disabilities or requirements contrary to this part.

(h) It is not discrimination under this part for an entity to refuse to provide service to an individual with disabilities because that individual engages in violent, seriously disruptive, or illegal conduct. However, an entity shall not refuse to provide service to an individual with disabilities solely because the individual's disability results in appearance or involuntary behavior that may offend, annoy, or inconvenience employees of the entity or other persons.

§ 37.7 Standards for accessible vehicles.

(a) For purposes of this part, a vehicle shall be considered to be readily accessible to and usable by individuals with disabilities if it meets the requirements of this part and the standards set forth in part 38 of this title.

(b) For purposes of implementing the equivalent facilitation provision in § 38.2 of this title, a determination of compliance will be made by the Administrator or the Federal Railroad Administrator, as applicable, on a case-by-case basis. An entity wishing to employ equivalent facilitation in relation to a specification of part 38 of this title shall submit such a request to UMTA or FRA, as applicable, and include the following information:

- (1) Entity name, address, contact person, and telephone;
- (2) Specific provision of part 38 of this title with which the entity is unable to comply;
- (3) Reasons for inability to comply;
- (4) Alternative method of compliance, with demonstration of how the alternative meets or exceeds the level of accessibility or usability of the vehicle provided in part 38 of this title; and
- (5) Public participation used in developing alternative method of compliance and input from that participation.

(c) Over-the-road buses acquired by public entities (or by a contractor to a public entity as provided in § 37.23 of

this part) shall comply with § 38.23 and subpart G of part 38 of this title.

§ 37.9 Standards for accessible transportation facilities.

(a) For purposes of this part, a transportation facility shall be considered to be readily accessible to and usable by individuals with disabilities if it meets the requirements of this part and the standards set forth in appendix A to this part.

(b) Facility alterations begun before January 26, 1992, in a good faith effort to make a facility accessible to individuals with disabilities may be used to meet the key station requirements set forth in §§ 37.47 and 37.51 of this part, even if these alterations are not consistent with the standards set forth in appendix A to this part, if the modifications complied with the Uniform Federal Accessibility Standard (UFAS) (41 CFR part 101-19, subpart 101-19.6) or ANSI A117.1(1980) (American National Standards Specification for Making Buildings and Facilities Accessible to and Usable by, the Physically Handicapped). This paragraph applies only to alterations of individual elements and spaces and only to the extent that provisions covering those elements or spaces are contained in UFAS or ANSI A117.1, as applicable.

(c) Public entities shall ensure the construction of new bus stop pads are in compliance with section 10.2.1.(1) of appendix A to this part, to the extent construction specifications are within their control.

(d) For purposes of implementing the equivalent facilitation provision in section 2.2 of appendix A to this part, a determination of compliance will be made by the Administrator or the Federal Railroad Administrator, as applicable, on a case-by-case basis. An entity wishing to employ equivalent facilitation in relation to a specification of appendix A to this part shall submit such a request to UMTA or FRA, as applicable, and include the following information:

- (1) Entity name, address, contact person and telephone;
- (2) Specific provision of appendix A with which the entity is unable to comply;
- (3) Reasons for inability to comply;
- (4) Alternative method of compliance, with demonstration of how the alternative meets or exceeds the level of accessibility or usability of the facility provided in appendix A; and
- (5) Public participation used in developing alternative method of compliance and input from that participation.

§ 37.11 Administrative enforcement.

(a) Recipients of Federal financial assistance from the Department of Transportation are subject to administrative enforcement of the requirements of this part under the provisions of 49 CFR part 27, subpart F.

(b) Public entities, whether or not they receive Federal financial assistance, also are subject to enforcement action as provided by the Department of Justice.

(c) Private entities, whether or not they receive Federal financial assistance, are also subject to enforcement action as provided in the regulations of the Department of Justice implementing title III of the ADA (28 CFR part 36).

§ 37.13 Effective date for certain vehicle lift specifications.

The vehicle lift specifications identified in §§ 38.23(b)(6), 38.83(b)(6), 38.95(b)(6), and 38.125(b) of this title apply to solicitations for vehicles under this part after January 25, 1992.

§§ 37.15-37.19 (Reserved)

Subpart B—Applicability

§ 37.21 Applicability: General.

(a) This part applies to the following entities, whether or not they receive Federal financial assistance from the Department of Transportation:

(1) Any public entity that provides designated public transportation or intercity or commuter rail transportation;

(2) Any private entity that provides specified public transportation; and

(3) Any private entity that is not primarily engaged in the business of transporting people but operates a demand responsive or fixed route system.

(b) For entities receiving Federal financial assistance from the Department of Transportation, compliance with applicable requirements of this part is a condition of compliance with section 504 of the Rehabilitation Act of 1973 and of receiving financial assistance.

(c) Entities to which this part applies also may be subject to ADA regulations of the Department of Justice (28 CFR parts 35 or 36, as applicable). The provisions of this part shall be interpreted in a manner that will make them consistent with applicable Department of Justice regulations. In any case of apparent inconsistency, the provisions of this part shall prevail.

§ 37.23 Service under contract.

(a) When a public entity enters into a contractual or other arrangement or relationship with a private entity to operate fixed route or demand responsive service, the public entity shall ensure that the private entity meets the requirements of this part that would apply to the public entity if the public entity itself provided the service.

(b) A private entity which purchases or leases new, used, or remanufactured vehicles, or remanufactures vehicles, for use, or in contemplation of use, in fixed route or demand responsive service under contract or other arrangement or relationship with a public entity, shall acquire accessible vehicles in all situations in which the public entity itself would be required to do so by this part.

(c) A public entity which enters into a contractual or other arrangement or relationship with a private entity to provide fixed route service shall ensure that the percentage of accessible vehicles operated by the public entity in its overall fixed route or demand responsive fleet is not diminished as a result.

(d) A private entity that provides fixed route or demand responsive transportation service under contract or other arrangement with another private entity shall be governed, for purposes of the transportation service involved, by the provisions of this part applicable to the other entity.

§ 37.25 University transportation systems.

(a) Transportation services operated by private institutions of higher education are subject to the provisions of this part governing private entities not primarily engaged in the business of transporting people.

(b) Transportation systems operated by public institutions of higher education are subject to the provisions of this part governing public entities. If a public institution of higher education operates a fixed route system, the requirements of this part governing commuter bus service apply to that system.

§ 37.27 Transportation for elementary and secondary education systems.

(a) The requirements of this part do not apply to public school transportation.

(b) The requirements of this part do not apply to the transportation of school children to and from a private elementary or secondary school, and its school-related activities, if the school is a recipient of Federal financial assistance, subject to the provisions of section 504 of the Rehabilitation Act of

1973, and is providing transportation service to students with disabilities equivalent to that provided to students without disabilities. The test of equivalence is the same as that provided in § 37.105. If the school does not meet the criteria of this paragraph for exemption from the requirements of this part, it is subject to the requirements of this part for private entities not primarily engaged in transporting people.

§ 37.29 Private entities providing taxi service.

(a) Providers of taxi service are subject to the requirements of this part for private entities primarily engaged in the business of transporting people which provide demand responsive service.

(b) Providers of taxi service are not required to purchase or lease accessible automobiles. When a provider of taxi service purchases or leases a vehicle other than an automobile, the vehicle is required to be accessible unless the provider demonstrates equivalency as provided in § 37.105 of this part. A provider of taxi service is not required to purchase vehicles other than automobiles in order to have a number of accessible vehicles in its fleet.

(c) Private entities providing taxi service shall not discriminate against individuals with disabilities by actions including, but not limited to, refusing to provide service to individuals with disabilities who can use taxi vehicles, refusing to assist with the stowing of mobility devices, and charging higher fares or fees for carrying individuals with disabilities and their equipment than are charged to other persons.

§ 37.31 Vanpools.

Vanpool systems which are operated by public entities, or in which public entities own or purchase or lease the vehicles, are subject to the requirements of this part for demand responsive service for the general public operated by public entities. A vanpool system in this category is deemed to be providing equivalent service to individuals with disabilities if a vehicle that an individual with disabilities can use is made available to and used by a vanpool in which such an individual chooses to participate.

§ 37.33 Airport transportation systems.

(a) Transportation systems operated by public airport operators, which provide designated public transportation and connect parking lots and terminals or provide transportation among terminals, are subject to the requirements of this part for fixed route

or demand responsive systems, as applicable, operated by public entities. Public airports which operate fixed route transportation systems are subject to the requirements of this part for commuter bus service operated by public entities. The provision by an airport of additional accommodations (e.g., parking spaces in a close-in lot) is not a substitute for meeting the requirements of this part.

(b) Fixed-route transportation systems operated by public airport operators between the airport and a limited number of destinations in the area it serves are subject to the provisions of this part for commuter bus systems operated by public entities.

(c) Private jitney or shuttle services that provide transportation between an airport and destinations in the area it serves in a route-deviation or other variable mode are subject to the requirements of this part for private entities primarily engaged in the business of transporting people which provide demand responsive service. They may meet equivalency requirements by such means as sharing or pooling accessible vehicles among operators, in a way that ensures the provision of equivalent service.

§ 37.35 Supplemental service for other transportation modes.

(a) Transportation service provided by bus or other vehicle by an intercity commuter or rail operator, as an extension of or supplement to its rail service, and which connects an intercity rail station and limited other points, is subject to the requirements of this part for fixed route commuter bus service operated by a public entity.

(b) Dedicated bus service to commuter rail systems, with through ticketing arrangements and which is available only to users of the commuter rail system, is subject to the requirements of this part for fixed route commuter bus service operated by a public entity.

§ 37.37 Other applications.

(a) A private entity does not become subject to the requirements of this part for public entities, because it receives an operating subsidy from, is regulated by, or is granted a franchise or permit to operate by a public entity.

(b) Shuttle systems and other transportation services operated by privately-owned hotels, car rental agencies, historical or theme parks, and other public accommodations are subject to the requirements of this part for private entities not primarily engaged in the business of transporting people. Either the requirements for

demand responsive or fixed route service may apply, depending upon the characteristics of each individual system of transportation.

(c) Conveyances used by members of the public primarily for recreational purposes rather than for transportation (e.g., amusement park rides, ski lifts, or historic rail cars or trolleys operated in museum settings) are not subject to the requirements of this part. Such conveyances are subject to Department of Justice regulations implementing title II or title III of the ADA (28 CFR part 35 or 36), as applicable.

(d) Transportation services provided by an employer solely for its own employees are not subject to the requirements of this part. Such services are subject to the regulations of the Equal Employment Opportunity Commission under title I of the ADA (29 CFR part 1630) and, with respect to public entities, the regulations of the Department of Justice under title II of the ADA (28 CFR part 35).

(e) Transportation systems operated by private clubs or establishments exempted from coverage under title II of the Civil Rights Act of 1964 (42 U.S.C. 2000a(e)) or religious organizations or entities controlled by religious organizations are not subject to the requirements of this part.

(f) If a parent private company is not primarily engaged in the business of transporting people, or is not a place of public accommodation, but a subsidiary company or an operationally distinct segment of the company is primarily engaged in the business of transporting people, the transportation service provided by the subsidiary or segment is subject to the requirements of this part for private entities primarily engaged in the business of transporting people.

(g) High-speed rail systems operated by public entities are subject to the requirements of this part governing intercity rail systems.

(h) Private rail systems providing fixed route or specified public transportation service are subject to the requirements of § 37.107 with respect to the acquisition of rail passenger cars. Such systems are subject to the requirements of the regulations of the Department of Justice implementing title III of the ADA (28 CFR part 36) with respect to stations and other facilities.

§ 37.39 [Reserved]

Subpart C—Transportation Facilities

§ 37.41 Construction of transportation facilities by public entities.

A public entity shall construct any new facility to be used in providing designated public transportation

services so that the facility is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. This requirement also applies to the construction of a new station for use in intercity or commuter rail transportation. For purposes of this section, a facility or station is "new" if its construction begins (i.e., issuance of notice to proceed) after January 25, 1992, or, in the case of intercity or commuter rail stations, after October 7, 1991.

§ 37.43 Alteration of transportation facilities by public entities.

(a) (1) When a public entity alters an existing facility or a part of an existing facility used in providing designated public transportation services in a way that affects or could affect the usability of the facility or part of the facility, the entity shall make the alterations (or ensure that the alterations are made) in such a manner, to the maximum extent feasible, that the altered portions of the facility are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon the completion of such alterations.

(2) When a public entity undertakes an alteration that affects or could affect the usability of or access to an area of a facility containing a primary function, the entity shall make the alteration in such a manner that, to the maximum extent feasible, the path of travel to the altered area and the bathrooms, telephones, and drinking fountains serving the altered area are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon completion of the alterations. *Provided*, that alterations to the path of travel, drinking fountains, telephones and bathrooms are not required to be made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, if the cost and scope of doing so would be disproportionate.

(3) The requirements of this paragraph also apply to the alteration of existing intercity or commuter rail stations by the responsible person for, owner of, or person in control of the station.

(4) The requirements of this section apply to any alteration which begins (i.e., issuance of notice to proceed or work order, as applicable) after January 25, 1992, or, in the case of intercity and commuter rail stations, after October 7, 1991.

(b) As used in this section, the phrase *to the maximum extent feasible* applies to the occasional case where the nature of an existing facility makes it impossible to comply fully with

applicable accessibility standards through a planned alteration. In these circumstances, the entity shall provide the maximum physical accessibility feasible. Any altered features of the facility or portion of the facility that can be made accessible shall be made accessible. If providing accessibility to certain individuals with disabilities (e.g., those who use wheelchairs) would not be feasible, the facility shall be made accessible to individuals with other types of disabilities (e.g., those who use crutches, those who have impaired vision or hearing, or those who have other impairments).

(c) As used in this section, a *primary function* is a major activity for which the facility is intended. Areas of transportation facilities that involve primary functions include, but are not necessarily limited to, ticket purchase and collection areas, passenger waiting areas, train or bus platforms, baggage checking and return areas and employment areas (except those involving non-occupiable spaces accessed only by ladders, catwalks, crawl spaces, very narrow passageways, or freight (non-passenger) elevators which are frequented only by repair personnel).

(d) As used in this section, a "path of travel" includes a continuous, unobstructed way of pedestrian passage by means of which the altered area may be approached, entered, and exited, and which connects the altered area with an exterior approach (including sidewalks, parking areas, and streets), an entrance to the facility, and other parts of the facility. The term also includes the restrooms, telephones, and drinking fountains serving the altered area. An accessible path of travel may include walks and sidewalks, curb ramps and other interior or exterior pedestrian ramps, clear floor paths through corridors, waiting areas, concourses, and other improved areas, parking access aisles, elevators and lifts, bridges, tunnels, or other passageways between platforms, or a combination of these and other elements.

(e) (1) Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20 percent of the cost of the alteration to the primary function area (without regard to the costs of accessibility modifications).

(2) Costs that may be counted as expenditures required to provide an accessible path of travel include:

(i) Costs associated with providing an accessible entrance and an accessible

route to the altered area (e.g., widening doorways and installing ramps);

(ii) Costs associated with making restrooms accessible (e.g., grab bars, enlarged toilet stalls, accessible faucet controls);

(iii) Costs associated with providing accessible telephones (e.g., relocation of phones to an accessible height, installation of amplification devices or TDDs);

(iv) Costs associated with relocating an inaccessible drinking fountain

(f) (1) When the cost of alterations necessary to make a path of travel to the altered area fully accessible is disproportionate to the cost of the overall alteration, then such areas shall be made accessible to the maximum extent without resulting in disproportionate costs;

(2) In this situation, the public entity should give priority to accessible elements that will provide the greatest access, in the following order:

(i) An accessible entrance;

(ii) An accessible route to the altered area;

(iii) At least one accessible restroom for each sex or a single unisex restroom (where there are one or more restrooms);

(iv) Accessible telephones;

(v) Accessible drinking fountains;

(vi) When possible, other accessible elements (e.g., parking, storage, alarms).

(g) If a public entity performs a series of small alterations to the area served by a single path of travel rather than making the alterations as part of a single undertaking, it shall nonetheless be responsible for providing an accessible path of travel.

(h)(1) If an area containing a primary function has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area, or a different area on the same path of travel, are undertaken within three years of the original alteration, the total cost of alteration to the primary function areas on that path of travel during the preceding three year period shall be considered in determining whether the cost of making that path of travel is disproportionate;

(2) For the first three years after January 26, 1992, only alterations undertaken between that date and the date of the alteration at issue shall be considered in determining if the cost of providing accessible features is disproportionate to the overall cost of the alteration.

(3) Only alterations undertaken after January 26, 1992, shall be considered in determining if the cost of providing an accessible path of travel is

disproportionate to the overall cost of the alteration.

§ 37.45 Construction and alteration of transportation facilities by private entities.

In constructing and altering transit facilities, private entities shall comply with the regulations of the Department of Justice implementing Title III of the ADA (28 CFR part 36).

§ 37.47 Key stations in light and rapid rail systems.

(a) Each public entity that provides designated public transportation by means of a light or rapid rail system shall make key stations on its system readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. This requirement is separate from and in addition to requirements set forth in § 37.43 of this part.

(b) Each public entity shall determine which stations on its system are key stations. The entity shall identify key stations, using the planning and public participation process set forth in paragraph (d) of this section, and taking into consideration the following criteria:

(1) Stations where passenger boardings exceed average station passenger boardings on the rail system by at least fifteen percent, unless such a station is close to another accessible station;

(2) Transfer stations on a rail line or between rail lines;

(3) Major interchange points with other transportation modes, including stations connecting with major parking facilities, bus terminals, intercity or commuter rail stations, passenger vessel terminals, or airports;

(4) End stations, unless an end station is close to another accessible station; and

(5) Stations serving major activity centers, such as employment or government centers, institutions of higher education, hospitals or other major health care facilities, or other facilities that are major trip generators for individuals with disabilities.

(c)(1) Unless the entity receives an extension under paragraph (c)(2) of this section, the public entity shall achieve accessibility of key stations as soon as practicable, but in no case later than July 26, 1993.

(2) The UMTA Administrator may grant an extension of this completion date for key station accessibility for a period up to July 26, 2020, provided that two-thirds of key stations are made accessible by July 26, 2010. Extensions may be granted as provided in paragraph (e) of this section.

(d) The public entity shall develop a plan for compliance for this section. The plan shall be submitted to the appropriate UMTA regional office by July 26, 1992. (See appendix B to this part for list.)

(1) The public entity shall consult with individuals with disabilities affected by the plan. The public entity also shall hold at least one public hearing on the plan and solicit comments on it. The plan submitted to UMTA shall document this public participation, including summaries of the consultation with individuals with disabilities and the comments received at the hearing and during the comment period. The plan also shall summarize the public entity's responses to the comments and consultation.

(2) The plan shall establish milestones for the achievement of required accessibility of key stations, consistent with the requirements of this section.

(e) A public entity wishing to apply for an extension of the July 26, 1993, deadline for key station accessibility shall include a request for an extension with its plan submitted to UMTA under paragraph (d) of this section. Extensions may be granted only with respect to key stations which need extraordinarily expensive structural changes to, or replacement of, existing facilities (e.g., installations of elevators, raising the entire passenger platform, or alterations of similar magnitude and cost). Requests for extensions shall provide for completion of key station accessibility within the time limits set forth in paragraph (c) of this section. The UMTA Administrator may approve, approve with conditions, modify, or disapprove any request for an extension.

§ 37.49 Designation of responsible person(s) for intercity and commuter rail stations.

(a) The responsible person(s) designated in accordance with this section shall bear the legal and financial responsibility for making a key station accessible in the same proportion as determined under this section.

(b) In the case of a station more than fifty percent of which is owned by a public entity, the public entity is the responsible party.

(c) In the case of a station more than fifty percent of which is owned by a private entity the persons providing commuter or intercity rail service to the station are the responsible parties, in a proportion equal to the percentage of all passenger boardings at the station attributable to the service of each, over the entire period during which the station is made accessible.

(d) In the case of a station of which no entity owns more than fifty percent, the owners of the station (other than private entity owners) and persons providing intercity or commuter rail service to the station are the responsible persons.

(1) Half the responsibility for the station shall be assumed by the owner(s) of the station. The owners shall share this responsibility in proportion to their ownership interest in the station, over the period during which the station is made accessible.

(2) The person(s) providing commuter or intercity rail service to the station shall assume the other half of the responsibility. These persons shall share this responsibility. These persons shall share this responsibility for the station in a proportion equal to the percentage of all passenger boardings at the station attributable to the service of each, over the period during which the station is made accessible.

(e) Persons who must share responsibility for station accessibility under paragraphs (c) and (d) of this section may, by agreement, allocate their responsibility in a manner different from that provided in this section.

§ 37.51 Key stations in commuter rail systems.

(a) The responsible person(s) shall make key stations on its system readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. This requirement is separate from and in addition to requirements set forth in § 37.43 of this part.

(b) Each commuter authority shall determine which stations on its system are key stations. The commuter authority shall identify key stations, using the planning and public participation process set forth in paragraph (d) of this section, and taking into consideration the following criteria:

(1) Stations where passenger boardings exceed average station passenger boardings on the rail system by at least fifteen percent, unless such a station is close to another accessible station;

(2) Transfer stations on a rail line or between rail lines;

(3) Major interchange points with other transportation modes, including stations connecting with major parking facilities, bus terminals, intercity or commuter rail stations, passenger vessel terminals, or airports;

(4) End stations, unless an end station is close to another accessible station; and

(5) Stations serving major activity centers, such as employment or government centers, institutions of

higher education, hospitals or other major health care facilities, or other facilities that are major trip generators for individuals with disabilities.

(c)(1) Except as provided in this paragraph, the responsible person(s) shall achieve accessibility of key stations as soon as practicable, but in no case later than July 26, 1993.

(2) The UMTA Administrator may grant an extension of this deadline for key station accessibility for a period up to July 26, 2010. Extensions may be granted as provided in paragraph (e) of this section.

(d) The commuter authority and responsible person(s) for stations involved shall develop a plan for compliance for this section. This plan shall be completed and submitted to UMTA by July 26, 1992.

(1) The commuter authority and responsible person(s) shall consult with individuals with disabilities affected by the plan. The commuter authority and responsible person(s) also shall hold at least one public hearing on the plan and solicit comments on it. The plan shall document this public participation, including summaries of the consultation with individuals with disabilities and the comments received at the hearing and during the comment period. The plan also shall summarize the responsible person(s) responses to the comments and consultation.

(2) The plan shall establish milestones for the achievement of required accessibility of key stations, consistent with the requirements of this section.

(3) The commuter authority and responsible person(s) of each key station identified in the plan shall, by mutual agreement, designate a project manager for the purpose of undertaking the work of making the key station accessible.

(e) Any commuter authority and/or responsible person(s) wishing to apply for an extension of the July 26, 1993, deadline for key station accessibility shall include a request for extension with its plan submitted to under paragraph (d) of this section. Extensions may be granted only in a case where raising the entire passenger platform is the only means available of attaining accessibility or where other extraordinarily expensive structural changes (e.g., installations of elevators, or alterations of magnitude and cost similar to installing an elevator or raising the entire passenger platform) are necessary to attain accessibility. Requests for extensions shall provide for completion of key station accessibility within the time limits set forth in paragraph (c) of this section. The UMTA Administrator may approve,

approve with conditions, modify, or disapprove any request for an extension.

§ 37.53 Exception for New York and Philadelphia.

(a) The following agreements entered into in New York, New York, and Philadelphia, Pennsylvania, contain lists of key stations for the public entities that are a party to those agreements for those service lines identified in the agreements. The identification of key stations under these agreements is deemed to be in compliance with the requirements of this Subpart.

(1) Settlement Agreement by and among Eastern Paralyzed Veterans Association, Inc., James J. Peters, Terrance Moakley, and Denise Figueroa, individually and as representatives of the class of all persons similarly situated (collectively, "the EPVA class representatives"); and Metropolitan Transportation Authority, New York City Transit Authority, and Manhattan and Bronx Surface Transit Operating Authority (October 4, 1984).

(2) Settlement Agreement by and between Eastern Paralyzed Veterans Association of Pennsylvania, Inc., and James J. Peters, individually; and Dudley R. Sykes, as Commissioner of the Philadelphia Department of Public Property, and his successors in office and the City of Philadelphia (collectively "the City") and Southeastern Pennsylvania Transportation Authority (June 28, 1989).

(b) To comply with §§ 37.47 (b) and (d) or 37.51 (b) and (d) of this part, the entities named in the agreements are required to use their public participation and planning processes only to develop and submit to the UMTA Administrator plans for timely completion of key station accessibility, as provided in this subpart.

(c) In making accessible the key stations identified under the agreements cited in this section, the entities named in the agreements are subject to the requirements of § 37.9 of this part.

§ 37.55 Intercity rail station accessibility.

All intercity rail stations shall be made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as soon as practicable, but in no event later than July 26, 2010. This requirement is separate from and in addition to requirements set forth in § 37.43 of this part.

§ 37.57 Required cooperation.

An owner or person in control of an intercity or commuter rail station shall provide reasonable cooperation to the

responsible person(s) for that station with respect to the efforts of the responsible person to comply with the requirements of this subpart.

§ 37.59 Differences in accessibility completion dates.

Where different completion dates for accessible stations are established under this part for a station or portions of a station (e.g., extensions of different periods of time for a station which serves both rapid and commuter rail systems), accessibility to the following elements of the station shall be achieved by the earlier of the completion dates involved:

- (a) Common elements of the station;
- (b) Portions of the facility directly serving the rail system with the earlier completion date; and
- (c) An accessible path from common elements of the station to portions of the facility directly serving the rail system with the earlier completion date.

§ 37.61 Public transportation programs and activities in existing facilities.

(a) A public entity shall operate a designated public transportation program or activity conducted in an existing facility so that, when viewed in its entirety, the program or activity is readily accessible to and usable by individuals with disabilities.

(b) This section does not require a public entity to make structural changes to existing facilities in order to make the facilities accessible by individuals who use wheelchairs, unless and to the extent required by § 37.43 (with respect to alterations) or §§ 37.47 or 37.51 of this part (with respect to key stations). Entities shall comply with other applicable accessibility requirements for such facilities.

(c) Public entities, with respect to facilities that, as provided in paragraph (b) of this section, are not required to be made accessible to individuals who use wheelchairs, are not required to provide to such individuals services made available to the general public at such facilities when the individuals could not utilize or benefit from the services.

§§ 37.63-37.69 [Reserved]

Subpart D—Acquisition of Accessible Vehicles By Public Entities

§ 37.71 Purchase or lease of new non-rail vehicles by public entities operating fixed route systems.

(a) Except as provided elsewhere in this section, each public entity operating a fixed route system making a solicitation after August 25, 1990, to purchase or lease a new bus or other new vehicle for use on the system, shall

ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) A public entity may purchase or lease a new bus that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, if it applies for, and the UMTA Administrator grants, a waiver as provided for in this section.

(c) Before submitting a request for such a waiver, the public entity shall hold at least one public hearing concerning the proposed request.

(d) The UMTA Administrator may grant a request for such a waiver if the public entity demonstrates to the UMTA Administrator's satisfaction that—

(1) The initial solicitation for new buses made by the public entity specified that all new buses were to be lift-equipped and were to be otherwise accessible to and usable by individuals with disabilities;

(2) Hydraulic, electromechanical, or other lifts for such new buses could not be provided by any qualified lift manufacturer to the manufacturer of such new buses in sufficient time to comply with the solicitation; and

(3) Any further delay in purchasing new buses equipped with such necessary lifts would significantly impair transportation services in the community served by the public entity.

(e) The public entity shall include with its waiver request a copy of the initial solicitation and written documentation from the bus manufacturer of its good faith efforts to obtain lifts in time to comply with the solicitation, and a full justification for the assertion that the delay in bus procurement needed to obtain a lift-equipped bus would significantly impair transportation services in the community. This documentation shall include a specific date at which the lifts could be supplied, copies of advertisements in trade publications and inquiries to trade associations seeking lifts, and documentation of the public hearing.

(f) Any waiver granted by the UMTA Administrator under this section shall be subject to the following conditions:

(1) The waiver shall apply only to the particular bus delivery to which the waiver request pertains;

(2) The waiver shall include a termination date, which will be based on information concerning when lifts will become available for installation on the new buses the public entity is purchasing. Buses delivered after this date, even though procured under a solicitation to which a waiver applied, shall be equipped with lifts;

(3) Any bus obtained subject to the waiver shall be capable of accepting a lift, and the public entity shall install a lift as soon as one becomes available;

(4) Such other terms and conditions as the UMTA Administrator may impose.

(g)(1) When the UMTA Administrator grants a waiver under this section, he/she shall promptly notify the appropriate committees of Congress.

(2) If the UMTA Administrator has reasonable cause to believe that a public entity fraudulently applied for a waiver under this section, the UMTA Administrator shall:

(i) Cancel the waiver if it is still in effect; and

(ii) Take other appropriate action.

§ 37.73 Purchase or lease of used non-rail vehicles by public entities operating fixed route systems.

(a) Except as provided elsewhere in this section, each public entity operating a fixed route system purchasing or leasing, after August 25, 1990, a used bus or other used vehicle for use on the system, shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) A public entity may purchase or lease a used vehicle for use on its fixed route system that is not readily accessible to and usable by individuals with disabilities if, after making demonstrated good faith efforts to obtain an accessible vehicle, it is unable to do so.

(c) Good faith efforts shall include at least the following steps:

(1) An initial solicitation for used vehicles specifying that all used vehicles are to be lift-equipped and otherwise accessible to and usable by individuals with disabilities, or, if an initial solicitation is not used, a documented communication so stating;

(2) A nationwide search for accessible vehicles, involving specific inquiries to used vehicle dealers and other transit providers; and

(3) Advertising in trade publications and contacting trade associations.

(d) Each public entity purchasing or leasing used vehicles that are not readily accessible to and usable by individuals with disabilities shall retain documentation of the specific good faith efforts it made for three years from the date the vehicles were purchased. These records shall be made available, on request, to the UMTA Administrator and the public.

§ 37.75 Remanufacture of non-rail vehicles and purchase or lease of remanufactured non-rail vehicles by public entities operating fixed route systems.

(a) This section applies to any public entity operating a fixed route system which takes one of the following actions:

(1) After August 25, 1990, remanufactures a bus or other vehicle so as to extend its useful life for five years or more or makes a solicitation for such remanufacturing; or

(2) Purchases or leases a bus or other vehicle which has been remanufactured so as to extend its useful life for five years or more, where the purchase or lease occurs after August 25, 1990, and during the period in which the useful life of the vehicle is extended.

(b) Vehicles acquired through the actions listed in paragraph (a) of this section shall, to the maximum extent feasible, be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) For purposes of this section, it shall be considered feasible to remanufacture a bus or other motor vehicle so as to be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless an engineering analysis demonstrates that including accessibility features required by this part would have a significant adverse effect on the structural integrity of the vehicle.

(d) If a public entity operates a fixed route system, any segment of which is included on the National Register of Historic Places, and if making a vehicle of historic character used solely on such segment readily accessible to and usable by individuals with disabilities would significantly alter the historic character of such vehicle, the public entity has only to make (or purchase or lease a remanufactured vehicle with) those modifications to make the vehicle accessible which do not alter the historic character of such vehicle, in consultation with the National Register of Historic Places.

(e) A public entity operating a fixed route system as described in paragraph (d) of this section may apply in writing to the UMTA Administrator for a determination of the historic character of the vehicle. The UMTA Administrator shall refer such requests to the National Register of Historic Places, and shall rely on its advice in making determinations of the historic character of the vehicle.

§ 37.77 Purchase or lease of new non-rail vehicles by public entities operating a demand responsive system for the general public.

(a) Except as provided in this section, a public entity operating a demand responsive system for the general public making a solicitation after August 25, 1990, to purchase or lease a new bus or other new vehicle for use on the system, shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) If the system, when viewed in its entirety, provides a level of service to individuals with disabilities, including individuals who use wheelchairs, equivalent to the level of service it provides to individuals without disabilities, it may purchase new vehicles that are not readily accessible to and usable by individuals with disabilities.

(c) For purposes of this section, a demand responsive system, when viewed in its entirety, shall be deemed to provide equivalent service if the service available to individuals with disabilities, including individuals who use wheelchairs, is provided in the most integrated setting appropriate to the needs of the individual and is equivalent to the service provided other individuals with respect to the following service characteristics:

- (1) Response time;
- (2) Fares;
- (3) Geographic area of service;
- (4) Hours and days of service;
- (5) Restrictions or priorities based on trip purpose;
- (6) Availability of information and reservations capability; and
- (7) Any constraints on capacity or service availability.

(d) A public entity receiving UMTA funds under section 18 or a public entity in a small urbanized area which receives UMTA funds under Section 9 from a state administering agency rather than directly from UMTA, which determines that its service to individuals with disabilities is equivalent to that provided other persons shall, before any procurement of an inaccessible vehicle, file with the appropriate state program office a certificate that it provides equivalent service meeting the standards of paragraph (c) of this section. Public entities operating demand responsive service receiving funds under any other section of the UMT Act shall file the certificate with the appropriate UMTA regional office. A public entity which does not receive UMTA funds shall make such a certificate and retain it in its files, subject to inspection on request of

UMTA. All certificates under this paragraph may be made and filed in connection with a particular procurement or in advance of a procurement; however, no certificate shall be valid for more than one year. A copy of the required certificate is found in appendix C to this part.

(e) The waiver mechanism set forth in § 37.71(b)-(g) (unavailability of lifts) of this subpart shall also be available to public entities operating a demand responsive system for the general public.

§ 37.79 Purchase or lease of new rail vehicles by public entities operating rapid or light rail systems.

Each public entity operating a rapid or light rail system making a solicitation after August 25, 1990, to purchase or lease a new rapid or light rail vehicle for use on the system shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

§ 37.81 Purchase or lease of used rail vehicles by public entities operating rapid or light rail systems.

(a) Except as provided elsewhere in this section, each public entity operating a rapid or light rail system which, after August 25, 1990, purchases or leases a used rapid or light rail vehicle for use on the system shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) A public entity may purchase or lease a used rapid or light rail vehicle for use on its rapid or light rail system that is not readily accessible to and usable by individuals if, after making demonstrated good faith efforts to obtain an accessible vehicle, it is unable to do so.

(c) Good faith efforts shall include at least the following steps:

(1) The initial solicitation for used vehicles made by the public entity specifying that all used vehicles were to be accessible to and usable by individuals with disabilities, or, if a solicitation is not used, a documented communication so stating;

(2) A nationwide search for accessible vehicles, involving specific inquiries to manufacturers and other transit providers; and

(3) Advertising in trade publications and contacting trade associations.

(d) Each public entity purchasing or leasing used rapid or light rail vehicles that are not readily accessible to and usable by individuals with disabilities shall retain documentation of the specific good faith efforts it made for three years from the date the vehicles

were purchased. These records shall be made available, on request, to the UMTA Administrator and the public.

§ 37.83 Remanufacture of rail vehicles and purchase or lease of remanufactured rail vehicles by public entities operating rapid or light rail systems.

(a) This section applies to any public entity operating a rapid or light rail system which takes one of the following actions:

(1) After August 25, 1990, remanufactures a light or rapid rail vehicle so as to extend its useful life for five years or more or makes a solicitation for such remanufacturing;

(2) Purchases or leases a light or rapid rail vehicle which has been remanufactured so as to extend its useful life for five years or more, where the purchase or lease occurs after August 25, 1990, and during the period in which the useful life of the vehicle is extended.

(b) Vehicles acquired through the actions listed in paragraph (a) of this section shall, to the maximum extent feasible, be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) For purposes of this section, it shall be considered feasible to remanufacture a rapid or light rail vehicle so as to be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless an engineering analysis demonstrates that doing so would have a significant adverse effect on the structural integrity of the vehicle.

(d) If a public entity operates a rapid or light rail system any segment of which is included on the National Register of Historic Places and if making a rapid or light rail vehicle of historic character used solely on such segment readily accessible to and usable by individuals with disabilities would significantly alter the historic character of such vehicle, the public entity need only make (or purchase or lease a remanufactured vehicle with) those modifications that do not alter the historic character of such vehicle.

(e) A public entity operating a fixed route system as described in paragraph (d) of this section may apply in writing to the UMTA Administrator for a determination of the historic character of the vehicle. The UMTA Administrator shall refer such requests to the National Register of Historic Places and shall rely on its advice in making a determination of the historic character of the vehicle.

§ 37.85 Purchase or lease of new intercity and commuter rail cars.

Amtrak or a commuter authority making a solicitation after August 25, 1990, to purchase or lease a new intercity or commuter rail car for use on the system shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

§ 37.87 Purchase or lease of used intercity and commuter rail cars.

(a) Except as provided elsewhere in this section, Amtrak or a commuter authority purchasing or leasing a used intercity or commuter rail car after August 25, 1990, shall ensure that the car is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) Amtrak or a commuter authority may purchase or lease a used intercity or commuter rail car that is not readily accessible to and usable by individuals if, after making demonstrated good faith efforts to obtain an accessible vehicle, it is unable to do so.

(c) Good faith efforts shall include at least the following steps:

(1) An initial solicitation for used vehicles specifying that all used vehicles accessible to and usable by individuals with disabilities;

(2) A nationwide search for accessible vehicles, involving specific inquiries to used vehicle dealers and other transit providers; and

(3) Advertising in trade publications and contacting trade associations.

(d) Amtrak and commuter authorities purchasing or leasing used intercity or commuter rail cars that are not readily accessible to and usable by individuals with disabilities shall retain documentation of the specific good faith efforts that were made for three years from the date the cars were purchased. These records shall be made available, to request, to the Federal Railroad Administration or UMTA Administrator, as applicable. These records shall be made available to the public, on request.

§ 37.89 Remanufacture of intercity and commuter rail cars and purchase or lease of remanufactured intercity and commuter rail cars.

(a) This section applies to Amtrak or a commuter authority which takes one of the following actions:

(1) Remanufactures an intercity or commuter rail car so as to extend its useful life for ten years or more;

(2) Purchases or leases an intercity or commuter rail car which has been remanufactured so as to extend its useful life for ten years or more.

(b) Intercity and commuter rail cars listed in paragraph (a) of this section shall, to the maximum extent feasible, be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) For purposes of this section, it shall be considered feasible to remanufacture an intercity or commuter rail car so as to be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless an engineering analysis demonstrates that remanufacturing the car to be accessible would have a significant adverse effect on the structural integrity of the car.

§ 37.91 Wheelchair locations and food service on intercity rail trains.

(a) As soon as practicable, but in no event later than July 26, 1995, each person providing intercity rail service shall provide on each train a number of spaces—

(1) To park wheelchairs (to accommodate individuals who wish to remain in their wheelchairs) equal to not less than one half of the number of single level rail passenger coaches in the train; and

(2) To fold and store wheelchairs (to accommodate individuals who wish to transfer to coach seats) equal to not less than one half the number of single level rail passenger coaches in the train.

(b) As soon as practicable, but in no event later than July 26, 2000, each person providing intercity rail service shall provide on each train a number of spaces—

(1) To park wheelchairs (to accommodate individuals who wish to remain in their wheelchairs) equal to not less than the total number of single level rail passenger coaches in the train; and

(2) To fold and store wheelchairs (to accommodate individuals who wish to transfer to coach seats) equal to not less than the total number of single level rail passenger coaches in the train.

(c) In complying with paragraphs (a) and (b) of this section, a person providing intercity rail service may not provide more than two spaces to park wheelchairs nor more than two spaces to fold and store wheelchairs in any one coach or food service car.

(d) Unless not practicable, a person providing intercity rail transportation shall place an accessible car adjacent to the end of a single level dining car through which an individual who uses a wheelchair may enter.

(e) On any train in which either a single level or bi-level dining car is used to provide food service, a person providing intercity rail service shall

provide appropriate aids and services to ensure that equivalent food service is available to individuals with disabilities, including individuals who use wheelchairs, and to passengers traveling with such individuals. Appropriate auxiliary aids and services include providing a hard surface on which to eat.

(f) This section does not require the provision of securement devices on intercity rail cars.

§ 37.93 One car per train rule.

(a) The definition of accessible for purposes of meeting the one car per train rule is spelled out in the applicable subpart for each transportation system type in part 38 of this title.

(b) Each person providing intercity rail service and each commuter rail authority shall ensure that, as soon as practicable, but in no event later than July 26, 1995, that each train has one car that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) Each public entity providing light or rapid rail service shall ensure that each train, consisting of two or more vehicles, includes at least one car that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as soon as practicable but in no case later than July 25, 1995.

§ 37.95 Ferries and other passenger vessels operated by public entities.
[Reserved]

§§ 37.97-37.99 [Reserved]

Subpart E—Acquisition of Accessible Vehicles By Private Entities

§ 37.101 Purchase or lease of vehicles by private entities not primarily engaged in the business of transporting people.

(a) *Application.* This section applies to all purchases or leases of vehicles by private entities which are not primarily engaged in the business of transporting people, in which a solicitation for the vehicle is made after August 25, 1990.

(b) *Fixed Route System. Vehicle Capacity Over 16.* If the entity operates a fixed route system and purchases or leases a vehicle with a seating capacity of over 16 passengers (including the driver) for use on the system, it shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) *Fixed Route System. Vehicle Capacity of 16 or Fewer.* If the entity operates a fixed route system and purchases or leases a vehicle with a

seating capacity of 16 or fewer passengers (including the driver) for use on the system, it shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the system, when viewed in its entirety, meets the standard for equivalent service of § 37.105 of this part.

(d) *Demand Responsive System, Vehicle Capacity Over 16.* If the entity operates a demand responsive system, and purchases or leases a vehicle with a seating capacity of over 16 passengers (including the driver) for use on the system, it shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the system, when viewed in its entirety, meets the standard for equivalent service of § 37.105 of this part.

§ 37.103 Purchase or lease of new non-rail vehicles by private entities primarily engaged in the business of transporting people.

(a) *Application.* This section applies to all acquisitions of new vehicles by private entities which are primarily engaged in the business of transporting people and whose operations affect commerce, in which a solicitation for the vehicle is made (except as provided in paragraph (d) of this section) after August 25, 1990.

(b) *Fixed Route Systems.* If the entity operates a fixed route system, and purchases or leases a new vehicle other than an automobile, a van with a seating capacity of less than eight persons (including the driver), or an over-the-road bus, it shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) *Demand Responsive Systems.* If the entity operates a demand responsive system, and purchases or leases a new vehicle other than an automobile, a van with a seating capacity of less than eight persons (including the driver), or an over-the-road bus, it shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the system, when viewed in its entirety, meets the standard for equivalent service of § 37.105 of this part.

(d) *Vans with a Capacity of Fewer than 8 Persons.* If the entity operates either a fixed route or demand responsive system, and purchases or leases a new van with a seating capacity of fewer than eight persons including the driver (the solicitation for the vehicle being made after February

25, 1992), the entity shall ensure that the vehicle is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the system, when viewed in its entirety, meets the standard for equivalent service of § 37.105 of this part.

§ 37.105 Equivalent service standard.

For purposes of §§ 37.101 and 37.103 of this part, a fixed route system or demand responsive system, when viewed in its entirety, shall be deemed to provide equivalent service if the service available to individuals with disabilities, including individuals who use wheelchairs, is provided in the most integrated setting appropriate to the needs of the individual and is equivalent to the service provided other individuals with respect to the following service characteristics:

(a) (1) Schedules/headways (if the system is fixed route);

(2) Response time (if the system is demand responsive);

(b) Fares;

(c) Geographic area of service;

(d) Hours and days of service;

(e) Availability of information;

(f) Reservations capability (if the system is demand responsive);

(g) Any constraints on capacity or service availability;

(h) Restrictions priorities based on trip purpose (if the system is demand responsive).

§ 37.107 Acquisition of passenger rail cars by private entities primarily engaged in the business of transporting people.

(a) A private entity which is primarily engaged in the business of transporting people and whose operations affect commerce, which makes a solicitation after February 25, 1992, to purchase or lease a new rail passenger car to be used in providing specified public transportation, shall ensure that the car is readily accessible to, and usable by, individuals with disabilities, including individuals who use wheelchairs. The accessibility standards in part 38 of this title which apply depend upon the type of service in which the car will be used.

(b) Except as provided in paragraph (c) of this section, a private entity which is primarily engaged in transporting people and whose operations affect commerce, which remanufactures a rail passenger car to be used in providing specified public transportation to extend its useful life for ten years or more, or purchases or leases such a remanufactured rail car, shall ensure that the rail car, to the maximum extent feasible, is made readily accessible to

and usable by individuals with disabilities, including individuals who use wheelchairs. For purposes of this paragraph, it shall be considered feasible to remanufacture a rail passenger car to be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless an engineering analysis demonstrates that doing so would have a significant adverse effect on the structural integrity of the car.

(c) Compliance with paragraph (b) of this section is not required to the extent that it would significantly alter the historic or antiquated character of a historic or antiquated rail passenger car, or a rail station served exclusively by such cars, or would result in the violation of any rule, regulation, standard or order issued by the Secretary under the Federal Railroad Safety Act of 1970. For purposes of this section, a historic or antiquated rail passenger car means a rail passenger car—

(1) Which is not less than 30 years old at the time of its use for transporting individuals;

(2) The manufacturer of which is no longer in the business of manufacturing rail passenger cars; and

(3) Which—

(i) Has a consequential association with events or persons significant to the past; or

(ii) Embodies, or is being restored to embody, the distinctive characteristics of a type of rail passenger car used in the past, or to represent a time period which has passed.

§ 37.109 Ferries and other passenger vessels operated by private entities. [Reserved]

§ 37.111–37.119 [Reserved]

Subpart F—Paratransit as a Complement to Fixed Route Service

§ 37.121 Requirement for comparable complementary paratransit service.

(a) Except as provided in paragraph (c) of this section, each public entity operating a fixed route system shall provide paratransit or other special service to individuals with disabilities that is comparable to the level of service provided to individuals without disabilities who use the fixed route system.

(b) To be deemed comparable to fixed route service, a complementary paratransit system shall meet the requirements of §§ 37.123–37.133 of this subpart. The requirement to comply with § 37.131 may be modified in accordance with the provisions of this subpart relating to undue financial burden.

(c) Requirements for complementary paratransit do not apply to commuter bus, commuter rail, or intercity rail systems.

§ 37.123 ADA paratransit eligibility: Standards.

(a) Public entities required by § 37.121 of this subpart to provide complementary paratransit service shall provide the service to the ADA paratransit eligible individuals described in paragraph (e) of this section.

(b) If an individual meets the eligibility criteria of this section with respect to some trips but not others, the individual shall be ADA paratransit eligible only for those trips for which he or she meets the criteria.

(c) Individuals may be ADA paratransit eligible on the basis of a permanent or temporary disability.

(d) Public entities may provide complementary paratransit service to persons other than ADA paratransit eligible individuals. However, only the cost of service to ADA paratransit eligible individuals may be considered in a public entity's request for an undue financial burden waiver under §§ 37.151–37.155 of this part.

(e) The following individuals are ADA paratransit eligible:

(1) Any individual with a disability who is unable, as the result of a physical or mental impairment (including a vision impairment), and without the assistance of another individual (except the operator of a wheelchair lift or other boarding assistance device), to board, ride, or disembark from any vehicle on the system which is readily accessible to and usable by individuals with disabilities.

(2) Any individual with a disability who needs the assistance of a wheelchair lift or other boarding assistance device and is able, with such assistance, to board, ride and disembark from any vehicle which is readily accessible to and usable by individuals with disabilities if the individual wants to travel on a route on the system during the hours of operation of the system at a time, or within a reasonable period of such time, when such a vehicle is not being used to provide designated public transportation on the route.

(i) An individual is eligible under this paragraph with respect to travel on an otherwise accessible route on which the boarding or disembarking location which the individual would use is one at which boarding or disembarking from the vehicle is precluded as provided in § 37.167(g) of this part.

(ii) An individual using a common wheelchair is eligible under this

paragraph if the individual's wheelchair cannot be accommodated on an existing vehicle (e.g., because the vehicle's lift does not meet the standards of part 38 of this title), even if that vehicle is accessible to other individuals with disabilities and their mobility wheelchairs.

(iii) With respect to rail systems, an individual is eligible under this paragraph if the individual could use an accessible rail system, but—

(A) there is not yet one accessible car per train on the system; or

(B) key stations have not yet been made accessible.

(3) Any individual with a disability who has a specific impairment-related condition which prevents such individual from traveling to a boarding location or from a disembarking location on such system.

(i) Only a specific impairment-related condition which prevents the individual from traveling to a boarding location or from a disembarking location is a basis for eligibility under this paragraph. A condition which makes traveling to boarding location or from a disembarking location more difficult for a person with a specific impairment-related condition than for an individual who does not have the condition, but does not prevent the travel, is not a basis for eligibility under this paragraph.

(ii) Architectural barriers not under the control of the public entity providing fixed route service and environmental barriers (e.g., distance, terrain, weather) do not, standing alone, form a basis for eligibility under this paragraph. The interaction of such barriers with an individual's specific impairment-related condition may form a basis for eligibility under this paragraph, if the effect is to prevent the individual from traveling to a boarding location or from a disembarking location.

(f) Individuals accompanying an ADA paratransit eligible individual shall be provided service as follows:

(1) One other individual accompanying the ADA paratransit eligible individual shall be provided service—

(i) If the ADA paratransit eligible individual is traveling with a personal care attendant, the entity shall provide service to one other individual in addition to the attendant who is accompanying the eligible individual;

(ii) A family member or friend is regarded as a person accompanying the eligible individual, and not as a personal care attendant, unless the family member or friend registered is acting in the capacity of a personal care attendant;

(2) Additional individuals accompanying the ADA paratransit eligible individual shall be provided service, provided that space is available for them on the paratransit vehicle carrying the ADA paratransit eligible individual and that transportation of the additional individuals will not result in a denial of service to ADA paratransit eligible individuals;

(3) In order to be considered as "accompanying" the eligible individual for purposes of this paragraph (f), the other individual(s) shall have the same origin and destination as the eligible individual.

§ 37.125 ADA paratransit eligibility: Process.

Each public entity required to provide complementary paratransit service by § 37.121 of this part shall establish a process for determining ADA paratransit eligibility.

(a) The process shall strictly limit ADA paratransit eligibility to individuals specified in § 37.123 of this part.

(b) All information about the process, materials necessary to apply for eligibility, and notices and determinations concerning eligibility shall be made available in accessible formats, upon request.

(c) If, by a date 21 days following the submission of a complete application, the entity has not made a determination of eligibility, the applicant shall be treated as eligible and provided service until and unless the entity denies the application.

(d) The entity's determination concerning eligibility shall be in writing. If the determination is that the individual is ineligible, the determination shall state the reasons for the finding.

(e) The public entity shall provide documentation to each eligible individual stating that he or she is "ADA Paratransit Eligible." The documentation shall include the name of the eligible individual, the name of the transit provider, the telephone number of the entity's paratransit coordinator, an expiration date for eligibility, and any conditions or limitations on the individual's eligibility including the use of a personal care attendant.

(f) The entity may require recertification of the eligibility of ADA paratransit eligible individuals at reasonable intervals.

(g) The entity shall establish an administrative appeal process through which individuals who are denied eligibility can obtain review of the denial.

(1) The entity may require that an appeal be filed within 60 days of the denial of an individual's application.

(2) The process shall include an opportunity to be heard and to present information and arguments, separation of functions (i.e., a decision by a person not involved with the initial decision to deny eligibility), and written notification of the decision, and the reasons for it.

(3) The entity is not required to provide paratransit service to the individual pending the determination on appeal. However, if the entity has not made a decision within 30 days of the completion of the appeal process, the entity shall provide paratransit service from that time until and unless a decision to deny the appeal is issued.

(h) The entity may establish an administrative process to suspend, for a reasonable period of time, the provision of complementary paratransit service to ADA eligible individuals who establish a pattern or practice of missing scheduled trips.

(1) Trips missed by the individual for reasons beyond his or her control (including, but not limited to, trips which are missed due to operator error) shall not be a basis for determining that such a pattern or practice exists.

(2) Before suspending service, the entity shall take the following steps:

(i) Notify the individual in writing that the entity proposes to suspend service, citing with specificity the basis of the proposed suspension and setting forth the proposed sanction.

(ii) Provide the individual an opportunity to be heard and to present information and arguments;

(iii) Provide the individual with written notification of the decision and the reasons for it.

(3) The appeals process of paragraph (g) of this section is available to an individual on whom sanctions have been imposed under this paragraph. The sanction is stayed pending the outcome of the appeal.

(i) In applications for ADA paratransit eligibility, the entity may require the applicant to indicate whether or not he or she travels with a personal care attendant.

§ 37.127 Complementary paratransit service for visitors.

(a) Each public entity required to provide complementary paratransit service under § 37.121 of this part shall make the service available to visitors as provided in this section.

(b) For purposes of this section, a visitor is an individual with disabilities who does not reside in the jurisdiction(s) served by the public entity or other entities with which the

public entity provides coordinated complementary paratransit service within a region.

(c) Each public entity shall treat as eligible for its complementary paratransit service all visitors who present documentation that they are ADA paratransit eligible, under the criteria of § 37.125 of this part, in the jurisdiction in which they reside.

(d) With respect to visitors with disabilities who do not present such documentation, the public entity may require the documentation of the individual's place of residence and, if the individual's disability is not apparent, of his or her disability. The entity shall provide paratransit service to individuals with disabilities who qualify as visitors under paragraph (b) of this section. The entity shall accept a certification by such individuals that they are unable to use fixed route transit.

(e) A public entity is not required to provide service to a visitor for more than 21 days from the date of the first paratransit trip used by the visitor. The entity may require that such an individual, in order to receive service beyond this period, apply for eligibility under the process provided for in § 37.125 of this part.

§ 37.129 Types of service.

(a) Except as provided in this section, complementary paratransit service for ADA paratransit eligible persons shall be origin-to-destination service.

(b) Complementary paratransit service for ADA paratransit eligible persons described in § 37.123(e)(2) of this part may also be provided by on-call bus service or paratransit feeder service to an accessible fixed route, where such service enables the individual to use the fixed route bus system for his or her trip.

(c) Complementary paratransit service for ADA eligible persons described in § 37.123(e)(3) of this part also may be provided by paratransit feeder service to and/or from an accessible fixed route.

§ 37.131 Service criteria for complementary paratransit.

The following service criteria apply to complementary paratransit required by § 37.121 of this part.

(a) *Service Area*—(1) *Bus*. (i) The entity shall provide complementary paratransit service to origins and destinations within corridors with a width of three-fourths of a mile on each side of each fixed route. The corridor shall include an area with a three-

fourths of a mile radius at the ends of each fixed route.

(ii) Within the core service area, the entity also shall provide service to small areas not inside any of the corridors but which are surrounded by corridors.

(iii) Outside the core service area, the entity may designate corridors with widths from three fourths of a mile up to one and one half miles on each side of a fixed route, based on local circumstances.

(iv) For purposes of this paragraph, the core service area is that area in which corridors with a width of three-fourths of a mile on each side of each fixed route merge together such that, with few and small exceptions, all origins and destinations within the area would be served.

(2) *Rail.* (i) For rail systems, the service area shall consist of a circle with a radius of $\frac{1}{4}$ of a mile around each station.

(ii) At end stations and other stations in outlying areas, the entity may designate circles with radii of up to $1\frac{1}{4}$ miles as part of its service area, based on local circumstances.

(3) *Jurisdictional Boundaries.* Notwithstanding any other provision of this paragraph, an entity is not required to provide paratransit service in an area outside the boundaries of the jurisdiction(s) in which it operates, if the entity does not have legal authority to operate in that area. The entity shall take all practicable steps to provide paratransit service to any part of its service area.

(b) *Response Time.* The entity shall schedule and provide paratransit service to any ADA paratransit eligible person at any requested time on a particular day in response to a request for service made the previous day. Reservations may be taken by reservation agents or by mechanical means.

(1) The entity shall make reservation service available during at least all normal business hours of the entity's administrative offices, as well as during times, comparable to normal business hours, on a day when the entity's offices are not open before a service day.

(2) The entity may negotiate pickup times with the individual, but the entity shall not require an ADA paratransit eligible individual to schedule a trip to begin more than one hour before or after the individual's desired departure time.

(3) The entity may use real-time scheduling in providing complementary paratransit service.

(4) The entity shall permit advance reservations to be made up to 14 days in advance of an ADA paratransit eligible individual's desired trip.

(c) *Fares.* The fare for a trip charged to an ADA paratransit eligible user of the complementary paratransit service shall not exceed twice the fare that would be charged to an individual paying full fare (i.e., without regard to discounts) for a trip of similar length, at a similar time of day, on the entity's fixed route system.

(1) In calculating the full fare that would be paid by an individual using the fixed route system, the entity may include transfer and premium charges applicable to a trip of similar length, at a similar time of day, on the fixed route system.

(2) The fares for individuals accompanying ADA paratransit eligible individuals, who are provided service under § 37.123 (f) of this part, shall be the same as for the ADA paratransit eligible individuals they are accompanying.

(3) A personal care attendant shall not be charged for complementary paratransit service.

(4) The entity may charge a fare higher than otherwise permitted by this paragraph to a social service agency or other organization for agency trips (i.e., trips guaranteed to the organization).

(d) *Trip Purpose Restrictions.* The entity shall not impose restrictions or priorities based on trip purpose.

(e) *Hours and Days of Service.* The complementary paratransit service shall be available throughout the same hours and days as the entity's fixed route service.

(f) *Capacity Constraints.* The entity shall not limit the availability of complementary paratransit service to ADA paratransit eligible individuals by any of the following:

(1) Restrictions on the number of trips an individual will be provided;

(2) Waiting lists for access to the service; or

(3) Any operational pattern or practice that significantly limits the availability of service to ADA paratransit eligible persons.

(i) Such patterns or practices include, but are not limited to, the following:

(A) Substantial numbers of significantly untimely pickups for initial or return trips;

(B) Substantial numbers of trip denials or missed trips;

(C) Substantial numbers of trips with excessive trip lengths.

(ii) Operational problems attributable to causes beyond the control of the entity (including, but not limited to, weather or traffic conditions affecting all vehicular traffic that were not anticipated at the time a trip was scheduled) shall not be a basis for

determining that such a pattern or practice exists.

(g) *Additional Service.* Public entities may provide complementary paratransit service to ADA paratransit eligible individuals exceeding that provided for in this section. However, only the cost of service provided for in this section may be considered in a public entity's request for an undue financial burden waiver under §§ 37.151–37.155 of this part.

§ 37.133 Subscription service.

(a) This part does not prohibit the use of subscription service by public entities as part of a complementary paratransit system, subject to the limitations in this section.

(b) Subscription service may not absorb more than fifty percent of the number of trips available at a given time of day, unless there is non-subscription capacity.

(c) Notwithstanding any other provision of this part, the entity may establish waiting lists or other capacity constraints and trip purpose restrictions or priorities for participation in the subscription service only.

§ 37.135 Submission of paratransit plan.

(a) *General.* Each public entity operating fixed route transportation service, which is required by § 37.121 to provide complementary paratransit service, shall develop a paratransit plan.

(b) *Initial Submission.* Except as provided in § 37.141 of this part, each entity shall submit its initial plan for compliance with the complementary paratransit service provision by January 26, 1992, to the appropriate location identified in paragraph (f) of this section.

(c) *Annual Updates.* Each entity shall submit an annual update to the plan on January 26 of each succeeding year.

(d) *Phase-in of Implementation.* Each plan shall provide full compliance by no later than January 26, 1997, unless the entity has received a waiver based on undue financial burden. If the date for full compliance specified in the plan is after January 26, 1993, the plan shall include milestones, providing for measured, proportional progress toward full compliance.

(e) *Plan Implementation.* Each entity shall begin implementation of its plan on January 26, 1992.

(f) *Submission Locations.* An entity shall submit its plan to one of the following offices, as appropriate:

(1) The individual state administering agency, if it is—

(i) A section 18 recipient;

(ii) A small urbanized area recipient of section 9 funds administered by the State;

(iii) A participant in a coordinated plan, in which all of the participating entities are eligible to submit their plans to the State; or

(2) The UMTA Regional Office (as listed in Appendix B to this part) for all other entities required to submit a paratransit plan. This includes an UMTA recipient under section 9 of the UMT Act; entities submitting a joint plan (unless they meet the requirements of paragraph (f)(1)(iii) of this section), and a public entity not an UMT Act recipient.

§ 37.137 Paratransit plan development.

(a) *Survey of existing services.* Each submitting entity shall survey the area to be covered by the plan to identify any person or entity (public or private) which provides a paratransit or other special transportation service for ADA paratransit eligible individuals in the service area to which the plan applies.

(b) *Public participation.* Each submitting entity shall ensure public participation in the development of its paratransit plan, including at least the following:

(1) *Outreach.* Each submitting entity shall solicit participation in the development of its plan by the widest range of persons anticipated to use its paratransit service. Each entity shall develop contacts, mailing lists and other appropriate means for notification of opportunities to participate in the development of the paratransit plan;

(2) *Consultation with individuals with disabilities.* Each entity shall contact individuals with disabilities and groups representing them in the community. Consultation shall begin at an early stage in the plan development and should involve persons with disabilities in all phases of plan development. All documents and other information concerning the planning procedure and the provision of service shall be available, upon request, to members of the public, except where disclosure would be an unwarranted invasion of personal privacy;

(3) *Opportunity for public comment.* The submitting entity shall make its plan available for review before the plan is finalized. In making the plan available for public review, the entity shall ensure that the plan is available upon request in accessible formats;

(4) *Public hearing.* The entity shall sponsor at a minimum one public hearing and shall provide adequate notice of the hearing, including advertisement in appropriate media, such as newspapers of general and

special interest circulation and radio announcements; and

(5) *Special requirements.* If the entity intends to phase-in its paratransit service over a multi-year period, or request a waiver based on undue financial burden, the public hearing shall afford the opportunity for interested citizens to express their views concerning the phase-in, the request, and which service criteria may be delayed in implementation.

(c) *Ongoing requirement.* The entity shall create an ongoing mechanism for the participation of individuals with disabilities in the continued development and assessment of services to persons with disabilities. This includes, but is not limited to, the development of the initial plan, any request for an undue financial burden waiver, and each annual submission.

§ 37.139 Plan contents.

Each plan shall contain the following information:

(a) Identification of the entity or entities submitting the plan, specifying for each—

(1) Name and address; and
(2) Contact person for the plan, with telephone number and facsimile telephone number (FAX), if applicable.

(b) A description of the fixed route system as of January 26, 1992 (or subsequent year for annual updates), including—

(1) A description of the service area, route structure, days and hours of service, fare structure, and population served. This includes maps and tables, if appropriate;

(2) The total number of vehicles (bus, van, or rail) operated in fixed route service (including contracted service), and percentage of accessible vehicles and percentage of routes accessible to and usable by persons with disabilities, including persons who use wheelchairs;

(3) Any other information about the fixed route service that is relevant to establishing the basis for comparability of fixed route and paratransit service.

(c) A description of existing paratransit services, including:

(1) An inventory of service provided by the public entity submitting the plan;

(2) An inventory of service provided by other agencies or organizations, which may in whole or in part be used to meet the requirement for complementary paratransit service; and

(3) A description of the available paratransit services in paragraphs (c)(2) and (c)(3) of this section as they relate to the service criteria described in § 37.131 of this part of service area, response time, fares, restrictions on trip purpose, hours and days of service, and

capacity constraints; and to the requirements of ADA paratransit eligibility.

(d) A description of the plan to provide comparable paratransit, including:

(1) An estimate of demand for comparable paratransit service by ADA eligible individuals and a brief description of the demand estimation methodology used;

(2) An analysis of differences between the paratransit service currently provided and what is required under this part by the entity(ies) submitting the plan and other entities, as described in paragraph (c) of this section;

(3) A brief description of planned modifications to existing paratransit and fixed route service and the new paratransit service planned to comply with the ADA paratransit service criteria;

(4) A description of the planned comparable paratransit service as it relates to each of the service criteria described in § 37.131 of this part—service area, absence of restrictions or priorities based on trip purpose, response time, fares, hours and days of service, and lack of capacity constraints. If the paratransit plan is to be phased in, this paragraph shall be coordinated with the information being provided in paragraphs (d)(5) and (d)(6) of this paragraph;

(5) A timetable for implementing comparable paratransit service, with a specific date indicating when the planned service will be completely operational. In no case may full implementation be completed later than January 26, 1997. The plan shall include milestones for implementing phases of the plan, with progress that can be objectively measured yearly;

(6) A budget for comparable paratransit service, including capital and operating expenditures over five years.

(e) A description of the process used to certify individuals with disabilities as ADA paratransit eligible. At a minimum, this must include—

(1) A description of the application and certification process, including—

(i) The availability of information about the process and application materials inaccessible formats;

(ii) The process for determining eligibility according to the provisions of §§ 37.123–37.125 of this part and notifying individuals of the determination made;

(iii) The entity's system and timetable for processing applications and allowing presumptive eligibility; and

(iv) The documentation given to eligible individuals.

(2) A description of the administrative appeals process for individuals denied eligibility.

(3) A policy for visitors, consistent with § 37.127 of this part.

(f) Description of the public participation process including—

(1) Notice given of opportunity for public comment, the date(s) of completed public hearing(s), availability of the plan in accessible formats, outreach efforts, and consultation with persons with disabilities.

(2) A summary of significant issues raised during the public comment period, along with a response to significant comments and discussion of how the issues were resolved.

(g) Efforts to coordinate service with other entities subject to the complementary paratransit requirements of this part which have overlapping or contiguous service areas or jurisdictions.

(h) The following endorsements or certifications:

(1) A resolution adopted by the board of the entity authorizing the plan, as submitted. If more than one entity is submitting the plan there must be an authorizing resolution from each board. If the entity does not function with a board, a statement shall be submitted by the entity's chief executive;

(2) In urbanized areas, certification by the Metropolitan Planning Organization (MPO) that it has reviewed the plan and that the plan is in conformance with the transportation plan developed under the Urban Mass Transportation/Federal Highway Administration joint planning regulation (49 CFR part 613 and 23 CFR part 450). In a service area which is covered by more than one MPO, each applicable MPO shall certify conformity of the entity's plan. The provisions of this paragraph do not apply to non-UMTA recipients;

(3) A certification that the survey of existing paratransit service was conducted as required in § 37.137(a) of this part;

(4) To the extent service provided by other entities is included in the entity's plan for comparable paratransit service, the entity must certify that:

(i) ADA paratransit eligible individuals have access to the service;

(ii) The service is provided in the manner represented; and

(iii) Efforts will be made to coordinate the provision of paratransit service by other providers.

(i) A request for a waiver based on undue financial burden, if applicable. The waiver request should include information sufficient for UMTA to

consider the factors in § 37.155 of this part. If a request for an undue financial burden waiver is made, the plan must include a description of additional paratransit services that would be provided to achieve full compliance with the requirement for comparable paratransit in the event the waiver is not granted, and the timetable for the implementation of these additional services.

(j) *Annual plan updates.* (1) The annual plan updates submitted January 26, 1993, and annually thereafter, shall include information necessary to update the information requirements of this section. Information submitted annually must include all significant changes and revisions to the timetable for implementation;

(2) If the paratransit service is being phased in over more than one year, the entity must demonstrate that the milestones identified in the current paratransit plans have been achieved. If the milestones have not been achieved, the plan must explain any slippage and what actions are being taken to compensate for the slippage.

(3) The annual plan must describe specifically the means used to comply with the public participation requirements, as described in § 37.137 of this part.

§ 37.141 Requirements for a joint paratransit plan.

(a) Two or more entities with overlapping or contiguous service areas or jurisdictions may develop and submit a joint plan providing for coordinated paratransit service. Joint plans shall identify the participating entities and indicate their commitment to participate in the plan.

(b) To the maximum extent feasible, all elements of the coordinated plan shall be submitted on January 26, 1992. If a coordinated plan is not completed by January 26, 1992, those entities intending to coordinate paratransit service must submit a general statement declaring their intention to provide coordinated service and each element of the plan specified in § 37.139 to the extent practicable. In addition, the plan must include the following certifications from each entity involved in the coordination effort:

(1) A certification that the entity is committed to providing ADA paratransit service as part of a coordinated plan.

(2) A certification from each public entity participating in the plan that it will maintain current levels of paratransit service until the coordinated plan goes into effect.

(c) Entities submitting the above certifications and plan elements in lieu

of a completed plan on January 26, 1992, must submit a complete plan by July 26, 1992.

(d) Filing of an individual plan does not preclude an entity from cooperating with other entities in the development or implementation of a joint plan. An entity wishing to join with other entities after its initial submission may do so by meeting the filing requirements of this section.

§ 37.143 Paratransit plan implementation.

(a) Each entity shall begin implementation of its complementary paratransit plan, pending notice from UMTA. The implementation of the plan shall be consistent with the terms of the plan, including any specified phase-in period.

(b) If the plan contains a request for a waiver based on undue financial burden, the entity shall begin implementation of its plan, pending a determination on its waiver request.

§ 37.145 State comment on plans.

Each state required to receive plans under § 37.135 of this part shall:

(a) Ensure that all applicable section 18 and section 9 recipients have submitted plans.

(b) Certify to UMTA that all plans have been received.

(c) Forward the required certification with comments on each plan to UMTA. The plans, with comments, shall be submitted to UMTA no later than April 1, 1992, for the first year and April 1 annually thereafter.

(d) The State shall develop comments to on each plan, responding to the following points:

(1) Was the plan filed on time?

(2) Does the plan appear reasonable?

(3) Are there circumstances that bear on the ability of the grantee to carry out the plan as represented? If yes, please elaborate.

(4) Is the plan consistent with statewide planning activities?

(5) Are the necessary anticipated financial and capital resources identified in the plan accurately estimated?

§ 37.147 Considerations during UMTA review.

In reviewing each plan, at a minimum UMTA will consider the following:

(a) Whether the plan was filed on time;

(b) Comments submitted by the state, if applicable;

(c) Whether the plan contains responsive elements for each component required under § 37.139 of this part;

(d) Whether the plan, when viewed in its entirety, provides for paratransit service comparable to the entity's fixed route service;

(e) Whether the entity complied with the public participation efforts required by this part; and

(f) The extent to which efforts were made to coordinate with other public entities with overlapping or contiguous service areas or jurisdictions.

§ 37.149 Disapproved plans.

(a) If a plan is disapproved in whole or in part, UMTA will specify which provisions are disapproved. Each entity shall amend its plan consistent with this information and resubmit the plan to the appropriate UMTA Regional Office within 90 days of receipt of the disapproval letter.

(b) Each entity revising its plan shall continue to comply with the public participation requirements applicable to the initial development of the plan (set out in § 37.137 of this part).

§ 37.151 Waiver from undue financial burden.

If compliance with the service criteria of § 37.131 of this part creates an undue financial burden, an entity may request a waiver from all or some of the provisions if the entity has complied with the public participation requirements in § 37.137 of this Part and if the following conditions apply:

(a) At the time of submission of the initial plan on January 28, 1992—

(1) The entity determines that it cannot meet all of the service criteria by January 28, 1997; or

(2) The entity determines that it cannot make measured progress toward compliance in any year before full compliance is required. For purposes of this part, measured progress means implementing milestones as scheduled, such as incorporating an additional paratransit service criterion or improving an aspect of a specific service criterion.

(b) At the time of its annual plan update submission, if the entity believes that circumstances have changed since its last submission, and it is no longer able to comply by January 28, 1997, or make measured progress in any year before 1997, as described in paragraph (a)(2) of this section.

§ 37.153 UMTA waiver determination.

(a) The Administrator will determine whether to grant a waiver for undue financial burden on a case-by-case basis, after considering the factors identified in § 37.155 of this part and the information accompanying the request. If necessary, the Administrator will

return the application with a request for additional information.

(b) Any waiver granted will be for a limited and specified period of time.

(c) If the Administrator grants the applicant a waiver, the Administrator will do one of the following:

(1) Require the public entity to provide complementary paratransit to the extent it can do so without incurring an undue financial burden. The entity shall make changes in its plan that the Administrator determines are appropriate to maximize the complementary paratransit service that is provided to ADA paratransit eligible individuals. When making changes to its plan, the entity shall use the public participation process specified for plan development and shall consider first a reduction in number of trips provided to each ADA paratransit eligible person per month, while attempting to meet all other service criteria.

(2) Require the public entity to provide basic complementary paratransit services to all ADA paratransit eligible individuals, even if doing so would cause the public entity to incur an undue financial burden. Basic complementary paratransit service in corridors defined as provided in § 37.131(a) along the public entity's key routes during core service hours.

(i) For purposes of this section, key routes are defined as routes along which there is service at least hourly throughout the day.

(ii) For purposes of this section, core service hours encompass at least peak periods, as these periods are defined locally for fixed route service, consistent with industry practice.

(3) If the Administrator determines that the public entity will incur an undue financial burden as the result of providing basic complementary paratransit service, such that it is infeasible for the entity to provide basic complementary paratransit service, the Administrator shall require the public entity to coordinate with other available providers of demand responsive service in the area served by the public entity to maximize the service to ADA paratransit eligible individuals to the maximum extent feasible.

§ 37.155 Factors in decision to grant an undue financial burden waiver.

(a) In making an undue financial burden determination, the UMTA Administrator will consider the following factors:

(1) Effects on current fixed route service, including reallocation of accessible fixed route vehicles and potential reduction in service, measured by service miles;

(2) Average number of trips made by the entity's general population, on a per capita basis, compared with the average number of trips to be made by registered ADA paratransit eligible persons, on a per capita basis;

(3) Reductions in other services, including other special services;

(4) Increases in fares;

(5) Resources available to implement complementary paratransit service over the period covered by the plan;

(6) Percentage of budget needed to implement the plan, both as a percentage of operating budget and a percentage of entire budget;

(7) The current level of accessible service, both fixed route and paratransit;

(8) Cooperation/coordination among area transportation providers;

(9) Evidence of increased efficiencies, that have been or could be effectuated, that would benefit the level and quality of available resources for

complementary paratransit service; and

(10) Unique circumstances in the submitting entity's area that affect the ability of the entity to provide paratransit, that militate against the need to provide paratransit, or in some other respect create a circumstance considered exceptional by the submitting entity.

(b)(1) Costs attributable to complementary paratransit shall be limited to costs of providing service specifically required by this part to ADA paratransit eligible individuals, by entities responsible under this part for providing such service.

(2) If the entity determines that it is impracticable to distinguish between trips mandated by the ADA and other trips on a trip-by-trip basis, the entity shall attribute to ADA complementary paratransit requirements a percentage of its overall paratransit costs. This percentage shall be determined by a statistically valid methodology that determines the percentage of trips that are required by this part. The entity shall submit information concerning its methodology and the data on which its percentage is based with its request for a waiver. Only costs attributable to ADA-mandated trips may be considered with respect to a request for an undue financial burden waiver.

(3) Funds to which the entity would be legally entitled, but which, as a matter of state or local funding arrangements, are provided to another entity and used by that entity to provide paratransit service which is part of a coordinated system of paratransit meeting the requirements of this part, may be

counted in determining the burden associated with the waiver request.

§§ 37.157-37.159 (Reserved)

Subpart G—Provision of Service

§ 37.161 Maintenance of accessible features: General.

(a) Public and private entities providing transportation services shall maintain in operative condition those features of facilities and vehicles that are required to make the vehicles and facilities readily accessible to and usable by individuals with disabilities. These features include, but are not limited to, lifts and other means of access to vehicles; securement devices, elevators, signage and systems to facilitate communications with persons with impaired vision or hearing.

(b) Accessibility features shall be repaired promptly if they are damaged or out of order. When an accessibility feature is out of order, the entity shall take reasonable steps to accommodate individuals with disabilities who would otherwise use the feature.

(c) This section does not prohibit isolated or temporary interruptions in service or access due to maintenance or repairs.

§ 37.163 Keeping vehicle lifts in operative condition: Public entities.

(a) This section applies only to public entities with respect to lifts in non-rail vehicles.

(b) The entity shall establish a system of regular and frequent maintenance checks of lifts sufficient to determine if they are operative.

(c) The entity shall ensure that vehicle operators report to the entity, by the most immediate means available, any failure of a lift to operate in service.

(d) Except as provided in paragraph (e) of this section, when a lift is discovered to be inoperative, the entity shall take the vehicle out of service before the beginning of the vehicle's next service day and ensure that the lift is repaired before the vehicle returns to service.

(e) If there is no spare vehicle available to take the place of a vehicle with an inoperable lift, such that taking the vehicle out of service will reduce the transportation service the entity is able to provide, the public entity may keep the vehicle in service with an inoperable lift for no more than five days (if the entity serves an area of 50,000 or less population) or three days (if the entity serves an area of over 50,000 population) from the day on which the lift is discovered to be inoperative.

(f) In any case in which a vehicle is operating on a fixed route with an

inoperative lift, and the headway to the next accessible vehicle on the route exceeds 30 minutes, the entity shall promptly provide alternative transportation to individuals with disabilities who are unable to use the vehicle because its lift does not work.

§ 37.165 Lift and securement use.

(a) This section applies to public and private entities.

(b) All common wheelchairs and their users shall be transported in the entity's vehicles or other conveyances. The entity is not required to permit wheelchairs to ride in places other than designated securement locations in the vehicle, where such locations exist.

(c)(1) For vehicles complying with part 38 of this title, the entity shall use the securement system to secure wheelchairs as provided in that Part.

(2) For other vehicles transporting individuals who use wheelchairs, the entity shall provide and use a securement system to ensure that the wheelchair remains within the securement area.

(3) The entity may require that an individual permit his or her wheelchair to be secured.

(d) The entity may not deny transportation to a wheelchair or its user on the ground that the device cannot be secured or restrained satisfactorily by the vehicle's securement system.

(e) The entity may recommend to a user of a wheelchair that the individual transfer to a vehicle seat. The entity may not require the individual to transfer.

(f) Where necessary or upon request, the entity's personnel shall assist individuals with disabilities with the use of securement systems, ramps and lifts. If it is necessary for the personnel to leave their seats to provide this assistance, they shall do so.

(g) The entity shall permit individuals with disabilities who do not use wheelchairs, including standees, to use a vehicle's lift or ramp to enter the vehicle.

§ 37.167 Other service requirements.

(a) This section applies to public and private entities.

(b) On fixed route systems, the entity shall announce stops as follows:

(1) The entity shall announce at least at transfer points with other fixed routes, other major intersections and destination points, and intervals along a route sufficient to permit individuals with visual impairments or other disabilities to be oriented to their location.

(2) The entity shall announce any stop on request of an individual with a disability.

(c) Where vehicles or other conveyances for more than one route serve the same stop, the entity shall provide a means by which an individual with a visual impairment or other disability can identify the proper vehicle to enter or be identified to the vehicle operator as a person seeking a ride on a particular route.

(d) The entity shall permit service animals to accompany individuals with disabilities in vehicles and facilities.

(e) The entity shall ensure that vehicle operators and other personnel make use of accessibility-related equipment or features required by part 38 of this title.

(f) The entity shall make available to individuals with disabilities adequate information concerning transportation services. This obligation includes making adequate communications capacity available, through accessible formats and technology, to enable users to obtain information and schedule service.

(g) The entity shall not refuse to permit a passenger who uses a lift to disembark from a vehicle at any designated stop, unless the lift cannot be deployed, the lift will be damaged if it is deployed, or temporary conditions at the stop, not under the control of the entity, preclude the safe use of the stop by all passengers.

(h) The entity shall not prohibit an individual with a disability from traveling with a respirator or portable oxygen supply, consistent with applicable Department of Transportation rules on the transportation of hazardous materials (49 CFR subtitle B, chapter 1, subchapter C).

(i) The entity shall ensure that adequate time is provided to allow individuals with disabilities to complete boarding or disembarking from the vehicle.

§ 37.169 Interim requirements for over-the-road bus service operated by private entities.

(a) Private entities operating over-the-road buses, in addition to compliance with other applicable provisions of this part, shall provide accessible service as provided in this section.

(b) The private entity shall provide assistance, as needed, to individuals with disabilities in boarding and disembarking, including moving to and from the bus seat for the purpose of boarding and disembarking. The private entity shall ensure that personnel are

trained to provide this assistance safely and appropriately.

(c) To the extent that they can be accommodated in the areas of the passenger compartment provided for passengers' personal effects, wheelchairs or other mobility aids and assistive devices used by individuals with disabilities, or components of such devices, shall be permitted in the passenger compartment. When the bus is at rest at a stop, the driver or other personnel shall assist individuals with disabilities with the stowage and retrieval of mobility aids, assistive devices, or other items that can be accommodated in the passenger compartment of the bus.

(d) Wheelchairs and other mobility aids or assistive devices that cannot be accommodated in the passenger compartment (including electric wheelchairs) shall be accommodated in the baggage compartment of the bus,

unless the size of the baggage compartment prevents such accommodation.

(e) At any given stop, individuals with disabilities shall have the opportunity to have their wheelchairs or other mobility aids or assistive devices stowed in the baggage compartment before other baggage or cargo is loaded, but baggage or cargo already on the bus does not have to be off-loaded in order to make room for such devices.

(f) The entity may require up to 48 hours' advance notice only for providing boarding assistance. If the individual does not provide such notice, the entity shall nonetheless provide the service if it can do so by making a reasonable effort, without delaying the bus service.

§ 37.171 Equivalency requirement for demand responsive service operated by private entities not primarily engaged in the business of transporting people.

A private entity not primarily engaged in the business of transporting people

which operates a demand responsive system shall ensure that its system, when viewed in its entirety, provides equivalent service to individuals with disabilities, including individuals who use wheelchairs, as it does to individuals without disabilities. The standards of § 37.105 shall be used to determine if the entity is providing equivalent service.

§ 37.173 Training requirements.

Each public or private entity which operates a fixed route or demand responsive system shall ensure that personnel are trained to proficiency, as appropriate to their duties, so that they operate vehicles and equipment safely and properly assist and treat individuals with disabilities who use the service in a respectful and courteous way, with appropriate attention to the difference among individuals with disabilities.

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**PART 38—AMERICANS WITH DISABILITIES ACT (ADA)
ACCESSIBILITY SPECIFICATIONS FOR
TRANSPORTATION VEHICLES**

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Figures in Part 38**Appendix to Part 38: Guidance Material**

Authority: Americans With Disabilities Act of 1990, Public Law. 101-336 (42 U.S.C. 12204); 49 U.S.C. 322.

Subpart A—General**§ 38.1 Purpose.**

This part provides minimum guidelines and requirements for accessibility standards in part 37 of this title for transportation vehicles required to be accessible by the Americans With Disabilities Act (ADA) of 1990 (42 U.S.C. 1201 et seq.).

§ 38.2 Equivalent facilitation.

Departures from particular technical and scoping requirements of these guidelines by use of other designs and technologies are permitted where the alternative designs and technologies used will provide substantially equivalent or greater access to and usability of the vehicle. Departures are to be considered on a case-by-case basis under procedures set forth in § 37.7 of this title.

§ 38.3 Definitions.

See § 37.3 of this title.

§ 38.4 Miscellaneous Instructions.**(a) Dimensional conventions.**

Dimensions that are not noted as minimum or maximum are absolute.

(b) Dimensional tolerances. All dimensions are subject to conventional engineering tolerances for material properties and field conditions, including normal anticipated wear not exceeding accepted industry-wide standards and practices.

(c) Notes. The text of these guidelines does not contain notes or footnotes. Additional information, explanations, and advisory materials are located in the Appendix.

(d) General terminology. (1) *Comply with* means meet one or more specification of these guidelines.

(2) *If or if * * * then* denotes a specification that applies only when the conditions described are present.

(3) *May* denotes an option or alternative.

(4) *Shall* denotes a mandatory specification or requirement.

(5) *Should* denotes an advisory specification or recommendation.

Subpart B—Buses, Vans and Systems**§ 38.21 General.**

(a) New, used or remanufactured buses and vans (except over-the-road buses covered by subpart G of this part), to be considered accessible by regulations in part 37 of this title shall comply with the applicable provisions of this subpart.

(b) If portions of the vehicle are modified in a way that affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require that inaccessible buses be retrofitted with lifts, ramps or other boarding devices.

§ 38.23 Mobility aid accessibility.

(a) *General.* All vehicles covered by this subpart shall provide a level-change mechanism or boarding device (e.g., lift or ramp) complying with paragraph (b)

or (c) of this section and sufficient clearances to permit a wheelchair or other mobility aid user to reach a securement location. At least two securement locations and devices, complying with paragraph (d) of this section, shall be provided on vehicles in excess of 22 feet in length; at least one securement location and device, complying with paragraph (d) of this section, shall be provided on vehicles 22 feet in length or less.

(b) *Vehicle lift*—(1) *Design load.* The design load of the lift shall be at least 600 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Nonworking parts, such as platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

(2) *Controls*—(i) *Requirements.* The controls shall be interlocked with the vehicle brakes, transmission, or door, or shall provide other appropriate mechanisms or systems, to ensure that the vehicle cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all levels (i.e., ground, curb, and intermediate positions) normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the roll-off barrier shall be of a momentary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

(ii) *Exception.* Where the lift is designed to deploy with its long dimension parallel to the vehicle axis and which pivots into or out of the vehicle while occupied (i.e., "rotary lift"), the requirements of this paragraph prohibiting the lift from being stowed while occupied shall not apply if the stowed position is within the passenger compartment and the lift is intended to be stowed while occupied.

(3) *Emergency operation.* The lift shall incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift

fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer's instructions, and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift and is intended to be stowed while occupied.

(4) *Power or equipment failure.*

Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load carrying component.

(5) *Platform barriers.* The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the platform during its operation. A movable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the platform is in its fully raised position. Each side of the lift platform which extends beyond the vehicle in its raised position shall have a barrier a minimum 1½ inches high. Such barriers shall not interfere with maneuvering into or out of the aisle. The loading-edge barrier (outer barrier) which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically raise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the platform is more than 3 inches above the roadway or sidewalk and the platform is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged, or disengaged by the lift operator, provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

(6) *Platform surface.* The platform surface shall be free of any protrusions over ¼ inch high and shall be slip resistant. The platform shall have a minimum clear width of 28½ inches at the platform, a minimum clear width of 30 inches measured from 2 inches above the platform surface to 30 inches above the platform, and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface of the platform. (See Fig. 1)

(7) *Platform gaps.* Any openings between the platform surface and the raised barriers shall not exceed ½ inch in width. When the platform is at vehicle floor height with the inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and the vehicle floor shall not exceed ¼ inch horizontally and ⅝ inch vertically. Platforms on semi-automatic lifts may have a hand hold not exceeding 1½ inches by 4½ inches located between the edge barriers.

(8) *Platform entrance ramp.* The entrance ramp, or loading-edge barrier used as a ramp, shall not exceed a slope of 1:8, measured on level ground, for a maximum rise of 3 inches, and the transition from roadway or sidewalk to ramp may be vertical without edge treatment up to ¼ inch. Thresholds between ¼ inch and ½ inch high shall be beveled with a slope no greater than 1:2.

(9) *Platform deflection.* The lift platform (not including the entrance ramp) shall not deflect more than 3 degrees (exclusive of vehicle roll or pitch) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 26 inch by 26 inch test pallet at the centroid of the platform.

(10) *Platform movement.* No part of the platform shall move at a rate exceeding 6 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3g.

(11) *Boarding direction.* The lift shall permit both inboard and outboard facing of wheelchair and mobility aid users.

(12) *Use by standees.* Lifts shall accommodate persons using walkers, crutches, canes or braces or who otherwise have difficulty using steps. The platform may be marked to indicate a preferred standing position.

(13) *Handrails.* Platforms on lifts shall be equipped with handrails on two sides, which move in tandem with the lift, and which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the

handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ¼ inch. Handrails shall be placed to provide a minimum 1½ inches knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

(c) *Vehicle ramp*—(1) *Design load.* Ramps 30 inches or longer shall support a load of 600 pounds, placed at the centroid of the ramp distributed over an area of 26 inches by 26 inches, with a safety factor of at least 3 based on the ultimate strength of the material. Ramps shorter than 30 inches shall support a load of 300 pounds.

(2) *Ramp surface.* The ramp surface shall be continuous and slip resistant; shall not have protrusions from the surface greater than ¼ inch high; shall have a clear width of 30 inches; and shall accommodate both four-wheel and three-wheel mobility aids.

(3) *Ramp threshold.* The transition from roadway or sidewalk and the transition from vehicle floor to the ramp may be vertical without edge treatment up to ¼ inch. Changes in level between ¼ inch and ½ inch shall be beveled with a slope no greater than 1:2.

(4) *Ramp barriers.* Each side of the ramp shall have barriers at least 2 inches high to prevent mobility aid wheels from slipping off.

(5) *Slope.* Ramps shall have the least slope practicable and shall not exceed 1:4 when deployed to ground level. If the height of the vehicle floor from which the ramp is deployed is 3 inches or less above a 6-inch curb, a maximum slope of 1:4 is permitted; if the height of the vehicle floor from which the ramp is deployed is 6 inches or less, but greater than 3 inches, above a 6-inch curb, a maximum slope of 1:6 is permitted; if the height of the vehicle floor from which the ramp is deployed is 9 inches or less, but greater than 6 inches, above a 6-inch curb, a maximum slope of 1:8 is permitted; if the height of the vehicle floor from which the ramp is deployed is greater than 9 inches above a 6-inch curb, a slope of 1:12 shall be achieved. Folding or telescoping ramps are permitted provided they meet all structural requirements of this section.

(6) *Attachment.* When in use for boarding or alighting, the ramp shall be firmly attached to the vehicle so that it is not subject to displacement when loading or unloading a heavy power

- mobility aid and that no gap between vehicle and ramp exceeds $\frac{5}{8}$ inch.

(7) *Stowage.* A compartment, securement system, or other appropriate method shall be provided to ensure that stowed ramps, including portable ramps stowed in the passenger area, do not impinge on a passenger's wheelchair or mobility aid or pose any hazard to passengers in the event of a sudden stop or maneuver.

(8) *Handrails.* If provided, handrails shall allow persons with disabilities to grasp them from outside the vehicle while starting to board, and to continue to use them throughout the boarding process, and shall have the top between 30 inches and 38 inches above the ramp surface. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than $\frac{1}{8}$ inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

(d) *Securement devices—* (1) *Design load.* Securement systems on vehicles with GVWRs of 30,000 pounds or above, and their attachments to such vehicles, shall restrain a force in the forward longitudinal direction of up to 2,000 pounds per securement leg or clamping mechanism and a minimum of 4,000 pounds for each mobility aid. Securement systems on vehicles with GVWRs of up to 30,000 pounds, and their attachments to such vehicles, shall restrain a force in the forward longitudinal direction of up to 2,500 pounds per securement leg or clamping mechanism and a minimum of 5,000 pounds for each mobility aid.

(2) *Location and size.* The securement system shall be placed as near to the accessible entrance as practicable and shall have a clear floor area of 30 inches by 48 inches. Such space shall adjoin, and may overlap, an access path. Not more than 6 inches of the required clear floor space may be accommodated for footrests under another seat provided there is a minimum of 9 inches from the floor to the lowest part of the seat overhanging the space. Securement areas may have fold-down seats to accommodate other passengers when a wheelchair or mobility aid is not occupying the area, provided the seats, when folded up, do not obstruct the clear floor space required. (See Fig. 2)

(3) *Mobility aids accommodated.* The securement system shall secure common

wheelchairs and mobility aids and shall either be automatic or easily attached by a person familiar with the system and mobility aid and having average dexterity.

(4) *Orientation.* In vehicles in excess of 22 feet in length, at least one securement device or system required by paragraph (a) of this section shall secure the wheelchair or mobility aid facing toward the front of the vehicle. Additional securement devices or systems shall secure the wheelchair or mobility aid facing forward, or rearward with a padded barrier, extending from a height of 38 inches from the vehicle floor to a height of 56 inches from the vehicle floor with a width of 18 inches, laterally centered immediately in back of the seated individual. In vehicles 22 feet in length or less, the required securement device may secure the wheelchair or mobility aid either facing toward the front of the vehicle or facing rearward, with a padded barrier as described. Additional securement locations shall be either forward or rearward facing with a padded barrier. Such barriers need not be solid provided equivalent protection is afforded.

(5) *Movement.* When the wheelchair or mobility aid is secured in accordance with manufacturer's instructions, the securement system shall limit the movement of an occupied wheelchair or mobility aid to no more than 2 inches in any direction under normal vehicle operating conditions.

(6) *Stowage.* When not being used for securement, or when the securement area can be used by standees, the securement system shall not interfere with passenger movement, shall not present any hazardous condition, shall be reasonably protected from vandalism, and shall be readily accessed when needed for use.

(7) *Seat belt and shoulder harness.* For each wheelchair or mobility aid securement device provided, a passenger seat belt and shoulder harness, complying with all applicable provisions of part 571 of this title, shall also be provided for use by wheelchair or mobility aid users. Such seat belts and shoulder harnesses shall not be used in lieu of a device which secures the wheelchair or mobility aid itself.

§ 38.25 Doors, steps and thresholds.

(a) *Slip resistance.* All aisles, steps, floor areas where people walk and floors in securement locations shall have slip-resistant surfaces.

(b) *Contrast.* All step edges, thresholds and the boarding edge of ramps or lift platforms shall have a band of color(s) running the full width of the step or edge which contrasts from the

step tread and riser, or lift or ramp surface, either light-on-dark or dark-on-light.

(c) *Door height.* For vehicles in excess of 22 feet in length, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 68 inches. For vehicles of 22 feet in length or less, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 56 inches.

§ 38.27 Priority seating signs.

(a) Each vehicle shall contain sign(s) which indicate that seats in the front of the vehicle are priority seats for persons with disabilities, and that other passengers should make such seats available to those who wish to use them. At least one set of forward-facing seats shall be so designated.

(b) Each securement location shall have a sign designating it as such.

(c) Characters on signs required by paragraphs (a) and (b) of this section shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of $\frac{5}{16}$ inch, with "wide" spacing (generally, the space between letters shall be $\frac{1}{16}$ the height of upper case letters), and shall contrast with the background either light-on-dark or dark-on-light.

§ 38.29 Interior circulation, handrails and stanchions.

(a) Interior handrails and stanchions shall permit sufficient turning and maneuvering space for wheelchairs and other mobility aids to reach a securement location from the lift or ramp.

(b) Handrails and stanchions shall be provided in the entrance to the vehicle in a configuration which allows persons with disabilities to grasp such assists from outside the vehicle while starting to board, and to continue using such assists throughout the boarding and fare collection process. Handrails shall have a cross-sectional diameter between $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than $\frac{1}{8}$ inch. Handrails shall be placed to provide a minimum $1\frac{1}{2}$ inches knuckle clearance from the nearest adjacent surface. Where on-board fare collection devices are used on vehicles in excess of 22 feet in length, a horizontal passenger assist shall be located across the front of the vehicle and shall prevent passengers from

sustaining injuries on the fare collection device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the front door through the boarding procedure. Passengers shall be able to lean against the assist for security while paying fares.

(c) For vehicles in excess of 22 feet in length, overhead handrail(s) shall be provided which shall be continuous except for a gap at the rear doorway.

(d) Handrails and stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(e) For vehicles in excess of 22 feet in length with front-door lifts or ramps, vertical stanchions immediately behind the driver shall either terminate at the lower edge of the aisle-facing seats, if applicable, or be "dog-legged" so that the floor attachment does not impede or interfere with wheelchair footrests. If the driver seat platform must be passed by a wheelchair or mobility aid user entering the vehicle, the platform, to the maximum extent practicable, shall not extend into the aisle or vestibule beyond the wheel housing.

(f) For vehicles in excess of 22 feet in length, the minimum interior height along the path from the lift to the securement location shall be 68 inches. For vehicles of 22 feet in length or less, the minimum interior height from lift to securement location shall be 56 inches.

§ 38.31 Lighting.

(a) Any stepwell or doorway immediately adjacent to the driver shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread or lift platform.

(b) Other stepwells and doorways, including doorways in which lifts or ramps are installed, shall have, at all times, at least 2 foot-candles of illumination measured on the step tread, or lift or ramp, when deployed at the vehicle floor level.

(c) The vehicle doorways, including doorways in which lifts or ramps are installed, shall have outside light(s) which, when the door is open, provide at least 1 foot-candle of illumination on the street surface for a distance of 3 feet perpendicular to all points on the bottom step tread outer edge. Such light(s) shall be located below window level and shielded to protect the eyes of entering and existing passengers.

§ 38.33 Fare box.

Where provided, the farebox shall be located as far forward as practicable and shall not obstruct traffic in the

vestibule, especially wheelchairs or mobility aids.

§ 38.35 Public information system.

(a) Vehicles in excess of 22 feet in length, used in multiple-stop, fixed-route service, shall be equipped with a public address system permitting the driver, or recorded or digitized human speech messages, to announce stops and provide other passenger information within the vehicle.

(b) [Reserved]

§ 38.37 Stop request.

(a) Where passengers may board or alight at multiple stops at their option, vehicles in excess of 22 feet in length shall provide controls adjacent to the securement location for requesting stops and which alerts the driver that a mobility aid user wishes to disembark. Such a system shall provide auditory and visual indications that the request has been made.

(b) Controls required by paragraph (a) of this section shall be mounted no higher than 48 inches and no lower than 15 inches above the floor, shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N).

§ 38.39 Destination and route signs.

(a) Where destination or route information is displayed on the exterior of a vehicle, each vehicle shall have illuminated signs on the front and boarding side of the vehicle.

(b) Characters on signs required by paragraph (a) of this section shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of 1 inch for signs on the boarding side and a minimum character height of 2 inches for front "headsigs", with "wide" spacing (generally, the space between letters shall be 1/16 the height of upper case letters), and shall contrast with the background, either dark-on-light or light-on-dark.

Subpart C—Rapid Rail Vehicles and Systems

§ 38.51 General.

(a) New, used and remanufactured rapid rail vehicles, to be considered accessible by regulations in part 37 of this title, shall comply with this subpart.

(b) If portions of the vehicle are modified in a way that affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require

that inaccessible vehicles be retrofitted with lifts, ramps or other boarding devices.

(c) Existing vehicles which are retrofitted to comply with the "one-car-per-train rule" of § 37.93 of this title shall comply with §§ 38.55, 38.57(b), 38.59 of this part and shall have, in new and key stations, at least one door complying with §§ 38.53 (a)(1), (b) and (d) of this part. Removal of seats is not required. Vehicles previously designed and manufactured in accordance with the accessibility requirements of part 609 of this title or the Secretary of Transportation regulations implementing section 504 of the Rehabilitation Act of 1973 that were in effect before October 7, 1991, and which can be entered and used from stations in which they are to be operated, may be used to satisfy the requirements of § 37.93 of this title.

§ 38.53 Doorways.

(a) *Clear width.* (1) Passenger doorways on vehicle sides shall have clear openings at least 32 inches wide when open.

(2) If doorways connecting adjoining cars in a multi-car train are provided, and if such doorway is connected by an aisle with a minimum clear width of 30 inches to one or more spaces where wheelchair or mobility aid users can be accommodated, then such doorway shall have a minimum clear opening of 30 inches to permit wheelchair and mobility aid users to be evacuated to an adjoining vehicle in an emergency.

(b) *Signage.* The International Symbol of Accessibility shall be displayed on the exterior of accessible vehicles operating on an accessible rapid rail system unless all vehicles are accessible and are not marked by the access symbol. (See Fig. 6.)

(c) *Signals.* Auditory and visual warning signals shall be provided to alert passengers of closing doors.

(d) *Coordination with boarding platform—(1) Requirements.* Where new vehicles will operate in new stations, the design of vehicles shall be coordinated with the boarding platform design such that the horizontal gap between each vehicle door at rest and the platform shall be no greater than 3 inches and the height of the vehicle floor shall be within plus or minus ½ inch of the platform height under all normal passenger load conditions. Vertical alignment may be accomplished by vehicle air suspension or other suitable means of meeting the requirement.

(2) *Exception.* New vehicles operating in existing stations may have a floor height within plus or minus 1 ½ inches of

the platform height. At key stations, the horizontal gap between at least one door of each such vehicle and the platform shall be no greater than 3 inches.

(3) *Exception.* Retrofitted vehicles shall be coordinated with the platform in new and key stations such that the horizontal gap shall be no greater than 4 inches and the height of the vehicle floor, under 50% passenger load, shall be within plus or minus 2 inches of the platform height.

§ 38.55 Priority seating signs.

(a) Each vehicle shall contain sign(s) which indicate that certain seats are priority seats for persons with disabilities, and that other passengers should make such seats available to those who wish to use them.

(b) Characters on signs required by paragraph (a) of this section shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of $\frac{5}{16}$ inch, with "wide" spacing (generally, the space between letters shall be $\frac{1}{16}$ the height of upper case letters), and shall contrast with the background, either light-on-dark or dark-on-light.

§ 38.57 Interior circulation, handrails and stanchions.

(a) Handrails and stanchions shall be provided to assist safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(b) Handrails, stanchions, and seats shall allow a route at least 32 inches wide so that at least two wheelchair or mobility aid users can enter the vehicle and position the wheelchairs or mobility aids in areas, each having a minimum clear space of 48 inches by 30 inches, which do not unduly restrict movement of other passengers. Space to accommodate wheelchairs and mobility aids may be provided within the normal area used by standees and designation of specific spaces is not required. Particular attention shall be given to ensuring maximum maneuverability immediately inside doors. Ample vertical stanchions from ceiling to seat-back rails shall be provided. Vertical stanchions from ceiling to floor shall not interfere with wheelchair or mobility aid user circulation and shall be kept to a minimum in the vicinity of doors.

(c) The diameter or width of the gripping surface of handrails and stanchions shall be $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches or provide an equivalent gripping surface and shall provide a minimum

$1\frac{1}{2}$ inches knuckle clearance from the nearest adjacent surface.

§ 38.59 Floor surfaces.

Floor surfaces on aisles, places for standees, and areas where wheelchair and mobility aid users are to be accommodated shall be slip-resistant.

§ 38.61 Public information system.

(a)(1) *Requirements.* Each vehicle shall be equipped with a public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted. Each vehicle operating in stations having more than one line or route shall have an external public address system to permit transportation system personnel, or recorded or digitized human speech messages, to announce train, route, or line identification information.

(2) *Exception.* Where station announcement systems provide information on arriving trains, an external train speaker is not required.

(b) [Reserved].

§ 38.63 Between-car barriers.

(a) *Requirement.* Suitable devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Acceptable solutions include, but are not limited to, pantograph gates, chains, motion detectors or similar devices.

(b) *Exception.* Between-car barriers are not required where platform screens are provided which close off the platform edge and open only when trains are correctly aligned with the doors.

Subpart D—Light Rail Vehicles and Systems

§ 38.71 General.

(a) New, used and remanufactured light rail vehicles, to be considered accessible by regulations in part 37 of this title shall comply with this subpart.

(b)(1) Vehicles intended to be operated solely in light rail systems confined entirely to a dedicated right-of-way, and for which all stations or stops are designed and constructed for revenue service after the effective date of standards for design and construction in § 37.21 and § 37.23 of this title shall provide level boarding and shall comply with § 38.73(d)(1) and § 38.85 of this part.

(2) Vehicles designed for, and operated on, pedestrian malls, city streets, or other areas where level

boarding is not practicable shall provide wayside or car-borne lifts, mini-high platforms, or other means of access in compliance with § 38.83 (b) or (c) of this part.

(c) If portions of the vehicle are modified in a way that affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require that inaccessible vehicles be retrofitted with lifts, ramps or other boarding devices.

(d) Existing vehicles retrofitted to comply with the "one-car-per-train rule" at § 37.93 of this title shall comply with § 38.75, § 38.77(c), § 38.79(a) and § 38.83(a) of this part and shall have, in new and key stations, at least one door which complies with §§ 38.73 (a)(1), (b) and (d) of this part. Vehicles previously designed and manufactured in accordance with the accessibility requirements of part 609 of this title or the Secretary of Transportation regulations implementing section 504 of the Rehabilitation Act of 1973 that were in effect before October 7, 1991, and which can be entered and used from stations in which they are to be operated, may be used to satisfy the requirements of § 37.93 of this title.

§ 38.73 Doorways.

(a) *Clear width.*—(1) All passenger doorways on vehicle sides shall have minimum clear openings of 32 inches when open.

(2) If doorways connecting adjoining cars in a multi-car train are provided, and if such doorway is connected by an aisle with a minimum clear width of 30 inches to one or more spaces where wheelchair or mobility aid users can be accommodated, then such doorway shall have a minimum clear opening of 30 inches to permit wheelchair and mobility aid users to be evacuated to an adjoining vehicle in an emergency.

(b) *Signage.* The International Symbol of Accessibility shall be displayed on the exterior of each vehicle operating on an accessible light rail system unless all vehicles are accessible and are not marked by the access symbol (see fig. 6).

(c) *Signals.* Auditory and visual warning signals shall be provided to alert passengers of closing doors.

(d) *Coordination with boarding platform.*—(1) *Requirements.* The design of level-entry vehicles shall be coordinated with the boarding platform or mini-high platform design so that the horizontal gap between a vehicle at rest and the platform shall be no greater than 3 inches and the height of the vehicle floor shall be within plus or

minus $\frac{1}{2}$ inch of the platform height. Vertical alignment may be accomplished by vehicle air suspension, automatic ramps or lifts, or any combination.

(2) *Exception.* New vehicles operating in existing stations may have a floor height within plus or minus $1\frac{1}{2}$ inches of the platform height. At key stations, the horizontal gap between at least one door of each such vehicle and the platform shall be no greater than 3 inches.

(3) *Exception.* Retrofitted vehicles shall be coordinated with the platform in new and key stations such that the horizontal gap shall be no greater than 4 inches and the height of the vehicle floor, under 50% passenger load, shall be within plus or minus 2 inches of the platform height.

(4) *Exception.* Where it is not operationally or structurally practicable to meet the horizontal or vertical requirements of paragraphs (d) (1), (2) or (3) of this section, platform or vehicle devices complying with § 38.83(b) or platform or vehicle mounted ramps or bridge plates complying with § 38.83(c) shall be provided.

§ 38.75 Priority seating signs.

(a) Each vehicle shall contain sign(s) which indicate that certain seats are priority seats for persons with disabilities, and that other passengers should make such seats available to those who wish to use them.

(b) Where designated wheelchair or mobility aid seating locations are provided, signs shall indicate the location and advise other passengers of the need to permit wheelchair and mobility aid users to occupy them.

(c) Characters on signs required by paragraphs (a) or (b) of this section shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of $\frac{1}{8}$ inch, with "wide" spacing (generally, the space between letters shall be $\frac{1}{2}$ the height of upper case letters), and shall contrast with the background, either light-on-dark or dark-on-light.

§ 38.77 Interior circulation, handrails and stanchions.

(a) Handrails and stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(b) At entrances equipped with steps, handrails and stanchions shall be provided in the entrance to the vehicle in a configuration which allows passengers to grasp such assists from outside the vehicle while starting to

board, and to continue using such handrails or stanchions throughout the boarding process. Handrails shall have a cross-sectional diameter between $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than $\frac{1}{8}$ inch. Handrails shall be placed to provide a minimum $1\frac{1}{2}$ inches knuckle clearance from the nearest adjacent surface. Where on-board fare collection devices are used, a horizontal passenger assist shall be located between boarding passengers and the fare collection device and shall prevent passengers from sustaining injuries on the fare collection device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the door through the boarding procedure. Passengers shall be able to lean against the assist for security while paying fares.

(c) At all doors on level-entry vehicles, and at each entrance accessible by lift, ramp, bridge plate or other suitable means, handrails, stanchions, passenger seats, vehicle driver seat platforms, and fare boxes, if applicable, shall be located so as to allow a route at least 32 inches wide so that at least two wheelchair or mobility aid users can enter the vehicle and position the wheelchairs or mobility aids in areas, each having a minimum clear space of 48 inches by 30 inches, which do not unduly restrict movement of other passengers. Space to accommodate wheelchairs and mobility aids may be provided within the normal area used by standees and designation of specific spaces is not required. Particular attention shall be given to ensuring maximum maneuverability immediately inside doors. Ample vertical stanchions from ceiling to seat-back rails shall be provided. Vertical stanchions from ceiling to floor shall not interfere with wheelchair or mobility aid circulation and shall be kept to a minimum in the vicinity of accessible doors.

§ 38.79 Floors, steps and thresholds.

(a) Floor surfaces on aisles, step treads, places for standees, and areas where wheelchair and mobility aid users are to be accommodated shall be slip-resistant.

(b) All thresholds and step edges shall have a band of color(s) running the full width of the step or threshold which contrasts from the step tread and riser or adjacent floor, either light-on-dark or dark-on-light.

§ 38.81 Lighting.

(a) Any stepwell or doorway with a lift, ramp or bridge plate immediately adjacent to the driver shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread or lift platform.

(b) Other stepwells, and doorways with lifts, ramps or bridge plates, shall have, at all times, at least 2 foot-candles of illumination measured on the step tread or lift or ramp, when deployed at the vehicle floor level.

(c) The doorways of vehicles not operating at lighted station platforms shall have outside lights which provide at least 1 foot-candle of illumination on the station platform or street surface for a distance of 3 feet perpendicular to all points on the bottom step tread. Such lights shall be located below window level and shielded to protect the eyes of entering and exiting passengers.

§ 38.83 Mobility aid accessibility.

(a)(1) *General.* All new light rail vehicles, other than level entry vehicles, covered by this subpart shall provide a level-change mechanism or boarding device (e.g., lift, ramp or bridge plate) complying with either paragraph (b) or (c) of this section and sufficient clearances to permit at least two wheelchair or mobility aid users to reach areas, each with a minimum clear floor space of 48 inches by 30 inches, which do not unduly restrict passenger flow. Space to accommodate wheelchairs and mobility aids may be provided within the normal area used by standees and designation of specific spaces is not required.

(2) *Exception.* If lifts, ramps or bridge plates meeting the requirements of this section are provided on station platforms or other stops required to be accessible, or mini-high platforms complying with § 38.73(d) of this part are provided, the vehicle is not required to be equipped with a car-borne device. Where each new vehicle is compatible with a single platform-mounted access system or device, additional systems or devices are not required for each vehicle provided that the single device could be used to provide access to each new vehicle if passengers using wheelchairs or mobility aids could not be accommodated on a single vehicle.

(b) *Vehicle lift—(1) Design load.* The design load of the lift shall be at least 600 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Nonworking parts, such as

platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

(2) *Controls*—(i) *Requirements*. The controls shall be interlocked with the vehicle brakes, propulsion system, or door, or shall provide other appropriate mechanisms or systems, to ensure that the vehicle cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all levels (i.e., ground, curb, and intermediate positions) normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the roll-off barrier shall be of a momentary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

(ii) *Exception*. Where physical or safety constraints prevent the deployment at some stops of a lift having its long dimension perpendicular to the vehicle axis, the transportation entity may specify a lift which is designed to deploy with its long dimension parallel to the vehicle axis and which pivots into or out of the vehicle while occupied (i.e., "rotary lift"). The requirements of paragraph (b)(2)(i) of this section prohibiting the lift from being stowed while occupied shall not apply to a lift design of this type if the stowed position is within the passenger compartment and the lift is intended to be stowed while occupied.

(iii) *Exception*. The brake or propulsion system interlocks requirement does not apply to a station platform mounted lift provided that a mechanical, electrical or other system operates to ensure that vehicles do not move when the lift is in use.

(3) *Emergency operation*. The lift shall incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer's instructions, and shall not permit the platform to be stowed or folded when occupied, unless the lift is a

rotary lift intended to be stowed while occupied.

(4) *Power or equipment failure*. Lift platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load carrying component.

(5) *Platform barriers*. The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the lift during its operation. A movable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the lift is in its fully raised position. Each side of the lift platform which extends beyond the vehicle in its raised position shall have a barrier a minimum 1½ inches high. Such barriers shall not interfere with maneuvering into or out of the aisle. The loading-edge barrier (outer barrier) which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier on the outboard of the lift shall automatically rise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the lift is more than 3 inches above the station platform or roadway and the lift is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged or disengaged by the lift operator provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

(6) *Platform surface*. The lift platform surface shall be free of any protrusions over ¼ inch high and shall be slip resistant. The lift platform shall have a minimum clear width of 28½ inches at the platform, a minimum clear width of 30 inches measured from 2 inches above the lift platform surface to 30 inches above the surface, and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface. (See Fig. 1)

(7) *Platform gaps*. Any openings between the lift platform surface and the raised barriers shall not exceed ¾ inch wide. When the lift is at vehicle floor height with the inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and vehicle floor shall not exceed ¼

inch horizontally and ¾ inch vertically. Platforms on semi-automatic lifts may have a hand hold not exceeding 1½ inches by 4½ inches located between the edge barriers.

(8) *Platform entrance ramp*. The entrance ramp, or loading-edge barrier used as a ramp, shall not exceed a slope of 1:8 measured on level ground, for a maximum rise of 3 inches, and the transition from the station platform or roadway to ramp may be vertical without edge treatment up to ¼ inch. Thresholds between ¼ inch and ½ inch high shall be beveled with a slope no greater than 1:2.

(9) *Platform deflection*. The lift platform (not including the entrance ramp) shall not deflect more than 3 degrees (exclusive of vehicle roll) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 26 inch by 26 inch test pallet at the centroid of the lift platform.

(10) *Platform movement*. No part of the platform shall move at a rate exceeding 8 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3g.

(11) *Boarding direction*. The lift shall permit both inbound and outboard facing of wheelchairs and mobility aids.

(12) *Use by standees*. Lifts shall accommodate persons using walkers, crutches, canes or braces or who otherwise have difficulty using steps. The lift may be marked to indicate a preferred standing position.

(13) *Handrails*. Platforms on lifts shall be equipped with handrails, on two sides, which move in tandem with the lift which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. Handrails shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ¼ inch. Handrails shall be placed to

provide a minimum 1½ inches knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

(c) *Vehicle ramp or bridge plate.*—(1) *Design load.* Ramps or bridge plates 30 inches or longer shall support a load of 600 pounds, placed at the centroid of the ramp or bridge plate distributed over an area of 26 inches, with a safety factor of at least 3 based on the ultimate strength of the material. Ramps or bridge plates shorter than 30 inches shall support a load of 300 pounds.

(2) *Ramp surface.* The ramp or bridge plate surface shall be continuous and slip resistant, shall not have protrusions from the surface greater than ¼ inch, shall have a clear width of 30 inches, and shall accommodate both four-wheel and three-wheel mobility aids.

(3) *Ramp threshold.* The transition from roadway or station platform and the transition from vehicle floor to the ramp or bridge plate may be vertical without edge treatment up to ¼ inch. Changes in level between ¼ inch and ½ inch shall be beveled with a slope no greater than 1:2.

(4) *Ramp barriers.* Each side of the ramp or bridge plate shall have barriers at least 2 inches high to prevent mobility aid wheels from slipping off.

(5) *Slope.* Ramps or bridge plates shall have the least slope practicable. If the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 3 inches or less above the station platform a maximum slope of 1:4 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 6 inches or less, but more than 3 inches, above the station platform a maximum slope of 1:6 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 9 inches or less, but more than 6 inches, above the station platform a maximum slope of 1:8 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is greater than 9 inches above the station platform a slope of 1:12 shall be achieved. Folding or telescoping ramps are permitted provided they meet all structural requirements of this section.

(6) *Attachment*—(i) *Requirement.* When in use for boarding or alighting, the ramp or bridge plate shall be attached to the vehicle, or otherwise prevented from moving such that it is not subject to displacement when loading or unloading a heavy power mobility aid and that any gaps between vehicle and ramp or bridge plate, and

station platform and ramp or bridge plate, shall not exceed ⅝ inch.

(ii) *Exception.* Ramps or bridge plates which are attached to, and deployed from, station platforms are permitted in lieu of vehicle devices provided they meet the displacement requirements of paragraph (c)(6)(i) of this section.

(7) *Stowage.* A compartment, securement system, or other appropriate method shall be provided to ensure that stowed ramps or bridge plates, including portable ramps or bridges plates stowed in the passenger area, do not impinge on a passenger's wheelchair or mobility aid or pose any hazard to passengers in the event of a sudden stop.

(8) *Handrails.* If provided, handrails shall allow persons with disabilities to grasp them from outside the vehicle while starting to board, and to continue to use them throughout the boarding process, and shall have the top between 30 inches and 38 inches above the ramp surface. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have "eased" edges with corner radii of not less than ⅜ inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

§ 38.85 Between-car barriers.

Where vehicles operate in a high-platform, level-boarding mode, devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Appropriate devices include, but are not limited to, pantograph gates, chains, motion detectors or other suitable devices.

§ 38.87 Public information system.

(a) Each vehicle shall be equipped with an interior public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted.

(b) [Reserved]

Subpart E—Commuter Rail Cars and Systems

§ 38.91 General.

(a) New, used and remanufactured commuter rail cars, to be considered

accessible by regulations in part 37 of this title, shall comply with this subpart.

(b) If portions of the car are modified in such a way that it affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require that inaccessible cars be retrofitted with lifts, ramps or other boarding devices.

(c)(1) Commuter rail cars shall comply with §§ 38.93(d) and 38.109 of this part for level boarding wherever structurally and operationally practicable.

(2) Where level boarding is not structurally or operationally practicable, commuter rail cars shall comply § 38.95 of this part.

(d) Existing vehicles retrofitted to comply with the "one-car-per-train rule" at § 37.93 of this title shall comply with §§ 38.93(e), 38.95(a) and 38.107 of this part and shall have, in new and key stations at least one door on each side from which passengers board which complies with § 38.93(d) of this part. Vehicles previously designed and manufactured in accordance with the program accessibility requirements of section 504 of the Rehabilitation Act of 1973, or implementing regulations of the Secretary of Transportation that were in effect before October 7, 1991; and which can be entered and used from stations in which they are to be operated, may be used to satisfy the requirements of § 37.93 of this title.

§ 38.93 Doorways.

(a) *Clear width.* (1) At least one door on each side of the car from which passengers board opening onto station platforms and at least one adjacent doorway into the passenger coach compartment, if provided, shall have a minimum clear opening of 32 inches.

(2) If doorways connecting adjoining cars in a multi-car train are provided, and if such doorway is connected by an aisle with a minimum clear width of 30 inches to one or more spaces where wheelchair or mobility aid users can be accommodated, then such doorway shall have, to the maximum extent practicable in accordance with the regulations issued under the Federal Railroad Safety Act of 1970 (49 CFR parts 229 and 231), a clear opening of 30 inches.

(b) *Passageways.* A route at least 32 inches wide shall be provided from doors required to be accessible by paragraph (a)(1) of this section to seating locations complying with § 38.95(d) of this part. In cars where such doorways require passage through a vestibule, such vestibule shall have a minimum width of 42 inches. (See Fig. 3.)

(c) *Signals.* If doors to the platform close automatically or from a remote location, auditory and visual warning signals shall be provided to alert passengers or closing doors.

(d) *Coordination with boarding platform—(1) Requirements.* Cars operating in stations with high platforms, or mini-high platforms, shall be coordinated with the boarding platform design such that the horizontal gap between a car at rest and the platform shall be no greater than 3 inches and the height of the car floor shall be within plus or minus $\frac{5}{8}$ inch of the platform height. Vertical alignment may be accomplished by car air suspension, platform lifts or other devices, or any combination.

(2) *Exception.* New vehicles operating in existing stations may have a floor height within plus or minus $1\frac{1}{2}$ inches of the platform height. At key stations, the horizontal gap between at least one accessible door of each such vehicle and the platform shall be no greater than 3 inches.

(3) *Exception.* Where platform setbacks do not allow the horizontal gap or vertical alignment specified in paragraph (d)(1) or (d)(2) of this section, car, platform or portable lifts complying with § 38.95(b) of this part, or car or platform ramps or bridge plates, complying with § 38.95(c) of this part, shall be provided.

(4) *Exception.* Retrofitted vehicles shall be coordinated with the platform in new and key stations such that the horizontal gap shall be no greater than 4 inches and the height of the vehicle floor, under 50% passenger load, shall be within plus or minus 2 inches of the platform height.

(e) *Signage.* The International Symbol of Accessibility shall be displaced on the exterior of all doors complying with this section unless all cars are accessible and are not marked by the access symbol (see Fig. 6). Appropriate signage shall also indicate which accessible doors are adjacent to an accessible restroom, if applicable.

§ 38.95 Mobility aid accessibility.

(a)(1) *General.* All new commuter rail cars, other than level entry cars, covered by this subpart shall provide a level-change mechanism or boarding device (e.g., lift, ramp or bridge plate) complying with either paragraph (b) or (c) of this section; sufficient clearances to permit a wheelchair or mobility aid user to reach a seating location; and at least two wheelchair or mobility aid seating locations complying with paragraph (d) of this section.

(2) *Exception.* If portable or platform lifts, ramps or bridge plates meeting the

applicable requirements of this section are provided on station platforms or other stops required to be accessible, or mini-high platforms complying with § 38.93(d) are provided, the car is not required to be equipped with a car-borne device. Where each new car is compatible with a single platform-mounted access system or device, additional systems or devices are not required for each car provided that the single device could be used to provide access to each new car if passengers using wheelchairs or mobility aids could not be accommodated on a single car.

(b) *Car Lift—(1) Design load.* The design load of the lift shall be at least 600 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Nonworking parts, such as platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

(2) *Controls—(i) Requirements.* The controls shall be interlocked with the car brakes, propulsion system, or door, or shall provide other appropriate mechanisms or systems, to ensure that the car cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all platform levels normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the roll-off barrier shall be of a monetary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

(ii) *Exception.* Where physical or safety constraints prevent the deployment at some stops of a lift having its long dimension perpendicular to the car axis, the transportation entity may specify a lift which is designed to deploy with its long dimension parallel to the car axis and which pivots into or out of the car while occupied (i.e., "rotary lift"). The requirements of paragraph (b)(2)(i) of this section prohibiting the lift from being stowed while occupied shall not apply to a lift design of this type if the stowed position is within the passenger compartment

and the lift is intended to be stowed while occupied.

(iii) *Exception.* The brake or propulsion system interlock requirement does not apply to a platform mounted or portable lift provided that a mechanical, electrical or other system operates to ensure that cars do not move when the lift is in use.

(3) *Emergency operation.* The lift shall incorporate an emergency method of deploying, lowering to ground or platform level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer's instructions, and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift intended to be stowed while occupied.

(4) *Power or equipment failure.* Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load carrying component.

(5) *Platform barriers.* The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the lift during its operation. A movable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the car until the lift is in its fully raised position. Each side of the lift platform which, in its raised position, extends beyond the car shall have a barrier a minimum $1\frac{1}{2}$ inches high. Such barriers shall not interfere with maneuvering into or out of the car. The loading-edge barrier (outer barrier) which functions as a loading ramp when the lift is at ground or station platform level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically rise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the lift platform is more than 3 inches above the station platform and the lift is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged or disengaged by the lift operator provided an interlock or inherent design feature prevents the lift from rising unless the

barrier is raised or closed or the supplementary system is engaged.

(6) *Platform surface.* The lift platform surface shall be free of any protrusions over ¼ inch high and shall be slip resistant. The lift platform shall have a minimum clear width of 28½ inches at the platform, a minimum clear width of 30 inches measured from 2 inches above the lift platform surface to 30 inches above the surface, and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface. (See Fig. 1)

(7) *Platform gaps.* Any openings between the lift platform surface and the raised barriers shall not exceed ½ inch wide. When the lift is at car floor height with the inner barrier down (if applicable) or retracted, gaps between the forward lift platform edge and car floor shall not exceed ¼ inch horizontally and ½ inch vertically.

(8) *Platform entrance ramp.* The entrance ramp, or loading-edge barrier used as a ramp, shall not exceed a slope of 1:8, when measured on level ground, for a maximum rise of 3 inches, and the transition from station platform to ramp may be vertical without edge treatment up to ¼ inch. Thresholds between ¼ inch and ½ inch high shall be beveled with a slope no greater than 1:2.

(9) *Platform deflection.* The lift platform (not including the entrance ramp) shall not deflect more than 3 degrees (exclusive of vehicle roll) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 28 inch by 28 inch test pallet at the centroid of the lift platform.

(10) *Platform movement.* No part of the platform shall move at a rate exceeding 6 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3g.

(11) *Boarding direction.* The lift shall permit both inboard and outboard facing of wheelchairs and mobility aids.

(12) *Use by standees.* Lifts shall accommodate persons using walkers, crutches, canes or braces or who otherwise have difficulty using steps. The lift may be marked to indicate a preferred standing position.

(13) *Handrails.* Platforms on lifts shall be equipped with handrails, on two sides, which move in tandem with the lift which shall be graspable and provide support to standees throughout

the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ⅛ inch. Handrails shall be placed to provide a minimum 1½ inches knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the car.

(c) *Car ramp or bridge plate*—(1) *Design load.* Ramps or bridge plates 30 inches or longer shall support a load of 600 pounds, placed at the centroid of the ramp or bridge plate distributed over an area of 28 inches by 28 inches, with a safety factor of at least 3 based on the ultimate strength of the material. Ramps or bridge plates shorter than 30 inches shall support a load of 300 pounds.

(2) *Ramp surface.* The ramp or bridge plate surface shall be continuous and slip resistant, shall not have protrusions from the surface greater than ¼ inch high, shall have a clear width of 30 inches and shall accommodate both four-wheel and three-wheel mobility aids.

(3) *Ramp threshold.* The transition from station platform to the ramp or bridge plate and the transition from car floor to the ramp or bridge plate may be vertical without edge treatment up to ¼ inch. Changes in level between ¼ inch and ½ inch shall be beveled with a slope no greater than 1:2.

(4) *Ramp barriers.* Each side of the ramp or bridge plate shall have barriers at least 2 inches high to prevent mobility aid wheels from slipping off.

(5) *Slope.* Ramps or bridge plates shall have the least slope practicable. If the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 3 inches or less above the station platform a maximum slope of 1:4 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 6 inches or less, but more than 3 inches, above the station platform a maximum slope of 1:6 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 9 inches or less, but more than 6 inches, above the station platform a maximum

slope of 1:8 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is greater than 9 inches above the station platform a slope of 1:12 shall be achieved. Folding or telescoping ramps are permitted provided they meet all structural requirements of this section.

(6) *Attachment*—(i) *Requirement.* When in use for boarding or alighting, the ramp or bridge plate shall be attached to the vehicle, or otherwise prevented from moving such that it is not subject to displacement when loading or unloading a heavy power mobility aid and that any gaps between vehicle and ramp or bridge plate, and station platform and ramp or bridge plate, shall not exceed ¼ inch.

(ii) *Exception.* Ramps or bridge plates which are attached to, and deployed from, station platforms are permitted in lieu of car devices provided they meet the displacement requirements of paragraph (c)(6)(i) of this section.

(7) *Stowage.* A compartment, securement system, or other appropriate method shall be provided to ensure that stowed ramps or bridge plates, including portable ramps or bridge plates stowed in the passenger area, do not impinge on a passenger's wheelchair or mobility aid or pose any hazard to passengers in the event of a sudden stop.

(8) *Handrails.* If provided, handrails shall allow persons with disabilities to grasp them from outside the car while starting to board, and to continue to use them throughout the boarding process, and shall have the top between 30 inches and 38 inches above the ramp surface. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ⅛ inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the car.

(d) *Mobility aid seating location.* Spaces for persons who wish to remain in their wheelchairs or mobility aids shall have a minimum clear floor space 48 inches by 30 inches. Such spaces shall adjoin, and may overlap, an accessible path. Not more than 6 inches of the required clear floor space may be accommodated for footrests under another seat provided there is a minimum of 9 inches from the floor to the lowest part of the seat overhanging the space. Seating spaces may have

fold-down or removable seats to accommodate other passengers when a wheelchair or mobility aid user is not occupying the area, provided the seats, when folded up, do not obstruct the clear floor space required. (See Fig. 2.)

§ 38.97 Interior circulation, handrails and stanchions.

(a) Where provided, handrails or stanchions within the passenger compartment shall be placed to permit sufficient turning and maneuvering space for wheelchairs and other mobility aids to reach a seating location, complying with § 38.95(d) of this part, from an accessible entrance. The diameter or width of the gripping surface of interior handrails and stanchions shall be 1½ inches to 1¾ inches or shall provide an equivalent gripping surface. Handrails shall be placed to provide a minimum 1½ inches knuckle clearance from the nearest adjacent surface.

(b) Where provided, handrails or stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(c) At entrances equipped with steps, handrails or stanchions shall be provided in the entrance to the car in a configuration which allows passengers to grasp such assists from outside the car while starting to board, and to continue using such assists throughout the boarding process, to the extent permitted by part 231 of this title.

§ 38.99 Floors, steps and thresholds.

(a) Floor surfaces on aisles, step treads, places for standees, and areas where wheelchair and mobility aid users are to be accommodated shall be slip-resistant.

(b) All thresholds and step edges shall have a band of color(s) running the full width of the step or threshold which contrasts from the step tread and riser or adjacent floor, either light-on-dark or dark-on-light.

§ 38.101 Lighting

(a) Any stepwell or doorway with a lift, ramp or bridge plate shall have, when the door is open, at least 2 footcandles of illumination measured on the step tread, ramp, bridge plate, or lift platform.

(b) The doorways of cars not operating at lighted station platforms shall have outside lights which, when the door is open, provide at least 1 footcandle of illumination on the station platform surface for a distance of 3 feet perpendicular to all points on the bottom step tread edge. Such lights shall

be shielded to protect the eyes of entering and exiting passengers.

§ 38.103 Public information system.

(a) Each car shall be equipped with an interior public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted.

(b) [Reserved]

§ 38.105 Priority seating signs.

(a) Each car shall contain sign(s) which indicate that certain seats are priority seats for persons with disabilities and that other passengers should make such seats available to those who wish to use them.

(b) Characters on signs required by paragraph (a) shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of ¾ inch, with "wide" spacing (generally, the space between letters shall be ½ the height of upper case letters), and shall contrast with the background either light-on-dark or dark-on-light.

§ 38.107 Restrooms.

(a) If a restroom is provided for the general public, it shall be designed so as to allow a person using a wheelchair or mobility aid to enter and use such restroom as specified in paragraphs (a) (1) through (5) of this section.

(1) The minimum clear floor area shall be 35 inches by 60 inches. Permanently installed fixtures may overlap this area a maximum of 6 inches, if the lowest portion of the fixture is a minimum of 9 inches above the floor, and may overlap a maximum of 19 inches, if the lowest portion of the fixture is a minimum of 29 inches above the floor, provided such fixtures do not interfere with access to the water closet. Fold-down or retractable seats or shelves may overlap the clear floor space at a lower height provided they can be easily folded up or moved out of the way.

(2) The height of the water closet shall be 17 inches to 19 inches measured to the top of the toilet seat. Seats shall not be sprung to return to a lifted position.

(3) A grab bar at least 24 inches long shall be mounted behind the water closet, and a horizontal grab bar at least 40 inches long shall be mounted on at least one side wall, with one end not more than 12 inches from the back wall, at a height between 33 inches and 36 inches above the floor.

(4) Faucets and flush controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N). Controls for flush valves shall be mounted no more than 44 inches above the floor.

(5) Doorways on the end of the enclosure, opposite the water closet, shall have a minimum clear opening width of 32 inches. Doorways on the side wall shall have a minimum clear opening width of 39 inches. Door latches and hardware shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

(b) Restrooms required to be accessible shall be in close proximity to at least one seating location for persons using mobility aids and shall be connected to such a space by an unobstructed path having a minimum width of 32 inches.

§ 38.109 Between-car barriers.

Where vehicles operate in a high-platform, level-boarding mode, and where between-car bellows are not provided, devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Appropriate devices include, but are not limited to, pantograph gates, chains, motion detectors or other suitable devices.

Subpart F—Intercity Rail Cars and Systems

§ 38.111 General.

(a) New, used and remanufactured intercity rail cars, to be considered accessible by regulations in part 37 of this title shall comply with this subpart to the extent required for each type of car as specified below.

(1) Single-level rail passenger coaches and food service cars (other than single-level dining cars) shall comply with §§ 38.113 through 38.123 of this part. Compliance with § 38.125 of this part shall be required only to the extent necessary to meet the requirements of paragraph (d) of this section.

(2) Single-level dining and lounge cars shall have at least one connecting doorway complying with § 38.113(a)(2) of this part connected to a car accessible to persons using wheelchairs or mobility aids, and at least one space complying with §§ 38.125(d) (2) and (3) of this part, to provide table service to a person who wishes to remain in his or her wheelchair, and space to fold and

store a wheelchair for a person who wishes to transfer to an existing seat.

(3) Bi-level dining cars shall comply with §§ 38.113(a)(2), 38.115(b), 38.117(a), and 38.121 of this part.

(4) Bi-level lounge cars shall have doors on the lower level, on each side of the car from which passengers board, complying with § 38.113, a restroom complying with § 38.123, and at least one space complying with § 38.125(d) (2) and (3) to provide table service to a person who wishes to remain in his or her wheelchair and space to fold and store a wheelchair for a person who wishes to transfer to an existing seat.

(5) Restrooms, complying with § 38.123 shall be provided in single-level rail passenger coaches and food services cars adjacent to the accessible seating locations required by paragraph (d) of this section. Accessible restrooms are required in dining and lounge cars only if restrooms are provided for other passengers.

(6) Sleeper cars shall comply with §§ 38.113 (b) through (d), 38.115 through 38.121, and 38.125, of this part, and have at least one compartment which can be entered and used by a person using a wheelchair or mobility aid and complying with § 38.127 of this part.

(b)(1) If physically and operationally practicable, intercity rail cars shall comply with § 38.113(d) of this part for level boarding.

(2) Where level boarding is not structurally or operationally practicable, intercity rail cars shall comply with § 38.125.

(c) If portions of the car are modified in a way that it affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require that inaccessible cars be retrofitted with lifts, ramps or other boarding devices.

(d) Passenger coaches or food service cars shall have the number of spaces complying with § 38.125(d)(2) of this part and the number of spaces complying with § 38.125(d)(3) of this part, as required by § 37.91 of this title.

(e) Existing cars retrofitted to meet the seating requirements of § 37.91 of this title shall comply with § 38.113(e), § 38.123, § 38.125(d) of this part and shall have at least one door on each side from which passengers board complying with § 38.113(d) of this part. Existing cars designed and manufactured to be accessible in accordance with the Secretary of Transportation regulations implementing section 504 of the Rehabilitation Act of 1973 that were in effect before October 7, 1991, shall comply with § 38.125(a) of this part.

§ 38.113 Doorways.

(a) *Clear width.* (1) At least one doorway, on each side of the car from which passengers board, of each car required to be accessible by § 38.111(a) and where the spaces required by § 38.111(d) of this part are located, and at least one adjacent doorway into coach passenger compartments shall have a minimum clear opening width of 32 inches.

(2) Doorways at ends of cars connecting two adjacent cars, to the maximum extent practicable in accordance with regulations issued under the Federal Railroad Safety Act of 1970 (49 CFR parts 229 and 231), shall have a clear opening width of 32 inches to permit wheelchair and mobility aid users to enter into a single-level dining car, if available.

(b) *Passageway.* Doorways required to be accessible by paragraph (a) of this section shall permit access by persons using mobility aids and shall have an unobstructed passageway at least 32 inches wide leading to an accessible sleeping compartment complying with § 38.127 of this part or seating locations complying with § 38.125(d) of this part. In cars where such doorways require passage through a vestibule, such vestibule shall have a minimum width of 42 inches. (see Fig. 4)

(c) *Signals.* If doors to the platform close automatically or from a remote location, auditory and visual warning signals shall be provided to alert passengers of closing doors.

(d) *Coordination with boarding platforms.*—(1) *Requirements.* Cars which provide level-boarding in stations with high platforms shall be coordinated with the boarding platform or mini-high platform design such that the horizontal gap between a car at rest and the platform shall be no greater than 3 inches and the height of the car floor shall be within plus or minus $\frac{1}{8}$ inch of the platform height. Vertical alignment may be accomplished by car air suspension, platform lifts or other devices, or any combination.

(2) *Exception.* New cars operating in existing stations may have a floor height within plus or minus $1\frac{1}{2}$ inches of the platform height.

(3) *Exception.* Where platform setbacks do not allow the horizontal gap or vertical alignment specified in paragraph (d) (1) or (2), platform or portable lifts complying with § 38.125(b) of this part, or car or platform bridge plates, complying with § 38.125(c) of this part, may be provided.

(4) *Exception.* Retrofitted vehicles shall be coordinated with the platform in existing stations such that the horizontal gap shall be no greater than 4

inches and the height of the vehicle floor, under 50% passenger load, shall be within plus or minus 2 inches of the platform height.

(3) *Signage.* The International Symbol of Accessibility shall be displayed on the exterior of all doors complying with this section unless all cars and doors are accessible and are not marked by the access symbol (see fig. 8). Appropriate signage shall also indicate which accessible doors are adjacent to an accessible restroom, if applicable.

§ 38.115 Interior circulation, handrails and stanchions.

(a) Where provided, handrails or stanchions within the passenger compartment shall be placed to permit sufficient turning and maneuvering space for wheelchairs and other mobility aids to reach a seating location, complying with § 38.125(d) of this part, from an accessible entrance. The diameter or width of the gripping surface of interior handrails and stanchions shall be $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches or shall provide an equivalent gripping surface. Handrails shall be placed to provide a minimum $1\frac{1}{2}$ inches knuckle clearance from the nearest adjacent surface.

(b) Where provided, handrails and stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(c) At entrances equipped with steps, handrails or stanchions shall be provided in the entrance to the car in a configuration which allows passengers to grasp such assists from outside the car while starting to board, and to continue using such assists throughout the boarding process, to the extent permitted by part 231 of this title.

§ 38.117 Floors, steps and thresholds.

(a) Floor surfaces on aisles, step treads and areas where wheelchair and mobility aid users are to be accommodated shall be slip-resistant.

(b) All step edges and thresholds shall have a band of color(s) running the full width of the step or threshold which contrasts from the step tread and riser or adjacent floor, either light-on-dark or dark-on-light.

§ 38.119 Lighting.

(a) Any stepwell, or doorway with a lift, ramp or bridge plate, shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread, ramp, bridge plate or lift platform.

(b) The doorways of cars not operating at lighted station platforms

shall have outside lights which, when the door is open, provide at least 1 foot-candle of illumination on the station platform surface for a distance of 3 feet perpendicular to all points on the bottom step tread edge. Such lights shall be shielded to protect the eyes of entering and exiting passengers.

§ 38.121 Public information system.

(a) Each car shall be equipped with a public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted.

(b) [Reserved].

§ 38.123 Restrooms.

(a) If a restroom is provided for the general public, and an accessible restroom is required by § 38.111 (a) and (e) of this part, it shall be designed so as to allow a person using a wheelchair or mobility aid to enter and use such restroom as specified in paragraphs (a) (1) through (5) of this section.

(1) The minimum clear floor area shall be 35 inches by 60 inches. Permanently installed fixtures may overlap this area a maximum of 6 inches, if the lowest portion of the fixture is a minimum of 9 inches above the floor, and may overlap a maximum of 19 inches, if the lowest portion of the fixture is a minimum of 29 inches above the floor. Fixtures shall not interfere with access to and use of the water closet. Fold-down or retractable seats or shelves may overlap the clear floor space at a lower height provided they can be easily folded up or moved out of the way.

(2) The height of the water closet shall be 17 inches to 19 inches measured to the top of the toilet seat. Seats shall not be sprung to return to a lifted position.

(3) A grab bar at least 24 inches long shall be mounted behind the water closet, and a horizontal grab bar at least 40 inches long shall be mounted on at least one side wall, with one end not more than 12 inches from the back wall, at a height between 33 inches and 36 inches above the floor.

(4) Faucets and flush controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N). Controls for flush valves shall be mounted no more than 44 inches above the floor.

(5) Doorways on the end of the enclosure, opposite the water closet, shall have a minimum clear opening width of 32 inches. Doorways on the

side wall shall have a minimum clear opening width of 39 inches. Door latches and hardware shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

(b) Restrooms required to be accessible shall be in close proximity to at least one seating location for persons using mobility aids complying with § 38.125(d) of this part and shall be connected to such a space by an unobstructed path having a minimum width of 32 inches.

§ 38.125 Mobility aid accessibility.

(a)(1) *General.* All intercity rail cars, other than level entry cars, required to be accessible by §§ 38.111 (a) and (e) of this subpart shall provide a level-change mechanism or boarding device (e.g., lift, ramp or bridge plate) complying with either paragraph (b) or (c) of this section and sufficient clearances to permit a wheelchair or other mobility aid user to reach a seating location complying with paragraph (d) of this section.

(2) *Exception.* If portable or platform lifts, ramps or bridge plates meeting the applicable requirements of this section are provided on station platforms or other stops required to be accessible, or mini-high platforms complying with § 38.113(d) are provided, the car is not required to be equipped with a car-borne device.

(b) *Car Lift—(1) Design load.* The design load of the lift shall be at least 600 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Nonworking parts, such as platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

(2) *Controls—(i) Requirements.* The controls shall be interlocked with the car brakes, propulsion system, or door, or shall provide other appropriate mechanisms or systems, to ensure that the car cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all platform levels normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the roll-off barrier shall be of a monetary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The

controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

(ii) *Exception.* Where physical or safety constraints prevent the deployment at some stops of a lift having its long dimension perpendicular to the car axis, the transportation entity may specify a lift which is designed to deploy with its long dimension parallel to the car axis and which pivots into or out of the car while occupied (i.e., "rotary lift"). The requirements of paragraph (b)(2)(i) of this section prohibiting the lift from being stowed while occupied shall not apply to a lift design of this type if the stowed position is within the passenger compartment and the lift is intended to be stowed while occupied.

(iii) *Exception.* The brake or propulsion system interlocks requirement does not apply to platform mounted or portable lifts provided that a mechanical, electrical or other system operates to ensure that cars do not move when the lift is in use.

(3) *Emergency operation.* The lift shall incorporate an emergency method of deploying, lowering to ground or station platform level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer's instructions, and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift and is intended to be stowed while occupied.

(4) *Power or equipment failure.* Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load carrying component.

(5) *Platform barriers.* The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the lift during its operation. A movable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the car until the lift is in its fully raised position. Each side of the lift platform which, in its raised position, extends beyond the car shall have a barrier a minimum 1½ inches high. Such barriers shall not interfere with

maneuvering into or out of the car. The loading-edge barrier (outer barrier) which functions as a loading ramp when the lift is at ground or station platform level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically rise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the lift platform is more than 3 inches above the station platform and the lift is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged or disengaged by the lift operator provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

(6) *Platform surface.* The lift platform surface shall be free of any protrusions over ¼ inch high and shall be slip resistant. The lift platform shall have a minimum clear width of 28½ inches at the platform, a minimum clear width of 30 inches measured from 2 inches above the lift platform surface to 30 inches above the surface, and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface. (See Fig. 1.)

(7) *Platform gaps.* Any openings between the lift platform surface and the raised barriers shall not exceed ⅝ inch wide. When the lift is at car floor height with the inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and car floor shall not exceed ½ inch horizontally and ⅝ inch vertically.

(8) *Platform entrance ramp.* The entrance ramp, or loading-edge barrier used as a ramp, shall not exceed a slope of 1:8, when measured on level ground, for a maximum rise of 3 inches, and the transition from station platform to ramp may be vertical without edge treatment up to ¼ inch. Thresholds between ¼ inch and ½ inch high shall be beveled with a slope no greater than 1:2.

(9) *Platform deflection.* The lift platform (not including the entrance ramp) shall not deflect more than 3 degrees (exclusive of car roll) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 28 inch by 28 inch test pallet at the centroid of the lift platform.

(10) *Platform movement.* No part of the platform shall move at a rate exceeding 6 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second

during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3g.

(11) *Boarding direction.* The lift shall permit both inbound and outboard facing of wheelchairs and mobility aids.

(12) *Use by standees.* Lifts shall accommodate persons using walkers, crutches, canes or braces or who otherwise have difficulty using steps. The lift may be marked to indicate a preferred standing position.

(13) *Handrails.* Platforms on lifts shall be equipped with handrails, on two sides, which move in tandem with the lift, and which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ⅜ inch. Handrails shall be placed to provide a minimum 1½ inches knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the car.

(c) *Car ramp or bridge plate—(1) Design load.* Ramps or bridge plates 30 inches or longer shall support a load of 600 pounds, placed at the centroid of the ramp or bridge plate distributed over an area of 26 inches by 26 inches, with a safety factor of at least 3 based on the ultimate strength of the material. Ramps or bridge plates shorter than 30 inches shall support a load of 300 pounds.

(2) *Ramp surface.* The ramp or bridge plate surface shall be continuous and slip resistant, shall not have protrusions from the surface greater than ¼ inch high, shall have a clear width of 30 inches and shall accommodate both four-wheel and three-wheel mobility aids.

(3) *Ramp threshold.* The transition from station platform to the ramp or bridge plate and the transition from car floor to the ramp or bridge plate may be vertical without edge treatment up to ¼ inch. Changes in level between ¼ inch

and ½ inch shall be beveled with a slope no greater than 1:2.

(4) *Ramp barriers.* Each side of the ramp or bridge plate shall have barriers at least 2 inches high to prevent mobility aid wheels from slipping off.

(5) *Slope.* Ramps or bridge plates shall have the least slope practicable. If the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 3 inches or less above the station platform a maximum slope of 1:4 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 6 inches or less, but more than 3 inches, above the station platform a maximum slope of 1:6 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is 9 inches or less, but more than 6 inches, above the station platform a maximum slope of 1:8 is permitted; if the height of the vehicle floor, under 50% passenger load, from which the ramp is deployed is greater than 9 inches above the station platform a slope of 1:12 shall be achieved. Folding or telescoping ramps are permitted provided they meet all structural requirements of this section.

(6) *Attachment—(i) Requirement.* When in use for boarding or alighting, the ramp or bridge plate shall be attached to the vehicle, or otherwise prevented from moving such that it is not subject to displacement when loading or unloading a heavy power mobility aid and that any gaps between vehicle and ramp or bridge plate, and station platform and ramp or bridge plate, shall not exceed ⅝ inch.

(ii) *Exception.* Ramps or bridge plates which are attached to, an deployed from, station platforms are permitted in lieu of car devices provided they meet the displacement requirements of paragraph (c)(6)(i) of this section.

(7) *Stowage.* A compartment, securement system, or other appropriate method shall be provided to ensure that stowed ramps or bridge plates, including portable ramps or bridge plates stowed in the passenger area, do not impinge on a passenger's wheelchair or mobility aid or pose any hazard to passengers in the event of a sudden stop.

(8) *Handrails.* If provided, handrails shall allow persons with disabilities to grasp them from outside the car while starting to board, and to continue to use them throughout the boarding process, and shall have the top between 30 inches and 38 inches above the ramp surface. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure.

The handrail shall have a cross-sectional diameter between 1 ¼ inches and 1 ½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ¼ inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the car.

(d) *Seating*—(1) *Requirements*. All intercity rail cars required to be accessible by §§ 38.111 (a) and (e) of this subpart shall provide at least one, but not more than two, mobility aid seating location(s) complying with paragraph (d)(2) of this section; and at least one, but not more than two, seating location(s) complying with paragraph (d)(3) of this section which adjoin or overlap an accessible route with a minimum clear width of 32 inches.

(2) *Wheelchair or mobility aid spaces*. Spaces for persons who wish to remain in their wheelchairs or mobility aids shall have a minimum clear floor area 48 inches by 30 inches. Such space may have fold-down or removable seats for use when not occupied by a wheelchair or mobility aid user. (See Fig. 2.)

(3) *Other spaces*. Spaces for individuals who wish to transfer shall include a regular coach seat or dining car booth or table seat and space to fold and store the passenger's wheelchair.

§ 38.127 Sleeping compartments.

(a) Sleeping compartments required to be accessible shall be designed so as to allow a person using a wheelchair or mobility aid to enter, maneuver within and approach and use each element within such compartment. (See Fig. 5.)

(b) Each accessible compartment shall contain a restroom complying with § 38.123(a) which can be entered directly from such compartment.

(c) Controls and operating mechanisms (e.g., heating and air conditioning controls, lighting controls, call buttons, electrical outlets, etc.) shall be mounted no more than 48 inches, and no less than 15 inches, above the floor and shall have a clear floor area directly in front a minimum of 30 inches by 48 inches. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

Subpart G—Over-the-Road Buses and Systems

§ 38.151 General.

(a) New, used and remanufactured over-the-road buses, to be considered accessible by regulations in part 37 of this title, shall comply with this subpart.

(b) Over-the-road buses covered by § 37.7 (c) of this title shall comply with § 38.23 and this subpart.

§ 38.153 Doors, steps and thresholds.

(a) Floor surfaces on aisles, step treads and areas where wheelchair and mobility aid users are to be accommodated shall be slip-resistant.

(b) All step edges shall have a band of color(s) running the full width of the step which contrasts from the step tread and riser, either dark-on-light or light-on-dark.

(c) To the maximum extent practicable, doors shall have a minimum clear width when open of 30 inches, but in no case less than 27 inches.

§ 38.155 Interior circulation, handrails and stanchions.

(a) Handrails and stanchions shall be provided in the entrance to the vehicle in a configuration which allows passengers to grasp such assists from outside the vehicle while starting to board, and to continue using such handrails or stanchions throughout the boarding process. Handrails shall have a cross-sectional diameter between 1 ¼ inches and 1 ½ inches or shall provide an equivalent grasping surface, and have eased edges with vcorner radii of not less than ¼ inch. Handrails shall be placed to provide a minimum 1 ½ inches knuckle clearance from the nearest adjacent surface. Where on-board fare collection devices are used, a horizontal passenger assist shall be located between boarding passengers and the fare collection device and shall prevent passengers from sustaining injuries on the fare collection device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the door through the boarding procedure. Passengers shall be able to lean against the assist for security while paying fares.

(b) Where provided within passenger compartments, handrails or stanchions shall be sufficient to permit safe on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

§ 38.157 Lighting.

(a) Any stepwell or doorway immediately adjacent to the driver shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread.

(b) The vehicle doorway shall have outside light(s) which, when the door is open, provide at least 1 foot-candle of illumination on the street surface for a distance of 3 feet perpendicular to all

points on the bottom step tread outer edge. Such light(s) shall be located below window level and shielded to protect the eyes of entering and exiting passengers.

§ 38.159 Mobility aid accessibility. [Reserved]

Subpart H—Other Vehicles and Systems

§ 38.171 General.

(a) New, used and remanufactured vehicles and conveyances for systems not covered by other subparts of this part, to be considered accessible by regulations in part 37 of this title shall comply with this subpart.

(b) If portions of the vehicle or conveyance are modified in a way that affects or could affect accessibility, each such portion shall comply, to the extent practicable, with the applicable provisions of this subpart. This provision does not require that inaccessible vehicles be retrofitted with lifts, ramps or other boarding devices.

(c) Requirements for vehicles and systems not covered by this part shall be determined on a case-by-case basis by the Department of Transportation in consultation with the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).

§ 38.173 Automated guideway transit vehicles and systems.

(a) Automated Guideway Transit (AGT) vehicles and systems, sometimes called "people movers", operated in airports and other areas where AGT vehicles travel at slow speed, shall comply with the provisions of § 38.53 (a) through (c), and §§ 38.55 through 38.61 of this part for rapid rail vehicles and systems.

(b) Where the vehicle covered by paragraph (a) will operate in an accessible station, the design of vehicles shall be coordinated with the boarding platform design such that the horizontal gap between a vehicle door at rest and the platform shall be no greater than 1 inch and the height of the vehicle floor shall be within plus or minus ½ inch of the platform height under all normal passenger load conditions. Vertical alignment may be accomplished by vehicle air suspension or other suitable means of meeting the requirement.

(c) In stations where open platforms are not protected by platform screens, a suitable device or system shall be provided to prevent, deter or warn individuals from stepping off the platform between cars. Acceptable devices include, but are not limited to,

pantograph gates, chains, motion detectors or other appropriate devices.

(d) Light rail and rapid rail AGT vehicles and systems shall comply with subparts D and C of this part, respectively.

§ 38.175 High-speed rail cars, monorails and systems.

(a) All cars for high-speed rail systems, including but not limited to those using "maglev" or high speed steel-wheel-on-steel rail technology, and monorail systems operating primarily on dedicated rail (i.e., not used by freight trains) or guideway, in which stations are constructed in accordance with Part 37, Subpart C of this title, shall be designed for high-platform, level boarding and shall comply with § 38.111(a) of this part for each type of car which is similar to intercity rail, §§ 38.111(d), 38.113 (a) through (c) and (e), 38.115 (a) and (b), 38.117 (a) and (b), 38.121 through 38.123, 38.125(d), and 38.127 (if applicable) of this part. The design of cars shall be coordinated with the boarding platform design such that

the horizontal gap between a car door at rest and the platform shall be no greater than 3 inches and the height of the car floor shall be within plus or minus ½ inch of the platform height under all normal passenger load conditions. Vertical alignment may be accomplished by car air suspension or other suitable means of meeting the requirement. All doorways shall have, when the door is open, at least 2 footcandles of illumination measured on the door threshold.

(b) All other high-speed rail cars shall comply with the similar provisions of subpart F of this part.

§ 38.177 Ferries, excursion boats and other vessels. (Reserved)

§ 38.179 Trams, and similar vehicles, and systems

(a) New and used trams consisting of a tractor unit, with or without passenger accommodations, and one or more passenger trailer units, including but not limited to vehicles providing shuttle service to remote parking areas,

between hotels and other public accommodations, and between and within amusement parks and other recreation areas, shall comply with this section. For purposes of determining applicability of 49 CFR 37.101, 37.103, or 37.105 the capacity of such a vehicle or "train" shall consist of the total combined seating capacity of all units, plus the driver, prior to any modification for accessibility.

(b) Each tractor unit which accommodates passengers and each trailer unit shall comply with § 38.25 and § 38.29 of this part. In addition, each such unit shall comply with § 38.23 (b) or (c) and shall provide at least one space for wheelchair or mobility aid users complying with § 38.23(d) of this part unless the complete operating unit consisting of tractor and one or more trailers can already accommodate at least two wheelchair or mobility aid users.

Figures in Part 38

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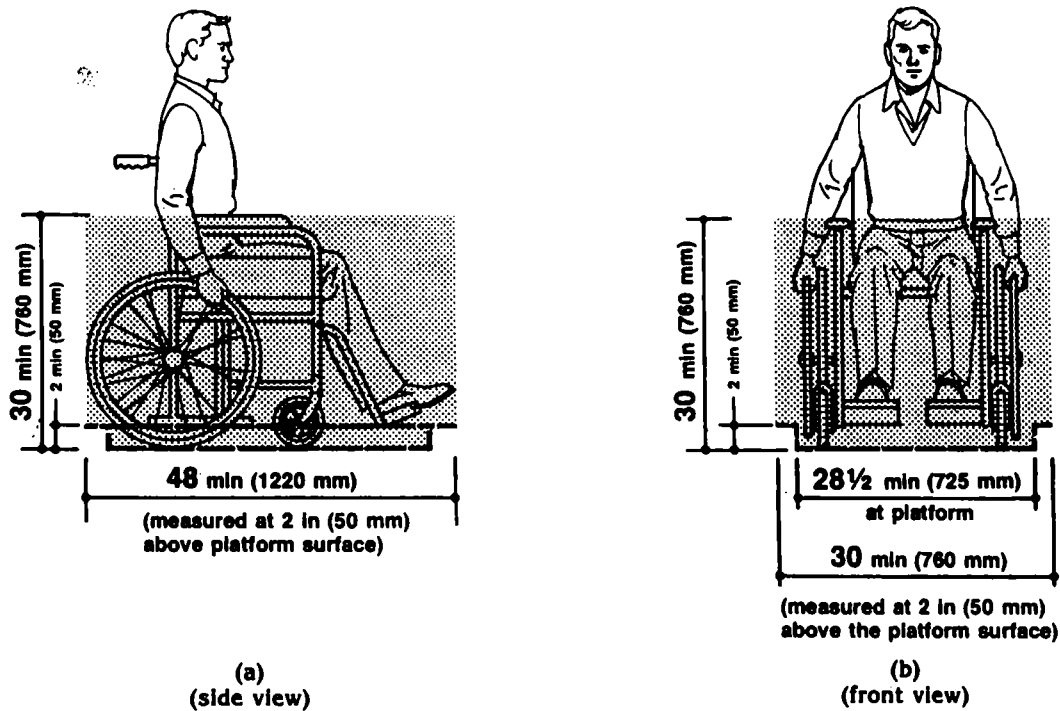


Fig. 1
Wheelchair or Mobility Aid Envelope

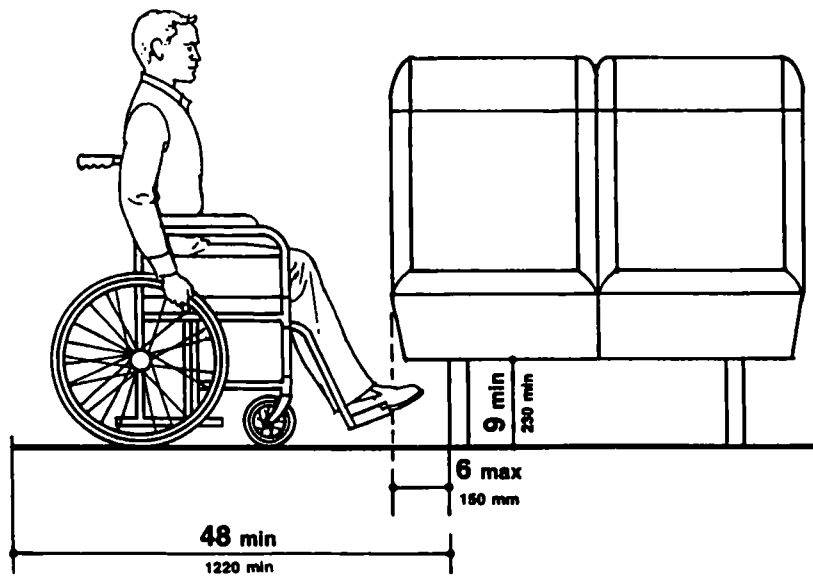


Fig. 2
Toe Clearance Under a Seat

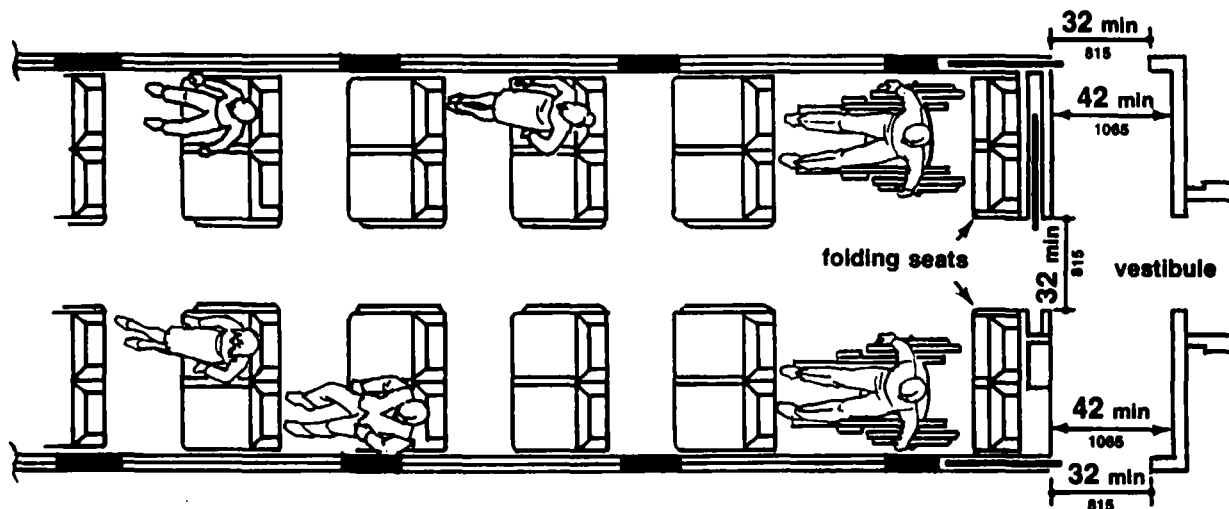


Fig. 3
Commuter Rail Car (without restrooms)

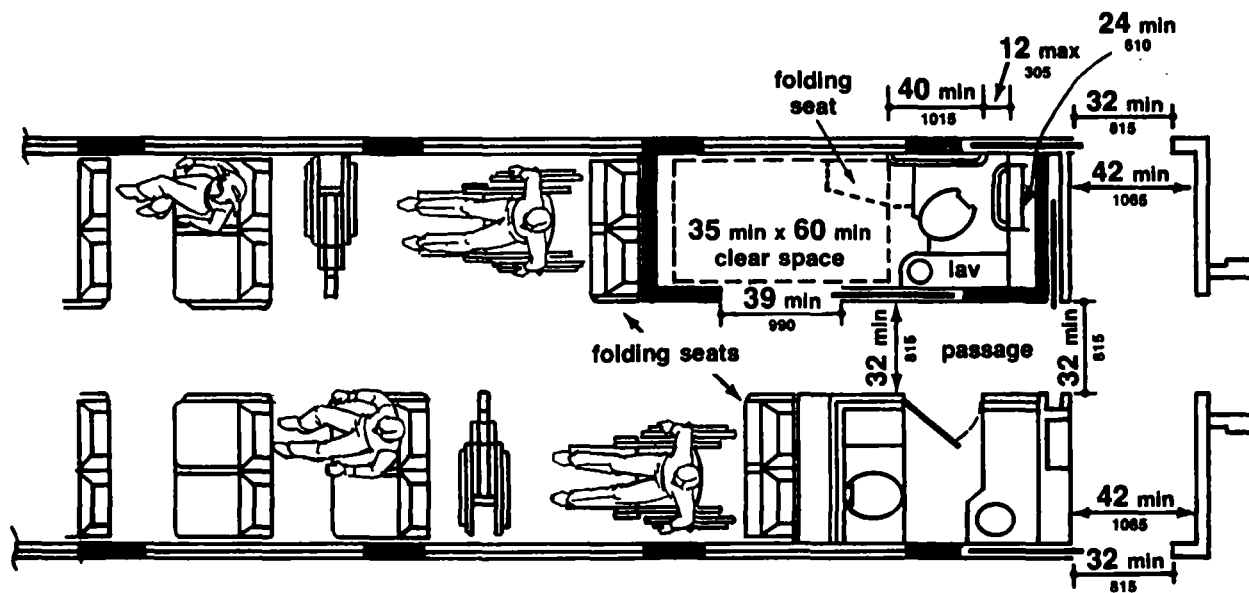


Fig. 4
Intercity Rail Car (with accessible restroom)

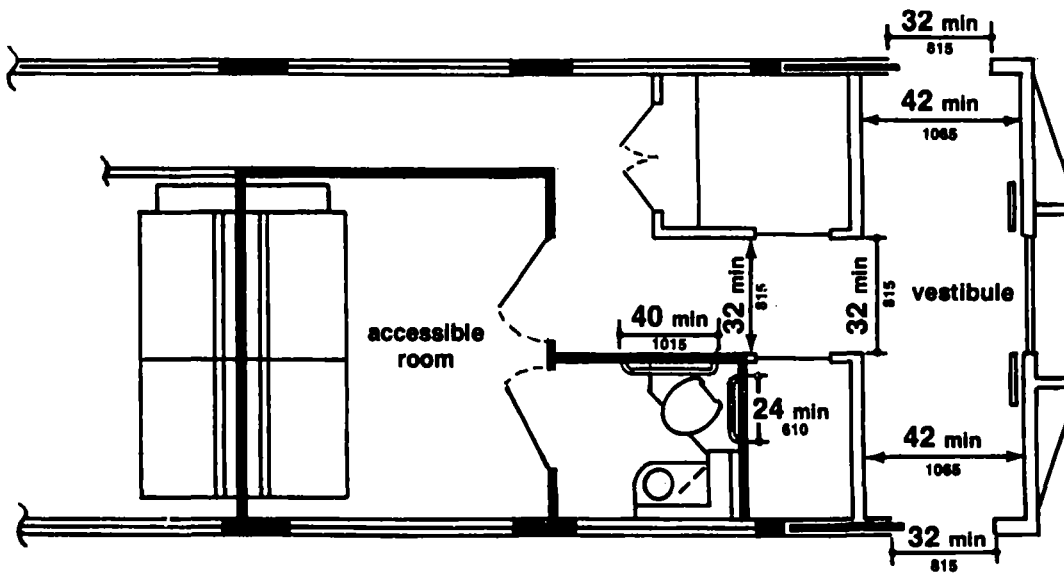
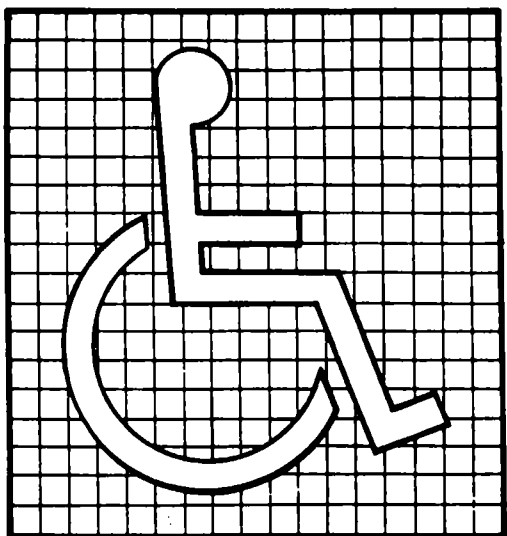


Fig. 5
Intercity Rail Car (with accessible sleeping compartment)



(a)
Proportions



(b)
Display Conditions

Fig. 6
International Symbol of Accessibility

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Appendix to Part 38: Guidance Material

This appendix contains materials of advisory nature and provides additional information that should help the reader to understand the minimum requirements of the standards or to design vehicles for greater accessibility. Each entry is applicable to all subparts of this part except where noted. Nothing in this appendix shall in any way obviate any obligation to comply with the requirements of the standards themselves.

I. Slip Resistant Surface—Aisles, Steps, Floor Areas Where People Walk, Floor Areas in Securement Locations, Lift Platforms, Ramps

Slip resistance is based on the frictional force necessary to keep a shoe heel or crutch tip from slipping on a walking surface under conditions likely to be found on the surface. While the dynamic coefficient of friction during walking varies in a complex and non-uniform way, the static coefficient of friction, which can be measured in several ways, provides a close approximation of the slip resistance of a surface. Contrary to popular belief, some slippage is necessary to walking, especially for persons with restricted gaits; a truly "non-slip" surface could not be negotiated.

The Occupational Safety and Health Administration recommends that walking surfaces have a static coefficient of friction of 0.5. A research project sponsored by the Architectural and Transportation Barriers Compliance Board (Access Board) conducted tests with persons with disabilities and concluded that a higher coefficient of friction was needed by such persons. A static coefficient of friction of 0.6 is recommended for steps, floors, and lift platforms and 0.8 for ramps.

It is recognized that the coefficient of friction varies considerably due to the presence of contaminants, water, floor finishes, and other factors not under the control of transit providers and may be difficult to measure. Nevertheless, many common materials suitable for flooring are now labeled with information on the static coefficient of friction. While it may not be possible to compare one product directly with another, or to guarantee a constant measure, transit operators or vehicle designers and manufacturers are encouraged to specify materials with appropriate values. As more products include information on slip resistance, improved uniformity in measurement and specification is likely. The Access Board's advisory guidelines on Slip Resistant Surfaces provides additional information on this subject.

II. Color Contrast—Step Edges, Lift Platform Edges

The material used to provide contrast should contrast by at least 70%. Contrast in percent is determined by:

$$\text{Contrast} = (B - B')/B' \times 100$$

Where B = light reflectance value (LRV) of the lighter area

and B' = light reflectance value (LRV) of the darker area.

Note that in any application both white and black are never absolute; thus, B never equals 100 and B' is always greater than 0.

III. Handrails and Stanchions

In addition to the requirements for handrails and stanchions for rapid, light, and commuter rail vehicles, consideration should be given to the proximity of handrails or stanchions to the area in which wheelchair or mobility aid users may position themselves. When identifying the clear floor space where a wheelchair or mobility aid user can be accommodated, it is suggested that at least one such area be adjacent or in close proximity to a handrail or stanchion. Of course, such a handrail or stanchion cannot encroach upon the required 32 inch width required for the doorway or the route leading to the clear floor space which must be at least 30 by 48 inches in size.

IV. Priority Seating Signs and Other Signage

A. *Finish and Contrast.* The characters and background of signs should be eggshell, matte, or other non-glare finish. An eggshell finish (11 to 19 degree gloss on 60 degree glossimeter) is recommended. Characters and symbols shall contrast with their background—either light characters on a dark background or dark characters on a light background. Research indicates that signs are more legible for persons with low vision when characters contrast with their background by at least 70 percent. Contrast in percent shall be determined by:

$$\text{Contrast} = (B - B')/B' \times 100$$

Where B = light reflectance value (LRV) of the lighter area

and B' = light reflectance value (LRV) of the darker area.

Note that in any application both white and black are never absolute; thus, B never equals 100 and B' is always greater than 0.

The greatest readability is usually achieved through the use of light-colored characters or symbols on a dark background.

B. *Destination and Route Signs.* (The following specifications, which are required for buses (§ 38.39), are recommended for other types of vehicles, particularly light rail vehicles, where appropriate.)

1. Where destination or route information is displayed on the exterior of a vehicle, each vehicle shall have illuminated signs on the front and boarding side of the vehicle.

2. Characters on signs required by paragraph IV.B.1 of this appendix shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of 1 inch for signs on the boarding side and a minimum character height of 2 inches for front "headsigs," with "wide" spacing (generally, the space between letters shall be 1/2 the height of upper case letters), and shall contrast with the background, either dark-on-light or light-on-dark, or as recommended above.

C. *Designation of Accessible Vehicles.* The International Symbol of Accessibility should be displayed as shown in Figure 6.

V. Public Information Systems

This section has been reserved and there currently is no requirement that vehicles be equipped with an information system which is capable of providing the same or

equivalent information to persons with hearing loss. While the Department assesses available and soon-to-be available technology during a study to be conducted during Fiscal Year 1992, entities are encouraged to employ whatever services, signage or alternative systems or devices that provide equivalent access and are available. Two possible types of devices are visual display systems and listening systems. However, it should be noted that while visual display systems accommodate persons who are deaf or are hearing impaired, assistive listening systems aid only those with a partial loss of hearing.

A. Visual Display Systems.

Announcements may be provided in a visual format by the use of electronic message boards or video monitors.

Electronic message boards using a light emitting diode (LED) or "flip-dot" display are currently provided in some transit stations and terminals and may be usable in vehicles. These devices may be used to provide real time or pre-programmed messages; however, real time message displays require the availability of an employee for keyboard entry of the information to be announced.

Video monitor systems, such as visual paging systems provided in some airports (e.g., Baltimore-Washington International Airport), are another alternative. The Architectural and Transportation Barriers Compliance Board (Access Board) can provide technical assistance and information on these systems ("Airport TDD Access: Two Case Studies," (1990)).

B. *Assistive Listening Systems.* Assistive listening systems (ALS) are intended to augment standard public address and audio systems by providing signals which can be received directly by persons with special receivers or their own hearing aids and which eliminate or filter background noise. Magnetic induction loops, infra-red and radio frequency systems are types of listening systems which are appropriate for various applications.

An assistive listening system appropriate for transit vehicles, where a group of persons or where the specific individuals are not known in advance, may be different from the system appropriate for a particular individual provided as an auxiliary aid or as part of a reasonable accommodation. The appropriate device for an individual is the type that individual can use, whereas the appropriate system for a station or vehicle will necessarily be geared toward the "average" or aggregate needs of various individuals. Earphone jacks with variable volume controls can benefit only people who have slight hearing loss and do not help people who use hearing aids. At the present time, magnetic induction loops are the most feasible type of listening system for people who use hearing aids equipped with "T-coils", but people without hearing aids or those with hearing aids not equipped with inductive pick-ups cannot use them without special receivers. Radio frequency systems can be extremely effective and inexpensive. People without hearing aids can use them, but people with hearing aids need a special receiver to use them as they are presently

designed. If hearing aids had a jack to allow a by-pass of microphones, then radio frequency systems would be suitable for people with and without hearing aids. Some listening systems may be subject to interference from other equipment and feedback from hearing aids of people who are using the systems. Such interference can be controlled by careful engineering design that anticipates feedback sources in the surrounding area.

The Architectural and Transportation Barriers Compliance Board (Access Board) has published a pamphlet on Assistive Listening Systems which lists demonstration centers across the country where technical assistance can be obtained in selecting and installing appropriate systems. The State of New York has also adopted a detailed technical specification which may be useful.

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APPENDIX B

Important Terms, Definitions, and Abbreviations

Appendix B

Important Terms, Definitions and Abbreviations

Accessible means, with respect to vehicles and facilities, complying with the accessibility requirements of 49 CFR Parts 37 and 38.

The Act or ADA means the Americans with Disabilities Act of 1990 (Pub. L. 101-336, 104 Stat. 327, 42 U.S.C. 12101-12213 and 47 U.S.C. 225 and 611), as it may be amended from time to time.

Administrator means Administrator of the Urban Mass Transportation Administration, or his or her designee.

Alteration means a change to an existing facility, including, but not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, changes or rearrangement in structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, reroofing, painting or wallpapering, asbestos removal, or changes to mechanical or electrical systems are not alterations unless they affect the usability of the building or facility.

APTA means the American Public Transit Association.

ATBCB or Access Board means the Architectural and Transportation Barriers Compliance Board.

Attendant means a person traveling as an aid, such as a personal care attendant, to facilitate travel by a person with a disability.

Auxiliary aids and services includes:

- (1) Qualified interpreters, notetakers, transcription services, written materials, telephone headset amplifiers, assistive listening devices, assistive listening systems, telephones compatible with hearing aids, closed caption decoders, closed and open captioning, text telephones (also known as telephone devices for the deaf, or TDDs), videotext displays, or other effective methods of making aurally delivered materials available to individuals with hearing impairments;
- (2) Qualified readers, taped texts, audio recordings, brailled materials, large print materials, or other effective methods of making visually delivered materials available to individuals with visual impairments;
- (3) Acquisition or modification of equipment or devices; or
- (4) Other similar services or actions.

Brokerage refers to a method of paratransit operation in which a central administering agency coordinates the provision of service by various operators for participating funding programs. Brokerage is explained in more detail in Section 3 of Chapter 6.

Bus means any of several types of self-propelled vehicles, generally rubber-tired, intended for use on city streets, highways, and busways, including but not limited to minibuses, forty- and thirty- foot buses, articulated buses, double-deck buses, and electrically powered trolley buses, used by public entities to provide designated public transportation service and by private entities to provide transportation service including, but not limited to, specified public transportation services. Self-propelled, rubber-tired vehicles designed to look like antique or vintage trolleys are considered buses.

Call-A-Lift-Bus describes a type of program that allows riders to call in advance and request that an accessible vehicle be placed on a specific fixed route at a specific time. This type of program is described in Section 3 of Chapter 6.

Capacity constraint is a limit on the amount of service that is provided or the amount of demand that is expressed. It is one of the six Service Criteria (see definition) used to define comparability of fixed route and complementary paratransit service. Can be caused by an action or circumstance, whether intended or unintended, which tends to limit demand. Can include the provision of poor service or specific actions and policies such as waiting lists, trip limits, and service denials.

Commerce means travel, trade, transportation, or communication among the several states, between any foreign country or any territory or possession and any state, or between points in the same state but through another state or foreign country.

Common wheelchair (see "Wheelchair").

Commuter authority means any state, local, regional authority, corporation, or other entity established for purposes of providing commuter rail transportation (including, but not necessarily limited to, the New York Metropolitan Transportation Authority, the Connecticut Department of Transportation, the Maryland Department of Transportation, the Southeastern Pennsylvania Transportation Authority, the New Jersey Transit Corporation, the Massachusetts Bay Transportation Authority, the Port Authority Trans-Hudson Corporation, and any successor agencies) and any entity created by one or more such agencies for the purposes of operating, or contracting for the operation of, commuter rail transportation.

Commuter bus service means fixed route bus service characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs. Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation.

Commuter rail transportation means short-haul rail passenger service operating in metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fare, multiple ride and communication tickets and by morning and evening peak period operations. This term does not include light or rapid rail transportation.

Commuter rail car means a rail passenger car obtained by a commuter authority for use in commuter rail transportation.

Companion means a person, other than an attendant, traveling with an ADA paratransit eligible customer and having the same origins and destinations as the eligible individual.

Contract means any formal or informal arrangement between parties for the provision of specified service.

Core service area means that portion of the complementary paratransit service area in which corridors with a width of three-fourths of a mile on each side of each fixed route merge together such that, with few and small exceptions, all origins and destinations within the area would be served.

Core service hours include peak periods of fixed route service use, as these periods are defined locally, consistent with industry practice.

CTAA means the Community Transportation Association of America.

Demand responsive system means any system of transporting individuals, including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including but not limited to specified public transportation service, which is not a fixed route system.

Designated public transportation means transportation provided by a public entity (other than public school transportation) by bus, rail, or other conveyance (other than transportation by aircraft or intercity or commuter rail transportation) that provides the general public with general or special service, including charter service, on a regular and continuing basis.

Disability means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment.

(1) The phrase "physical or mental impairment" means -

(i) Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological, musculoskeletal, special sense organs, respiratory including speech organs, cardiovascular, reproductive, digestive, genito-urinary, hemic and lymphatic, skin, and endocrine;

(ii) Any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities.

(iii) The term "physical or mental impairment" includes, but is not limited to, such contagious or noncontagious diseases and conditions as orthopedic, visual, speech, and hearing impairments; cerebral palsy, epilepsy, muscular dystrophy, multiple sclerosis, cancer, heart disease, diabetes, mental retardation, emotional illness, specific learning disabilities, HIV disease, tuberculosis, drug addiction and alcoholism.

(iv) The phrase "physical or mental impairment" does not include homosexuality or bisexuality.

(2) The phrase "major life activities" means functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.

(3) The phrase "has a record of such an impairment" means has a history of, or been misclassified as having, a mental or physical impairment that substantially limits one or more major life activities.

(4) The phrase "is regarded as having such an impairment" means--

(i) Having a physical or mental impairment that does not substantially limit major life activities, but which is treated by a public or private entity as constituting such a limitation;

(ii) Has a physical or mental impairment that substantially limits a major life activity only as a result of the attitudes of others toward such an impairment; or

(iii) Has none of the impairments defined in paragraph (1) of this definition but is treated by a public or private entity as having such an impairment.

(5) The term "disability" does not include --

(i) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identify disorders not resulting from physical impairments, or other sexual behavior disorders;

(ii) Compulsive gambling, kleptomania, or pyromania;

(iii) Psychoactive substance abuse disorders resulting from the current illegal use of drugs.

Environmental illness means an adverse health effect caused by the presence of foreign substances.

Facility means all or any portion of buildings, structures, sites, complexes, equipment, roads, walks, passageways, parking lots, or other real or personal property, including the site where the building, property, structure, or equipment is located.

Feeder service means providing a fixed route system user with paratransit service to or from an accessible station or stop.

Fixed route system means a system of transporting individuals (other than by aircraft), including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including but not limited to, specified public transportation service, on which a vehicle is operated along a prescribed route according to a fixed schedule.

High speed rail means a rail service having the characteristics of intercity rail service which operates primarily on a dedicated guideway or track not used, for the most part, by freight, including, but not limited to, trains on welded rail, magnetically levitated (maglev) vehicles on a special guideway, or other advanced technology vehicles, designed to travel at speeds in excess of those possible on other types of railroads.

Individual with a disability means a person who has a disability, but does not include an individual who is currently engaging in the illegal use of drugs, when a public or private entity acts on the basis of such use.

Intercity rail passenger car means a rail car, intended for use by revenue passengers, obtained by the National Railroad Passenger Corporation (Amtrak) for use in intercity rail transportation.

Intercity rail transportation means transportation provided by Amtrak.

Key routes are fixed routes along which there is service at least hourly throughout the day.

Light rail means a streetcar-type vehicle operated on city streets, semi-exclusive rights of way, or exclusive rights of way. Service may be provided by step-entry vehicles or by level boarding.

Mobility aid means a device, animal, or thing used by a person to facilitate travel. Can include equipment, such as a wheelchair, walker, or cane. Can also include a service animal such as a seeing eye dog.

New vehicle means a vehicle which is offered for sale or lease after manufacture without any prior use.

No-show refers to a person who misses a scheduled paratransit trip without canceling the trip far enough in advance to allow the schedule to be adjusted.

Operates includes, with respect to a fixed route or demand-responsive system, the provision of transportation service by the public or private entity itself or by a person under a contractual or other arrangement or relationship with the entity.

Origin-to-destination service means providing paratransit for the entire length of the trip without a transfer to the fixed route system.

Over-the-road bus means a bus characterized by an elevated passenger deck located over a baggage compartment.

Paratransit means comparable transportation service required by the ADA for individuals with disabilities who are unable to use fixed route transportation systems.

PCA means a personal care attendant (see "Attendant").

Point deviation describes a method of demand responsive operation under which vehicles arrive at designated checkpoints at specified times but do not follow fixed routes between checkpoints. This method of operation is explained in Section 3 of Chapter 6.

Private entity means any entity other than a public entity.

Project ACTION is a program funded by the Urban Mass Transportation Administration and managed by the National Easter Seal Society to promote and improve Accessible Community Transportation In Our Nation.

Public entity means:

- (1) Any state or local government;
- (2) Any department, agency, special purpose district, or other instrumentality of one or more state or local governments; and
- (3) The National Railroad Passenger Corporation (Amtrak) and any commuter authority.

Public school transportation means transportation by schoolbus vehicles of school children, personnel, and equipment to and from a public elementary or secondary school and school-related activities.

Purchase or lease with respect to vehicles, means the time at which an entity is legally obligated to obtain the vehicles, such as the time of contract execution.

Rapid rail means a subway-type transit vehicle railway operated on exclusive private rights of way with high level platform stations. Rapid rail also may operate on elevated or at grade level track separated from other traffic.

Remanufactured vehicle means a vehicle which has been structurally restored and has had new or rebuilt major components installed to extend its service life.

Response time is one of the six Service Criteria (see definition). Refers to the elapsed time between a request for service and the provision of service, where the provision of service is measured as the time the vehicle arrives to pick-up the rider.

Route deviation describes a method of operation under which vehicles can leave designated routes to pick-up or drop-off passengers. This type of operation is explained in Section 3 of Chapter 6.

Secretary means the Secretary of Transportation or his or her designee.

Section 504 means Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112, 87 Stat. 394, 29 U.S.C. 794), as amended.

Securement area means the area on-board a vehicle designated for use by wheelchair-users.

Securement system means the equipment used on-board a vehicle to keep wheelchairs (see definition) stationary during transport and to protect passengers in the event of an accident or sudden unexpected movement. Can include both the equipment for affixing

the wheelchair to the vehicle and seat belts for use by the passengers.

Service animal means any guide dog, signal dog, or other animal individually trained to work or perform tasks for an individual with a disability, including, but not limited to, guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.

Service criteria means the six service measures used to define comparability between fixed route service and complementary paratransit service. The measures include service area, response time, fares, trip purpose, hours and days of service, and capacity constraints.

Service route is a vehicle route designed by taking into account the travel demands of persons with disabilities or other riders. Section 3 of Chapter 6 provides information about this transportation service concept.

Solicitation means the closing date for the submission of bids or offers in a procurement.

Specified public transportation means transportation by bus, rail, or any other conveyance (other than aircraft) provided by a private entity to the general public, with general or special service (including charter service) on a regular and continuing basis.

Station means, with respect to intercity and commuter rail transportation, the portion of a property located appurtenant to a right of way on which intercity or commuter rail transportation is operated, where such portion is used by the general public and is related to the provision of such transportation, including passenger platforms, designated waiting areas, restrooms, and, where a public entity providing rail transportation owns the property, concession areas to the extent that such public entity exercises control over the selection, design, construction, or alteration of the property, but this term does not include flag stops (i.e., stations which are not regularly scheduled stops but at which trains will stop board or detain passengers only on signal or advance notice).

Subscription Service means providing paratransit or demand responsive transportation over an extended period of time for repetitive trips for purposes including but not limited to employment, education, or ongoing medical treatment without requiring that a reservation be placed for each trip.

TDD means telecommunication display device, also known as a "text telephone". This device enables persons with hearing or speech impairments to send and receive typed messages via telephone.

Transit facility means, for purposes of determining the number of text telephones needed consistent with §10.3.1(12) of Appendix A of 49 CFR Part 37, a physical structure the primary function of which is to facilitate access to and from a transportation system which has scheduled stops at the structure. The term does not include an open structure or a physical structure the primary purpose of which is other than providing transportation services.

UMT Act means the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. App. §1601 et seq.).

UMTA means the Urban Mass Transportation Administration of the United States Department of Transportation.

USDOT means the United States Department of Transportation.

Used vehicle means a vehicle with prior use.

User-side subsidy refers to a method of paratransit operation under which vouchers are sold to riders who are then able to call and receive service from any participating operator. Vouchers are provided to the operator in lieu of fare and are then submitted to the funding agency to verify that service was provided when payment for service is requested. This type of operation is discussed in Section 3 of Chapter 6.

Vanpool means a voluntary commuter ridesharing arrangement, using vans with a seating capacity greater than 7 persons (including the driver) or buses, which provides transportation to a group of individuals traveling directly from their homes to their regular places of work within the same geographical area, and in which the commuter/driver does not receive compensation beyond reimbursement for his or her costs of providing the service.

Vehicle, as the term is applied to private entities, does not include a rail passenger car, railroad locomotive, railroad freight car, or railroad caboose, or other rail rolling stock described in section 242 or Title III of the Act.

Wheelchair means a mobility aid belonging to any class of three or four wheeled devices, usable indoors, designed for and used by individuals with mobility impairments, whether operated manually or powered. A "common wheelchair" is such a device which does not exceed 30 inches in width and 48 inches in length measured two inches above the ground, and does not weigh more than 600 pounds when occupied.

APPENDIX C

Endorsements and Certifications

Individual plans must contain endorsements/certifications C.1, C.2, and C.3. Joint plans submitted in their entirety by January 26, 1992 must contain endorsements/certifications C.1, C.2, and C.3 from each participating public entity. All plans which include services provided by other entities must include C.4. Incomplete joint plans submitted on January 26, 1992 also must contain certifications C.5 and C.6 from each participating public entity.

C.1 - Resolution Authorizing the Plan

C.2 - MPO Certification of Paratransit Plan

C.3 - Existing Paratransit Service Survey Certification

C.4 - Included Service Certification

C.4 - Joint Plan Certification I

C.5 - Joint Plan Certification II

C.1 - Resolution Authorizing the Plan

This is to certify that the board of directors of (name of submitting entity)
approved and adopted the ADA paratransit plan which is attached at a meeting on
 (date of board vote) .

signature

name of authorized official

title

date

NOTE: If the public entity does not function with a board of directors, a
similar statement must be submitted by the entity's chief executive.

C.2 - MPO Certification of Paratransit Plan

The (name of Metropolitan Planning Organization) hereby certifies that it has reviewed the ADA paratransit plan prepared by (name of submitting entity (ies)) as required under 49 CFR 37.139(h) and finds it to be in conformance with the transportation plan developed under 49 CFR part 613 and 23 CFR part 450 (the UMTA/FHWA joint planning regulation). This certification is valid for one year.

signature

name of authorized official

title

date

C.3 - Existing Paratransit Service Survey

This is to certify that (name of public entity (ies)) has conducted a survey of existing paratransit services as required by 49 CFR 37.137 (a).

signature

name of authorized official

title

date

C.4 - Included Service Certification

This is to certify that service provided by other entities but included in the ADA paratransit plan submitted by (name of submitting entity (ies)) meets the requirements of 49 CFR part 37 subpart F providing that ADA eligible individuals have access to the service; the service is provided in the manner represented; and, that efforts will be made to coordinate the provision of paratransit service offered by other providers.

signature

name of authorized official

title

date

C.5 - Joint Plan Certification I

This is to certify that (name of public entity covered by joint plan) is committed to providing ADA paratransit service as part of this coordinated plan in conformance with the requirements of 49 CFR part 37 subpart F.

signature

name of authorized official

title

date

C.6 - Joint Plan Certification II

This is to certify that (name of public entity covered by joint plan) will, in accordance with 49 CFR 37.141, maintain current levels of paratransit service until the coordinated plan goes into effect.

signature

name of authorized official

title

date

APPENDIX D

Sample "Request for Certification of ADA Paratransit Eligibility" form

Sample "Request for Professional Verification" form

SAMPLE REQUEST FOR CERTIFICATION OF ADA PARATRANSIT ELIGIBILITY

The information obtained in this certification process will only be used by the (name of public entity) for the provision of transportation services. Information will only be shared with other transit providers to facilitate travel in those areas. The information will not be provided to any other person or agency.

1.	Name		
2.	Address		
		State	Zip
3.	Telephone Number (Home)		(Work)
4.	Date of Birth		

5.	What is the disability which prevents you from using our fixed route service?	
	Is this condition temporary?	If Yes, expected duration until

6.	How does this disability prevent you from using fixed route services? Please explain completely. Use an additional sheet if needed.	
7.	Are there any other effects of your disability of which we need to be aware?	

THE FOLLOWING INFORMATION WILL BE USED TO ENSURE THAT AN APPROPRIATE VEHICLE IS UTILIZED TO PROVIDE YOUR TRANSPORTATION AND THAT AN ACCURATE ANALYSIS OF YOUR TRIP REQUESTS CAN BE MADE BY THE (NAME OF PUBLIC ENTITY).

8. Do you use any of the following aids to mobility? (Check all that apply)

Manual wheelchair____ Electric wheelchair____ Powered scooter____
Cane____ Crutches____ Personal care attendant____ Guide dog____

9. Do you require a Personal Care Attendant when you travel using transit?

Yes____ No____

10. Please Answer the following questions:

Can you travel 200 feet without the assistance of another person?

Yes____ No____ Sometimes____

Can you travel 1/4 mile without the assistance of another person?

Yes____ No____ Sometimes____

Can you travel (Insert maximum corridor dimension) without the assistance of another person?

Yes____ No____ Sometimes____

Can you climb three 12-inch steps without assistance?

Yes____ No____ Sometimes____

Can you wait outside without support for ten minutes?

Yes____ No____ Sometimes____

11. I hereby certify that the Information given above is correct.

Signed____ Date____/____/____

12. If this application has been completed by someone other than the person requesting certification, that person must complete the following:

Name _____

Address _____

_____ **State** _____ **Zip** _____

Daytime Phone _____

Signed _____ **Date** ____/____/____

In order to allow the (name of public entity) to evaluate your request, it may be necessary to contact a physician or other professional to confirm the information you have provided. Please complete the following information and authorization form.

The following physician_____ Health Care Professional_____ Rehabilitation Professional_____ (check one) is familiar with my disability and is authorized to provide information to the (name of public entity) required to complete this certification.

Name _____

Address _____

State _____ **Zip** _____

Phone Number _____

Print Name _____ **Date of Birth** ____/____/____

Signed _____ **Date** ____/____/____

If the person has a visual impairment:

Visual Acuity with Best Correction:

Right Eye____

Left Eye____

Both Eyes____

Visual Fields:

Right Eye____

Left Eye____

Both Eyes____

If the person has a cognitive disability:

Is the person able to:

Give addresses and telephone numbers upon request?

Yes____ **No**____

Recognize a destination or landmark?

Yes____ **No**____

Deal with unexpected situations or unexpected change in routine?

Yes____ **No**____

Ask for, understand and follow directions?

Yes____ **No**____

Safely and effectively travel through crowded and/or complex facilities?

Yes____ **No**____

Is there any other effect of the disability of which the (name of public entity) should be aware? Please describe._____

Your Name:

Office Address:

Office Phone Number:

Signature:

SAMPLE REQUEST FOR PROFESSIONAL VERIFICATION

Dear

The attached authorization form has been submitted by _____, who has indicated that you can provide information regarding his/her disability and its impact upon his/her ability to utilize our transit services. Federal law requires that (name of public entity) provide paratransit services to persons who cannot utilize available fixed route services. The information you provide will allow us to make an appropriate evaluation of this request and its application to specific trip requests. Thank you for your cooperation in this matter.

Capacity in which you know the applicant:

Medical Diagnosis of condition causing disability:

Is the condition temporary? No____

Yes____ **Expected duration until**____/____/____

If the person has a disability effecting mobility:

Is the person:

Able to walk 200 feet without assistance? Yes____ **No**____
Sometimes_____

Able to walk 1/4 mile without assistance? Yes____ **No**____
Sometimes_____

Able to walk (maximum corridor dimension) without assistance?
Yes____ **No**____ **Sometimes**_____

Able to climb three 12-inch steps without assistance?
Yes____ **No**____ **Sometimes**_____

Able to wait outside without support for 10 minutes?
Yes____ **No**____ **Sometimes**_____

Does this person use any mobility aids? If so, what?

APPENDIX E

Making Communications and Information Accessible

E.1 - Accessible Communication

E.2 - Making Information Accessible

E.3 - Information about Braille Printers and Software

Sections E.1 and E.2 are reprinted from ***Achieving Physical and Communication Accessibility***, prepared by the National Center for Access Unlimited, Washington, DC, a non-profit collaboration of United Cerebral Palsy Associations, Inc. and Adaptive Environments Center, Inc.

Information about printers and software was provided by Mr. Joe Lazzaro of the Massachusetts Commission for the Blind.

E.1 - Accessible Communication

Many communication access improvements are inexpensive and easy to implement. Some of these improvements benefit people with speech impairments as well as those with hearing disabilities. Modifications include adding flashing lights to fire alarms, installing amplified handsets on telephones, providing an assistive listening system, and providing a TDD (Telecommunication Display Device). Access strategies can include features as simple as making paper and pencil available for writing messages, and maintaining a clear-sounding, adequately amplified public address system.

Telephone Amplifiers

The telephone company can install amplification devices on your pay phones. There are nominal monthly charges for the service. For amplification on other phones, contact AT&T's National Special Needs Center (800-233-1222 Voice, 800-833-3232 TDD). Their receivers work only on AT&T equipment. The cost varies; Centrex models are less than \$45. Also available are portable amplifiers for individual use and closed caption decoders for televisions.

The Hearing Aid Compatibility Act (P.L. 100-394) requires that all new phones must be compatible for use by people with hearing aids. To be compatible, phones must have an inductive coil, which can be installed by the phone company.

Telecommunication Display Device (TDD)

A TDD (Also called TTY, or teletypewriter) is a portable electronic machine used with a telephone. The TDD has a visual display and/or a printer so that both the caller and receiver can type and read their conversation. Portable TDDs are easy to use and affordable. Prices range from \$150 to \$1000 depending on the features provided. You may decide to use a TDD on an existing phone line or to get a separate dedicated line.

When you install a TDD, be sure to train your employees in its use. Publicize its availability by listing your telephone number in all your publications and publicity this format:

(800) 123-4567 (Voice or TDD)
or abbreviate: (V/TDD)

Telecommunication Relay Services

Telecommunication Relay Services enable someone using a TDD to communicate with someone using a telephone. Using TDDs, voice operators at the relay service act as a communication bridge between hearing people and deaf or hard of hearing people. If you are deaf or hard of hearing and want to contact a hearing person, or if you are a hearing person and want to call someone who uses a TDD, use the relay service.

The Americans with Disabilities Act mandates that, by July 26, 1993, all telephone companies must provide telecommunication relay services for individuals with hearing and speech disabilities. Many states already provide intrastate relay, so check with your telephone company, vocational rehabilitation agency, or commission for the deaf and hard of hearing. Because of the low cost of a TDD and the efficiency and desirability of one-to-one communication, it is recommended that businesses and agencies make themselves directly accessible through TDDs, rather than rely on relay services.

Telecommunication for People with Speech Disabilities

TDDs benefit people with speech disabilities as well as those with hearing disabilities. In addition, employees with speech disabilities who also have difficulty using their hands may prefer to use a headset or speaker phone instead of using the hand-held receiver.

Assistive Listening Systems

If your company has a meeting room, theater or auditorium, an assistive listening system will enhance the sound for people who are hard of hearing. Several systems are available: the audio loop system, the wireless FM system, and the wireless infrared system. The choice of systems is dependent upon a number of factors, including the intended users, the location, and the need for portability. For technical assistance, contact Self Help for Hard of Hearing People or the National Information Center on Deafness at Gallaudet University, or request the "Assistive Listening System" brochure from the Architectural and Transportation Barriers Compliance Board.

Interpreters

People who are deaf and hard of hearing persons often request interpreters in order to participate in conversations, meetings, and events. Sign language interpreters can use American Sign Language (ASL), Pidgin Signed English, or Signed English. Oral

interpreters paraphrase or mouth silently the spoken message and voice-interpret the speech of a deaf or hard of hearing person if necessary. The person who is deaf or hard of hearing should be consulted as to their preferred type of interpreting.

Fees for interpreters generally range from \$25 to \$40 an hour with a two hour minimum fee. Information on fees, use of interpreters, and other related information is available from state vocational rehabilitation agencies and commissions for the deaf and hard of hearing. In order to assure the availability of an interpreter, be sure to make your request as soon as your meeting or event is scheduled, preferably at least four weeks in advance.

Realtime Reporter Services

Recently, a new type of translation service, called "computer-aided realtime reporting", has become available as an option for deaf or hard of hearing people who read English fluently. Realtime reporters, trained as court stenographers, type what is said in a meeting, and the text is immediately displayed on a video monitor or projection screen. For assistance in obtaining this service, contact your local court stenotypist organization, Self Help for Hard of Hearing People, or other organization serving people who are deaf or hard of hearing.

Working With Interpreters and Stenotypists

Interpreters can work comfortably for about 45 minutes at a stretch, and stenotypists for about 30 to 45 minutes. To provide quality services, two interpreters or stenotypists are generally needed for assignments lasting over two hours. During conferences or workshops, several interpreters or stenotypists are required. If services are needed for more than two hours and only one interpreter or stenotypist is available, at least one 10- to 15- minute break is recommended.

Interpreters should always be in a visible, well-lit place near the presenters. When slides or films are shown, a spotlight or clamp-on light may be used to illuminate the interpreter. At all events, an area close to the interpreter and presenters should be reserved for people who are deaf or hard of hearing and for those sitting with them. In small group meetings, it is important that both the people who are deaf or hard of hearing and the interpreter sit where they can see and hear all participants. Round tables or circular seating arrangements are preferred.

E.2 - Making Information Accessible

Information about your organization's programs, services, location, proximity to public transportation, and hours of operation can be inaccessible to many people if the information is presented only in visual form. The following provisions can make information accessible to people who are blind or visually impaired:

Printed Materials

Prepare text according to the following principles to maximize legibility:

- o Narrow columns are easier to read than wide ones. Leave right margins ragged (not justified) for better readability.
- o Spacing between lines of print (leading) should be at least one-and-a-half or two point sizes larger than the point size of the print.
- o Spacing between letters (kerning) should not be too loose or too tight, and should be as even as possible.
- o Lower case letters with initial capitals are more legible than all capitals.
- o Black lettering on white paper is the most legible.
- o Sans-serif typefaces are often considered to be more legible than serif fonts, although for people with some types of visual disabilities, simple serif fonts may be easier to read. If possible, determine which type of font your intended audience prefers.

Large Print Materials

Many visually disabled people have some usable sight and can read large print. Large print materials can be made at low cost using a photocopier or a personal computer. Use a 14 point type size or larger. The type should be double-spaced and printed on a high-contrast background. When you are planning a conference or other event, estimate the number of large print materials needed by asking participants to notify you about their specific needs in advance. It is always a good idea to have a few large print copies of your standard materials available.

Braille

If brailled materials are needed, there are a number of resources which can provide you with small quantities. Be sure to make arrangements for transcription before you offer materials in braille. There is a great range in price for producing materials in braille, depending on turnaround time and the capacity of the providing organization. Some will work from a computer disk, others from printed material. Depending on your needs, you can select from a variety of sources.

Audio Tapes

Recording program materials on cassette tape is a good alternative to written information. Since some blind or visually impaired people cannot or prefer not to read braille or large print, tapes may be more useful. Tape duplicators, found on many stereo cassette decks, make copies easily and inexpensively. You can make the recordings yourself, if your machine records with good, clear sound quality, or you may wish to have your material recorded professionally.

Recording Tips

- o On each side of the tape, identify the side number and the document being read.
- o At the end of the recording, identify the reader. ("Your reader has been Joe Smith.")
- o Make sure the recording is done in a room where there is no background noise.
- o Read at a moderate pace and articulate words clearly.

Readers

If materials for blind or visually impaired people are not available, designate someone to be a reader. This is a stop-gap measure, but it will work if there is not a large volume of material to be read.

Adaptive Equipment

Reading machines are devices which look similar to photocopiers and literally "read" books out loud. Most are expensive, but many public, private, and university libraries provide them. Less expensive machines are becoming available. Computers also

can have voice output that enables them to "read" aloud the data from the disk. For further information on adaptive equipment, contact the National Federation of the Blind, or your state commission for the blind (see resource list Appendix K).

Radio Reading Services and Telephone Tapes

Radio reading services and telephones tapes provide blind and visually impaired people with a wide range of information. Radio reading services regularly read newspapers, periodicals, weather reports, and event calendars. Telephone tapes provide information about services and programs. These services are a great source of advertising once you have made your business accessible.

E.3 - Information about Braille Printers and Software

A wide variety of printers for preparing brailled material are available. They range in price from \$1,500 to \$30,000 and vary in their printing capacity. The chart below summarizes the general classes of printers that are available. Typical price ranges and printer speeds are indicated. The daily volume of material that can be produced without overworking the equipment also is listed.

Printer Classification	Price Range as of August, 1991	Capacity
Personal Class	\$1,500 - \$2,000	less than 20 cps* 5 - 10 pages/day
Business Class	\$3,500 - \$5,000	40 - 60 cps 75 - 150 pages/day
Production Class	\$10,000 - \$20,000	100+ cps 200 - 500 pages/day can interpoint**
High End	\$20,000 - \$30,000	200+ cps 500+ can interpoint**

* cps = characters per second

** interpoint means to print on both sides of a page

"Braille translation software", which can convert typical wordprocessing files to be compatible with braille printers, can be purchased for \$195 - \$495.

For information about companies that sell braille printers and software, contact you state vocational rehabilitation agency or state or local association for persons with visual impairments.

APPENDIX F

Information Regarding Undue Financial Burden Waiver Requests

- (1) When can undue financial burden waiver requests be submitted?
- (2) What requirements can be waived if an undue financial burden exists?
- (3) What factors will be considered by UMTA?
- (4) What information should be included in a waiver request?
- (5) What paratransit costs can be included?
- (6) How can paratransit costs be calculated?

Appendix F:

Information Regarding Undue Financial Burden Waiver Requests

When can undue financial burden waiver requests be submitted?

A waiver request can only be submitted after all public participation requirements have been met. Public participation requirements are discussed in Section 2 of Chapter 7 of this handbook. A waiver request can be included in the initial paratransit plan submitted on January 26, 1992, if:

- o it is determined that full compliance with the six service criteria is not possible by January 26, 1997; or
- o it is determined that measured progress toward compliance cannot be made in any year of the implementation period. Measured progress means being able to meet an additional paratransit service criterion or improving an aspect of a specific service criterion. For example, in one year you can demonstrate that your paratransit fleet will grow by 25%, measurably reducing known capacity constraints.

A waiver can be requested when an annual plan update is submitted if circumstances have changed since the initial plan or the latest update was prepared and it is no longer possible to comply by January 26, 1997, or to make measured progress in any year before 1997.

What requirements can be waived if an undue financial burden exists?

Waivers only apply to the six service criteria contained in §37.131 of the USDOT regulations. The service criteria are described in Section 1 of Chapter 5 of this handbook. All other provisions of the regulations, including the eligibility requirements and the equipment and service standards must be met.

What Factors will be considered by UMTA?

The following factors will be considered by UMTA in the review of each undue financial burden waiver request:

- o the effects on current fixed route service, including reallocation of accessible fixed route vehicles and potential reduction in service, measured by service miles;

- o the average number of trips made by the entity's general population, on a per capita basis, compared with the average number of trips to be made by registered ADA paratransit eligible persons, on a per capita basis;
- o reductions in other services, including other special services;
- o increases in fares;
- o the resources available to implement complementary paratransit service over the period covered by the plan;
- o the percentage of budget needed to implement the plan, both as a percentage of operating budget and a percentage of entire budget;
- o the current level of accessible service, both fixed route and paratransit;
- o cooperation/coordination among area transportation providers;
- o evidence of increased efficiencies, that have been or could be realized, that would benefit the level and quality of available resources for complementary paratransit service; and
- o unique circumstances in the entity's area that affect the ability of the entity to provide paratransit, that contradict the need to provide paratransit, or in some other respect create a circumstance considered exceptional by the entity.

What information should be included in a waiver request?

The regulations do not specify the exact information that must be included in a waiver request. It is only required that the request include sufficient information for UMTA to consider each of the factors listed above.

In addition, waiver requests must include a description of the paratransit service that will be provided if the request is denied.

What paratransit costs can be included?

Only those costs attributable to the provision of ADA-required service can be included. Costs associated with service to persons who are not ADA paratransit eligible cannot be part of the waiver request. Similarly, costs associated with service to ADA paratransit eligible individuals which exceeds the service criteria cannot be included.

Only funds spent by entities responsible for providing service can be included. Funds to which the entity would be legally entitled, but which, as a matter of state or local funding arrangements, are provided to another entity and used by that entity to provide paratransit service which is part of a coordinated system of paratransit also may be counted.

How can paratransit costs be calculated?

If the recordkeeping system that is used cannot distinguish between trips mandated by the ADA and other trips on a trip-by-trip basis, a sampling procedure can be used to develop this information. A statistically valid methodology must be used.

Sampling procedures used for obtaining Section 15 demand-responsive bus system operating data can be used. UMTA Circular C 2710.2A provides procedures for Section 15 sampling for a demand responsive bus system.

The sample selection process involves selecting roughly one day per week throughout the year to perform the survey, and randomly selecting one vehicle for which data will be collected during the survey day.

In selecting the survey day, it is important that all days of the week be proportionately represented. Therefore Circular C 2710.2A suggests that every eighth day be selected. Thus if the first day selected for a survey is January 2, the second survey day would be January 10, the third would be January 18, and so forth. If the day selected is not a service day, the following day should be selected. The first day of service selected can but does not have to be chosen at random.

In selecting a vehicle, it is important to do a random selection from all operating vehicles on the survey day. This can be done by using a can of poker chips which are numbered so there is a one-to-one correspondence between the chips and the vehicles. Each survey day a chip is randomly drawn from the can. If a vehicle is selected which is not operating on the survey day, another chip should be drawn. The selected chip is replaced for the next drawing. While there are many other ways to do a random

selection, it is important not to select vehicles because they have "typical" or "representative" schedules. It is necessary as well to keep all vehicles in the pool so that each vehicle has an equal chance of being selected. This method is probably the simplest for small systems. For larger systems, there are computer programs available to assist in the random selection process.

Circular C 2710.2A contains a number of forms for recording and computing passenger and mileage information. Such forms can be adopted for the ADA information by adding a column for the total number of ADA eligible trips to the driver's log and to the summary information.

APPENDIX G

Paratransit and Fixed Route Service Information

- G.1 - Example of Paratransit Direct Operation: Paratransit, Inc. of Sacramento, California.
- G.2 - Example of Paratransit Brokerage: LISTs of Lancaster, Pennsylvania.
- G.3 - Example of Paratransit User-Side Subsidy: Milwaukee County's User-Side Subsidy Program.
- G.4 - MBTA "Call-A-Lift-Bus" Brochure.
- G.5 - "Service Route Networks: Bridging the Gap Between Paratransit and Fixed Route Bus Service", reprinted from Project ACTION Update, Summer, 1991.
- G.6 - Overview of Travel Training Models and recent article describing a joint travel training program in Massachusetts.

G.1 - Example of Paratransit Direct Operation

The following description of Paratransit, Inc. was taken, in part, from Center for Systems and Program Development, Inc., Best Practices in Specialized and Human Services Transportation Coordination, sponsored by U.S. Department of Health and Human Services and US DOT, Final Report, July 1989; and Crain & Associates, Inc., Paratransit, Inc.: Special Transportation Service in Sacramento, sponsored by UMTA, July 1981, Report No. UMTA-MA-06-0049-81-6.

Paratransit, Inc. was established in August 1978 in order to coordinate and consolidate special transit services that were being offered by 31 separate agencies. It has since served as a model for coordinating specialized transportation by establishing a partnership with the agencies contracting its services. This philosophy implies that Paratransit's riders are transportation consumers rather than clients. Therefore, the transit provider responds positively and attentively to riders' concerns. Paratransit places no restrictions on the kind of trip that can be made on its buses. For a private, non-profit, specialized transit agency, this is a unique operating philosophy which combats the misconception that older people and persons with disabilities have travel needs that differ from those of people who are able-bodied.

Transportation Services

Sacramento/Yolo Bus Service

Paratransit, Inc. operates two distinct transportation services: the Sacramento/Yolo Bus Service, a direct operation, and Senior Taxi Project, a supplemental user-side subsidy service. The Sacramento/Yolo Bus Service provides approximately 14,000 trips monthly over a 400 square-mile service area.

There are 43 vehicles in Paratransit's active fleet devoted to the Sacramento/Yolo Bus Service. The majority of the fleet is made up of 15-passenger modified buses. The inventory of equipment also includes various sized non-lift vans and a 19-passenger, lift-equipped bus. The number of list-assisted boardings has risen steadily and now exceeds 35% of all boardings. This increase is directly related to Paratransit's service philosophy: positively responsive, attentive, and with no restriction on the type of trip which can be made.

Service is provided Monday through Friday from 7 AM to 5 PM and operates in the Sacramento County area, in the general area served by Sacramento Regional Transit. Limited weekend and evening service is provided. Advanced reservations are required. Service is door-to-door and driver assistance is provided.

Because Paratransit, Inc. coordinates services for area human service agencies, the service is largely of a subscription nature, i.e., regular trips are provided on a daily basis for school, work or therapy. 75% of the daily trips are subscription service. The remaining 25% are intermittent services for shopping, medical appointments, recreational, etc. Paratransit's trip profile shows that 68% of the subscription rides are taken for developmental education. Social and recreational rides make up 33% of the intermittent bus trips.

Senior Taxi Project

Paratransit's Senior Taxi Project offers two services which receive 90% of their funding from the local Area Agency on Aging. The Senior Shared-Ride Taxi Service (SSRT) provides free taxi rides to about 475 elderly riders with the greatest social and economic needs, as defined by the Older Americans Act. The Taxi Coupon Program is a subsidy service extended to low-income and minority persons, aged 60 years or older, who live outside the SSRT service area. In 1989, 723 seniors receive \$24 in coupons every one-to-three months, to be redeemed at the time of the taxi trip. Life-sustaining medical, social/recreational, and shopping trips make up the majority of these rides. Both programs, however, have been closed to new participants because of funding restrictions.

Organization and Staffing

Paratransit is organized to allow the greatest support for its flexible, innovative program (see Figure F-1). The provider is governed by a nine-member board of directors, all appointed. Three represent the City of Sacramento, three are from the County of Sacramento, two from the Sacramento Regional Transit District (RT), and one from the Sacramento Area Council of Governments (SACOG). At least one of the city and county appointees is a consumer of Paratransit's services.

Because of its extensive operations, Paratransit has a relatively large staff for a specialized transportation system. The organization is operated from five functional areas. The administrative staff (Executive Director, Assistant Director, Administrative Assistant, an accountant, and a secretary) is responsible for the overall planning and control of the provider's daily business, its fiscal and regulatory relationships, and the organization and legislative efforts conducted on behalf of its ridership. The Manager of Fleet and Maintenance Operations works half-time in administration and half-time in maintenance.

The 15 scheduling and dispatch staff members are responsible for organizing rides for the system's passengers. The maintenance section employs 10 people in addition to the Manager, while the Mobility Training Program has a staff of two full-time and five

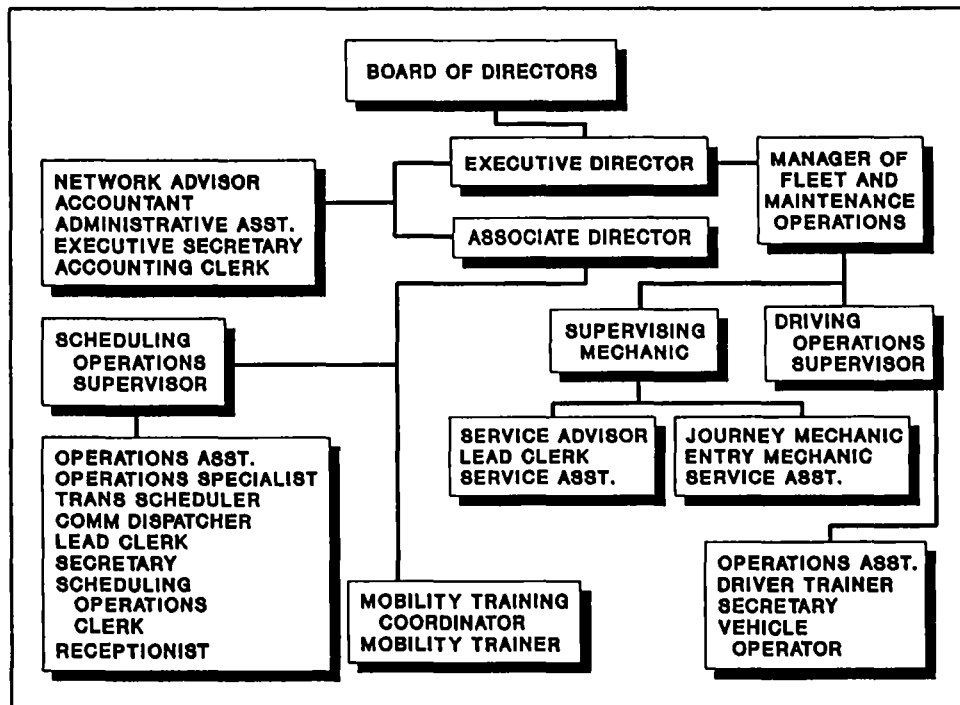


Figure F-1. Paratransit, Inc. Organizational Chart

part-time people.

The Driving Unit is the frontline operation of Paratransit. Administered by a supervisor, two trainers, and a secretary, there are 40 drivers in this unit-twelve full-time and 28 part-time. Safety is a priority and in the four years from 1986-1989, this unit has received citations from the Sacramento Safety Council celebrating its impressive record. The effectiveness of Paratransit's instructional program is recognized far beyond the providers' service area. The driver supervisor regularly travels throughout the country conducting training for drivers and driver trainers, and is certified by the National Transportation Safety Employees International Union, Local 22.

Coordination and Innovation

One of Paratransit's most notable features is the manner in which it is able to provide transportation to older persons and persons with disabilities, and coordinate the transit needs of a variety of agencies, while taking the initiative to make changes to improve methods of operation.

Coordination

State legislation adopted in 1980 required that each county designate a Consolidated Transportation Service Agency (CTSA). Paratransit was California's first CTSA. A four-party agreement (which included Sacramento County, the funding agency) designated

Paratransit responsible for all door-to-door transit services; the coordination and consolidation of social service agency transportation programs; and the operation of a centralized maintenance center. As Sacramento area's CTSA, Paratransit conducts a variety of activities to help coordinate transportation services provided by local human service agencies.

Beyond the close coordination with other agencies practiced by Paratransit as a Consolidated Transportation Service Agency (CTSA), effective ties to other systems are also maintained. The provider helped form and remains active in the California Association for Consolidated Transportation (CalACT). In conjunction with CalACT, Paratransit provided the leadership which resulted in the creation of a shared-risk, self-insurance pool that saves money for small bus operators statewide. Also, as part of its Ridership Policies, the provider developed an appeals process that has been called "...a model for other agencies" by the State of California Department of Transportation, and has been used as such by CalACT members. The State of California uses the system's driver training manual to develop statewide standards for vehicle operator training programs. Paratransit has often assisted other agencies and transit properties through coordinated vehicle purchases.

Innovation

Maintenance Facility

Paratransit's Maintenance Facility was started in the late 1970s as a demonstration project which focused on cost reductions for similar operations through joint purchasing and centralized management.

The Maintenance Facility provides low-cost maintenance service and fuel for Paratransit's fleet and for the vehicles of 30 human service agency transportation providers in the area, more than 180 vehicles in all. The facility specializes in lift equipment, small bus maintenance, and complete vehicle rehabilitation. The facility rebuilds small transit buses, and has rebuilt its own fleet and those of the City of Roseville and Yolo County.

Mobility Training Program

Since 1983, the Mobility Training Program has provided training to the elderly and persons with physical, developmental, or mental disabilities that interfere with their use of RT bus and light rail systems. The training includes familiarization with the RT systems, orientation to lift-equipped buses, and comprehensive training in all aspects of safe and effective bus and light rail use.

Training is conducted on a one-to-one basis and is tailored to the skills and capabilities of the trainee. Trainees include, but are

not limited to, clients of the Alta California Regional Center (Alta) and the Sacramento Employment and Training Agency (SETA). Alta normally funds training for persons with disabilities, and SETA funds training for low-income and minority senior citizens. Training costs for others are funded by the County of Sacramento.

Automation

Paratransit has developed sophisticated computer software which includes the capability to schedule vehicles on the basis of geographical distribution. Research was begun on the Paratransit Advance Reservation Routing and Scheduling (PARRAS) software package in April 1984, and it became fully operational in January 1986. Between then and 1989, intermittent trip requests increased by 96%.

With the PARRAS system, all trips are scheduled at one time by the computer, which examines hundreds or thousands of scheduling alternatives before making assignment decisions. Schedulers are free to do other work during this process, except when it is necessary to correct such things as barriers (rivers, etc.) not recognized by the computer, passengers scheduled in excess of available equipment, or special circumstances.

G.2 - Example of Paratransit Brokerage

The following description of the Lancaster Integrated Specialized Transportation System (LISTS) was taken, in part, from Center for Systems and Program Development, Inc., Best Practices in Specialized and Human Services Transportation Coordination, sponsored by U.S. Department of Health and Human Services and US DOT, Final Report, July 1989; and Charles River Associates Incorporated, LISTS: Transportation Brokerage for the Elderly and Handicapped in Lancaster, PA, sponsored by UMTA, Reprinted July 1986, Report No. UMTA-MA-06-0049-84-6.

LISTS is a non-profit broker of shared-ride, demand-responsive, door-to-door transportation in South Central Pennsylvania. LISTS was incorporated in 1977 to serve as transportation broker for the area as a result of recommendations from a feasibility study performed by the Lancaster County Planning Commission (LCPC). In May 1982, LISTS was designated as the sole provider for a transportation system in Lancaster County under the State's lottery funding for transportation.

In response to the specific characteristics of paratransit demand in the Lancaster area, LISTS was organized to deliver a variety of service types rather than simply offering trips. The types of service offered are defined primarily by origin and destination but also by other trip characteristics, such as evening service. Each service type has its own fare schedule and hours of operation. LISTS service is also differentiated by geographic sectors, which are used in its competitive bidding process for contracting with carriers. Each sector is served primarily by one carrier. Both of these administrative devices are used to promote ridesharing and to create an equitable assignment of transportation costs.

Throughout the six-sector service area, 60 human service agencies contract with LISTS for the provision of transportation services. LISTS has developed a fare schedule for agencies, reflecting the carriers' bid prices and a 15% surcharge. The largest client served by the system falls under the sponsorship of the Lancaster County Office of Aging.

In 1989, LISTS coordinated between 27,000 and 30,000 trips per month. The types of trips provided by LISTS are:

- Local senior center service between a client's home and the local Office of Aging multi-purpose center.
- Local rural and local urban services, which allow patrons to travel between a rural sector and Lancaster City. Several types of service are provided only on specific days of each week, for the purpose of maximum ridesharing.

- Feeder service to mass transit depots for clients who require specific medical treatment in neighboring counties. The broker also arranges with paratransit providers in other counties to transport clients to their final destination. A ticket is required for each transporter/ carrier and special arrangements must be made with LISTS to schedule a trip of this type.

LISTS provides these services for persons requiring the use of a wheelchair, as well as those who are ambulatory or semi-ambulatory. When requesting a trip, a wheelchair user must inform LISTS if he or she requires a lift- or ramp-equipped vehicle. LISTS also accommodates special transportation needs of agencies and their clients.

The Red Rose Transit Authority (RRTA), the publicly owned and operated bus system in Lancaster County, has a contract with LISTS to coordinate its user-side subsidy program, Special Efforts Transportation (SET). Under SET, persons with disabilities can use LISTS to travel anywhere in the Lancaster City sector. The non-ambulatory person using SET is transported by a local taxi company.

Further, LISTS markets the State's reduced-fare program, AdvANce, as a discount for older persons. AdvANce provides advance reservation rideshare and demand-responsive service to any older persons and persons with disabilities who live at least ¼-mile from a bus route. The State reimburses the county 75% of the cost of each trip.

LISTS Administration

Organizational Structure

LISTS is a chartered corporation with a formal set of by-laws. The business of the corporation is managed by its Board of Directors, consisting of 9 to 15 members. One member represents each of the following bodies: Lancaster County, Lancaster City, and the LCPC. Other members are drawn from the elderly, persons with disabilities, low-income populations, human service agencies, transportation providers, and other interested citizens. The Board of Directors is responsible for LISTS policies and procedures, and directs the hiring of staff.

The chief Operating Officer of LISTS is the Executive Director, who is responsible to the LISTS Board (see Figure F-2). The director manages LISTS external activities, primarily carrier contracting, policy-related interactions with agencies, and ensuring adequate funding for administrative activities. The director also manages LISTS internal operations and supervises the LISTS staff.

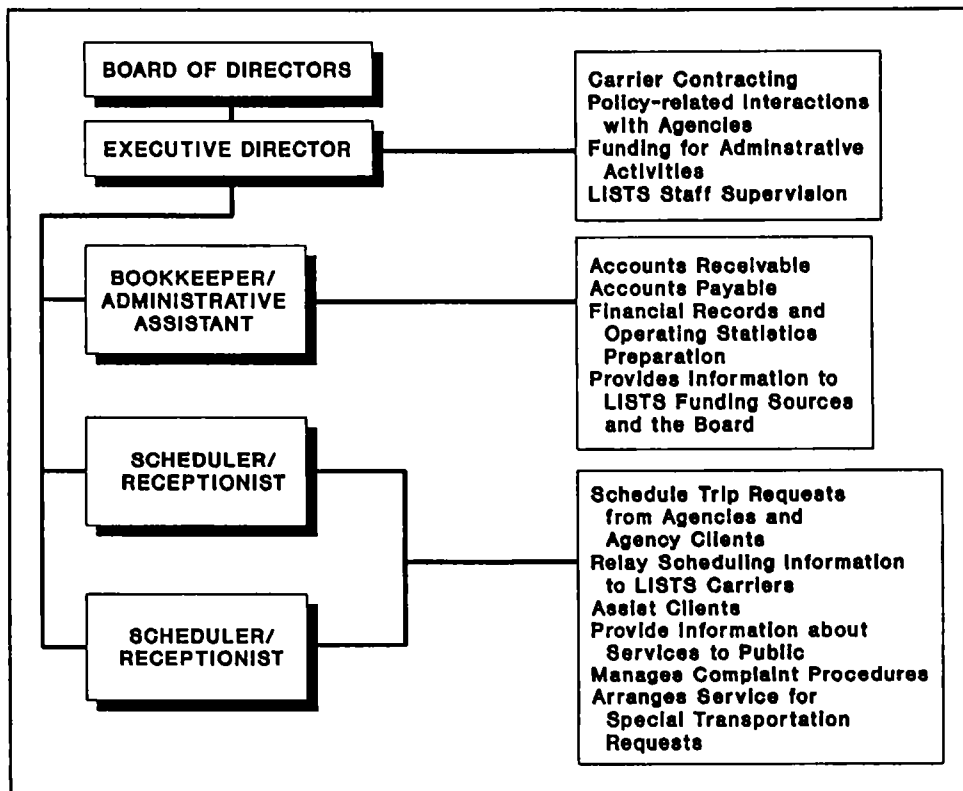


Figure F-2. LISTS Organizational Chart

Trip Scheduling

LISTS patrons must request service in advance of their trip. Schedulers use a separate transportation request form for scheduling trips in each sector.

With the volume of trips coordinated by LISTS, trip requests cannot be handled by only two schedulers. Thus, LISTS has developed scheduling procedures that allow two major categories of trips to be scheduled without the involvement of LISTS staff. First, the majority of agency trips are routine trips, composed largely of local-center trips carrying patrons from their homes to Office of Aging centers. The carriers have developed routes along which they routinely pick up and drop off center clients. Only exceptions to this routine network are forwarded by agencies to the carriers, via LISTS. Second, because of the high volume of service requests, most requests for local-urban service are made directly to the Lancaster City sector carrier. Patrons who have made previous local-urban service requests are familiar with this procedure; new patrons often call LISTS directly and schedule future trips with the carrier. Requests for local-rural service and direct-line service are scheduled by LISTS.

LISTS Tickets

Patrons obtain LISTS tickets, which are required for every trip, through agencies, in the case of agency-sponsored and SET Trips, and directly from LISTS for unsponsored AdVANce trips. The drivers must return all tickets, handed to them by each patron, to LISTS to receive payment for service provided.

Invoicing Agencies

LISTS keeps two financial accounts, an administrative account and a transportation account. The administrative account is used exclusively for funding LISTS administrative activities. The transportation account allows the transfer of payments by LISTS users to LISTS to the carriers.

Service at Low Cost

LISTS is committed to providing the best service to older people, low-income, persons with disabilities and others in Lancaster County at the lowest possible costs. LISTS concentrates on coordination and leaves service planning, outreach, and regulatory functions to the agencies.

LISTS has kept its commitment to the county by maintaining low per-trip cost, averaging (in 1989) \$3.94, including a 15% surcharge, is engendered by a very competitive network of carriers within each sector. LISTS sends its annual request-for-bids package to every carrier licensed by the Pennsylvania Utility Commission operating in the County. Bids are awarded on the basis of price, service quality, and the ability of the carrier to provide the necessary service. Contracts are awarded for a one-year period, although longer contracts for carriers are being considered. Although not-for-profit carriers are eligible to submit bids, all of the carriers contracted by LISTS until 1989 have been for-profit taxi and van companies.

Carriers are required to send all drivers involved with LISTS service to a driver sensitivity training session at the carriers' expense. Carriers are also required to purchase insurance coverage, which must meet or exceed the minimum established by LISTS.

To maintain their system, LISTS must balance the service requirements of the agencies against the carrier's desire for cost-cutting. To meet agency demands, LISTS has service standards that meet the minimum requirements of agencies for service. LISTS has also set up complaint procedures, which provide for communications from an agency to a carrier. LISTS asks agencies to adjust their schedules for productivity reasons, but an agency is under no obligation to do so. An agency that cannot adjust, however, usually must pay a higher cost of service.

To increase carrier productivity, LISTS preschedules many of its own trips, with maximum ridesharing as a goal. In rural sectors, LISTS service is available Monday through Friday. Evening and weekend service is also available by special request. In Lancaster City, LISTS service is available to agencies seven days a week.

Demand for direct-line trips, the most costly LISTS provides, is channeled into two or three days. Services are provided on the same day each week. Using LISTS may result in an agency having to schedule its client trips around LISTS schedule, rather than visa versa. This procedure allows LISTS to increase ridesharing and reduce costs.

G.3 - Example of Paratransit User-Side Subsidy

The following description of the Milwaukee County User-Side Subsidy Program (USSP) was taken, in part, from material provided by Milwaukee County, Department of Public Works, Professional Services Division; and Charles River Associates, Inc., The Milwaukee County User-Side Subsidy Program: A Case Study, sponsored by UMTA, Reprinted June 1984, Report No. UMTA-MA-06-0049-82-4.

The Milwaukee County USSP was established by the Milwaukee County Board of Supervisors and the Milwaukee County Executive in 1978 to provide subsidized transportation to persons with disabilities in Milwaukee County. This specialized transportation service utilizes taxicabs and ramp or lift-equipped vans to provide transportation service. In 1989, the program provided over 350,000 trips to 8,000 individuals.

Persons, age 7 and older, who have a functional transportation impairment are eligible for the program. In addition, disabled persons temporarily in Milwaukee County are also eligible to participate. Eligibility is determined by the program after an application has been filed and the disability of the applicant certified by a health professional.

To take a subsidized trip, an eligible client contacts one of the 13 companies contracted to provide USSP service. These companies include 1 taxi carrier and 12 van carriers. Most van services require advance reservations. Taxis provide more immediate response service. Subsidized trips can be taken for any purpose within the boundaries of Milwaukee County.

Milwaukee County subsidizes a portion of the cost of each trip made by an eligible client.

USSP Administration

Organizational Structure

Under the administrative direction of the Director of Public Works, who is appointed by the County Executive, the county's Special Service Coordinator manages the USSP (see Figure F-3). The Coordinator has direct responsibility for program administration, accounting, and marketing. The coordinator implements policies made by the Mass Transit Committee and adheres to administrative guidelines set by the Department of Public Works. Working with the program coordinator are two administrative assistants.

Arrangements with Carriers

The program contracts with chair-car and taxi companies to accept user-side subsidy charges. Participation in the USSP is open to

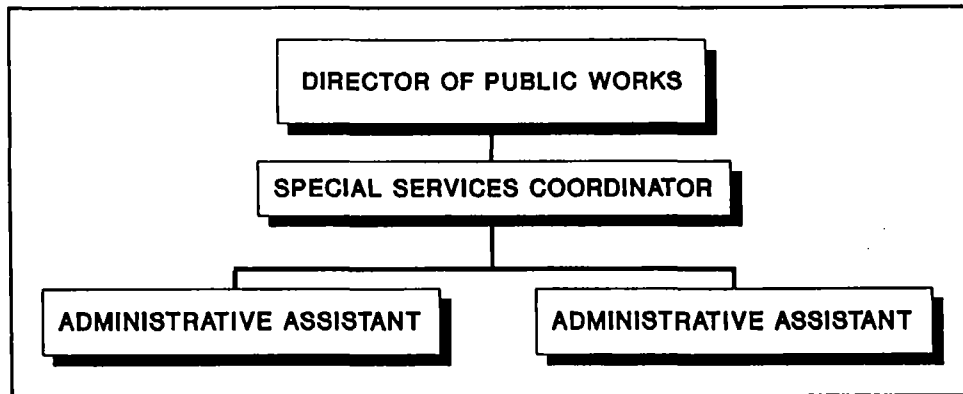


Figure F-3. USSP Organizational Chart

all carriers licensed by the Common Council of the City of Milwaukee. The program has no insurance, maintenance, or driver training requirements of its own. It relies, instead, on the requirements of the licensing board and other funding sources, particularly the Title XIX (Medicaid) program, which sets requirements for chair-car companies.

USSP reimburses companies at the rate established by the Common Council. The program requires that the carrier collect a fixed user fee. A subsidy is provided to cover the difference between the user fee and the total cost of the trip.

USSP does no dispatching or matching of participants and carriers. Participants contact the carrier of their choice directly. The carrier schedules trips independent of the USSP. The program does not require that carriers organize shared rides although carriers can reduce their costs without reducing revenue if they do schedule shared rides. The program has a special subsidy rate for carriers who transport organized groups of three or more people from one origin to one destination. Group rates are lower than if each passenger paid single fares.

Trip Verification and Voucher Processing

When a person is certified as eligible for transportation assistance, the program staff mails him or her an identification card with a unique I.D. number, general instructions, and a list of participating carriers.

Participating carriers stock user-side subsidy vouchers on their vehicles. When a passenger is making a user-side subsidy trip, the driver must request that he/she be shown the identification card for the program, and must then complete a voucher for the trip. On the voucher, the driver lists the name, address, and identification number of the participant, the total trip cost, subsidy and user charge. The driver must also have the passenger indicate the purpose of his/her trip, and sign the voucher. The customer may

also complete the back of the voucher, which asks the customer to evaluate his or her trip.

The customer returns the voucher to the driver. The transportation provider must also record the customer's origin and destination. For advance-reservation trips, the provider's office staff completes this information. For immediate-request trips that are radio-dispatched, the driver completes this portion of the voucher.

Significant Features of the USSP

Milwaukee County's USSP has stimulated competition among paratransit providers, particularly chair-car providers. Carriers are aware of program participants' ability to "shop around" and they attempt to differentiate their services from those of other providers. While new paratransit companies and longer operating hours have appeared under any type of assistance program as a result of the demand created by the program, it is unlikely that other forms of assistance would have fostered service improvements such as stopping en route or customer evaluations. Furthermore, chair-car carriers have held their fares at the maximum subsidy level, and this indicates a type of competition not present under a provider-side program, in which deficits usually are guaranteed to be made up by the subsidizing agency.

Another feature of the Milwaukee County USSP program is the program's relationship with carriers. Under the program, carriers compete with each other partly on the basis of fares. If one company raises its fare schedule, other companies may follow or may instead use the opportunity to gain a larger market share. When providers are subsidized directly, this type of competition is not present and there is little incentive for the providers to control costs and, hence, fares.



The MBTA's Call-A-Lift Bus Program

Call: 1-800-LIFT BUS

TDD 617-722-5415



MBTA Office for Transportation Access

Now You Can Call for a Bus

The MBTA will arrange to have a bus with a wheelchair lift for you on almost any one of its regularly scheduled bus routes where all scheduled buses are not wheelchair lift-equipped. Just call 1-800-LIFT BUS by 1:00 pm the day prior to your travel day and request a lift-equipped bus. That's all you need to do to take advantage of this service!

The MBTA operates two types of lift-equipped buses. One type has the lift at the front door and the other has the lift at the rear door.



Scheduling Your Call-A-Lift Bus Trip

1. If you have an MBTA System Map, use it to plan your trip. Choose the bus route on which you need to travel. Refer to a schedule card and decide what time you would like to take the bus, where you would like to get on and off the bus, and the time you would like to return.
2. If you do not have a System Map and schedule, MBTA staff will mail you one or help you plan your trip. Just call our Travel Information Line at 722-3200 (TDD 722-5146); out of area call 1-800-392-6100.
3. When you are ready to make your request, call 1-800-LIFT BUS (TDD 722-5415). Give your name and phone number, along with your trip information.
4. After your trip has been scheduled you will be called back and given the times when your bus will arrive. Feel free to call again if you do not receive a reply by 4:00 pm the day before your trip.





Boarding the Lift Bus

1. Please be at your bus stop at least five minutes before the time your bus is scheduled to arrive. Look for the international symbol of accessibility to make sure that the bus is lift-equipped.
2. When the bus arrives, please wait approximately five feet, or a reasonably safe distance, away from the door so that the lift can be deployed.

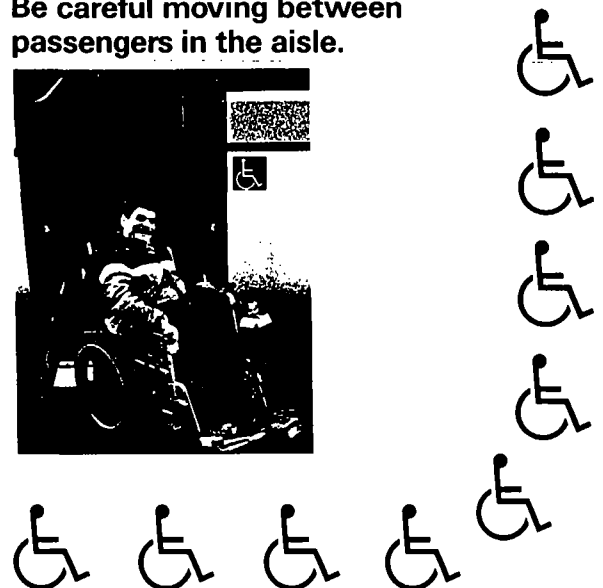


3. When the lift is fully deployed, move your wheelchair onto the platform **BACKWARDS**. When all four wheels are on the platform, **LOCK YOUR BRAKES**. IF YOU ARE USING A **MOTORIZED WHEELCHAIR**, **SHUT OFF THE POWER TO CONTROL**.

4. When the lift platform is level with the bus floor, back onto the bus, give the correct fare to the Operator or drop it into the fare box, and tell the Operator your destination.



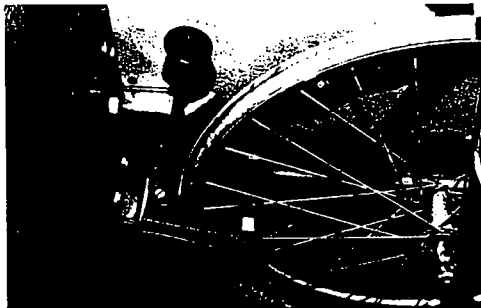
5. If you are using a motorized wheelchair and need the Operator to assist you, please disengage your clutch. Continue to one of the two tie-down locations. Be careful moving between passengers in the aisle.



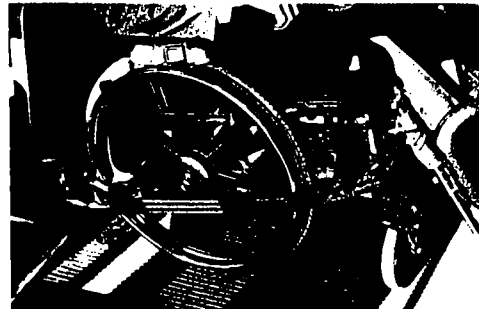
Securing Your Wheelchair

The MBTA provides two types of wheelchair tie-downs on its lift buses in order to better accommodate the wide range of wheelchairs in use today. One type utilizes a combination claw clamp and seat belt while the other uses a belt securement system.

1. To use the clamp tie-down, you must maneuver one **LARGE** rear wheel into the claw clamp. The clamp will close automatically when your wheel strikes the impact plate at the rear of the clamp. If the clamp does not close, move your wheelchair forward a few inches and back into the clamp more forcefully. When properly secured, the prongs of the claw clamp should overlap. Next, pull the seat belt completely around you and your wheelchair; if you pull the belt out straight it should come out far enough to reach around you.



2. To use the belt securement system, maneuver your wheelchair into the tie-down area. The tie-down consists of three (3) belts: one to secure the left side of your chair, one to secure the right side of your chair, and one which functions as a seat belt to be fastened around you and your wheelchair.



3. Should you need help with either style tie-down or seat belt, just ask the Operator for assistance.



Exiting the Lift Bus

1. Once the bus has stopped, release the seat belt and the claw clamp or belt tie-downs and move to the door where the lift is located. The claw clamp is released by pushing down on the knob behind the clamp, and the belt tie-downs are released by pressing the clasp button. Ask the Operator for help if necessary.
2. Wait until the lift platform is level with the bus floor. Move FORWARD onto the platform. If you are using a motorized wheelchair and need the Operator to assist, leave the clutch disengaged. When all four wheels are on the platform, LOCK YOUR BRAKES. IF YOU ARE USING A MOTORIZED WHEELCHAIR, SHUT OFF POWER TO CONTROL.
3. When the platform has reached the ground and the end safety gate has dropped, release your brakes and move off the platform. If you are using a motorized wheelchair, re-engage your clutch and turn the power 'on'.

Fares

Cash, tokens or passes can be used on these buses. Elderly and handicapped persons may apply for a Special Needs or Senior Citizen Pass, making them eligible for discount fares. Call 722-5438 for further information.



Remember

To schedule a trip, call 1-800-LIFT BUS. Lift bus requests are taken between 8:30 am and 5:00 pm. However, you must call BEFORE 1:00 pm to request a trip for the following day.

If you encounter difficulties, call 1-800-LIFT BUS during normal business hours or call 722-5777 during all other hours of MBTA operation.

Operators have been thoroughly trained in the use of the wheelchair lift, tie-downs, and in awareness of the needs of passengers with disabilities. However, the Operator is not able to leave the bus. If you require assistance onto the lift platform from outside the bus, a personal attendant is recommended.

The Kneeler

The MBTA has approximately 700 'kneeling' buses. The kneeler lowers the right front corner of the bus four inches closer to the sidewalk or street to make it easier for people who have trouble climbing stairs to get on and off the bus.

If you have any difficulty reaching the bus stairs, just ask the Operator to lower the kneeler for you.



Project ACTION Update

ACCESSIBLE COMMUNITY
TRANSPORTATION IN OUR NATION

Summer 1991

Service Route Networks: Bridging the Gap Between Paratransit and Fixed-Route Bus Service

A creative and cost-effective approach to meeting the public transportation needs of people with disabilities has been developed by the transit authority of Borås, Sweden.

The City Transportation Corporation (CTC) has introduced a service route network which sends small, accessible buses through targeted neighborhoods to provide service between areas where concentrations of people with disabilities and the elderly live and where they want to go. These smaller buses, which accommodate up to 20 passengers, facilitate travel for people who cannot travel long distances to get to and from bus stops.

The service route concept began as an experiment to alleviate the escalating demand on and related cost of the city's Special Transportation Service (STS), the equivalent of U.S. paratransit service. A single route was selected using city data on demographics, topography and destinations of particular interest. Officials then mapped a section of the urban area with a concentration of elderly people and people with disabilities.

Conventional fixed-route networks were usually straight radial lines connecting different areas with downtown Borås. The service route network was designed with an entirely different configuration, with priority given to bringing



Service route networks in Borås, Sweden, use small, accessible buses.

buses near residents. As a result, routes wind through different residential areas so that the distance to the bus stop is rather short for most residents.

Important components of the service route approach include:

- It is available to the general public as well as people with disabilities.

- It is part of the regular transportation system with fixed route intervals, so it does not require planned trips or advanced bookings. A service route can include predetermined bus stops or allow passengers to hail the vehicle and request drop-offs anywhere along the route. Timetables are adjusted to allow travelers enough time to board, disembark, pay the fare,

and find a seat.

- It allows fixed-route characteristics to be blended with features of a demand-response paratransit system in less densely populated areas. Unlike traditional fixed-route and demand-response paratransit systems, which may be coordinated but are

(Please turn to page 2)

Service Routes

(Continued from page 1)

distinctly separate in operations, the service route approach can take the form of a hybrid fixed-route service where advance reservations can be made or passengers can call the driver enroute for route deviation pickup. Thus, the service route vehicle and driver can provide fixed-route and demand-responsive service at the same time.

■ It requires small accessible vehicles with space for two or three wheelchairs, low entrances, kneeling features, automatic ramps, front-facing seats, level floors with no height deviation inside the bus, and grab bars. Vehicles must be built so that passengers feel close to the driver, who must be able to provide personal service if required.

■ It significantly reduces passengers' travel-related stress associated with boarding, finding a seat and disembarking safely.

The service route approach has produced some very interesting and even startling results in Boras. Nearly half of those entitled to use Special Transportation Services (STS) now choose a service route. About 15,000 fewer trips per year are made in the Boras area, freeing up STS space for those passengers who are unable to use service routes. The reduced number of STS passengers, combined with the introduction of an arrangement whereby the municipality pays the STS provider a stipulated amount for

each service route trip made by registered STS passengers, has enabled the overall cost of STS services to be cut substantially. In addition, there has been an overall increase in the use of public transportation among those elderly who do not qualify for STS. The majority of these riders are using service routes.

The service route approach has proven to be profitable, as witnessed by the steady increase in ridership. The number of passengers has risen by 60 percent, and today about 3,000 passengers use service routes. Only about 5 percent of service route passengers report difficulties in using the service, compared to 42 percent of the general riding public who report problems in using other transit modes.

The experience has been so positive for everyone involved that the future of this form of transit in Sweden seems secure. Service routes have developed rapidly. In Boras, 10 service routes were operating by late 1989, which represents a comprehensive service route network. In addition, 40 other Swedish cities have introduced service routes.

The service route approach undoubtedly will represent an important segment of future public transit in urban areas. Organizations representing the elderly and people with disabilities are so pleased with this service that they are pressuring politicians, authorities and public transportation firms to introduce

it in more municipalities.

Companies and municipal authorities also recognize the economic and improved service potential of this approach. Service routes appear to offer great possibilities in the United States. They may prove to be a missing link in encouraging people with disabilities and the elderly to use a variety of transportation options. Clearly, the approach would have to be adapted to conditions unique to a variety of local settings. For example, many people in the United States travel from one jurisdiction to another to reach their destinations, so the service route approach may need to function as a feeder to other modes of transportation. However, the approach is well worth testing in this country [See story on page 3]. For more information on the Swedish service route network, write:

Dr. Agneta Stahl
Department of Traffic Planning
and Engineering
Lund Institute of Technology
Lund University
Box 118
S-221 00 Lund, Sweden

Madison Metro experiments with service route approach

Like many other communities, Madison, Wis., has found that the demand for paratransit services is rapidly outstripping the resources available to provide them. The number of registered riders is doubling every two years, with ridership doubling every three years.

This tremendous growth led city officials to examine alternatives to paratransit service. After hearing a May 1990 presentation on service routes by Dr. Agneta Stahl of Sweden [See story on page 1], the Madison Metro Transit System and the Wisconsin Department of Transportation decided to examine how the concept could be applied in the Madison area. With a grant from the Wisconsin DOT, Madison Metro hired Dr. Stahl and Multisystems, Inc., of Cambridge, Mass., as consultants to study the applicability of service routes in Madison. This study is nearly finished.

The initial phases of the study indicate that Madison can support several service routes. A network of service routes could feed into the fixed-route system at transit centers to be built next year on the east and west sides of Madison, about three to four miles from the downtown area. These centers could also serve as points for service routes to feed into paratransit service.

Officials see several advantages in service routes. The most important advantage is the ability to provide a predictable service which does not require advanced reservations. People with disabilities could make spontaneous trips without using the cumbersome reservation system required for paratransit service. Furthermore, service routes could accommodate the increased growth and demands that city officials expect in the future.

Service routes could give Madison the ability to provide a

more efficient overall service. Service routes can be described as a hybrid between regular fixed-route transit and paratransit services. In some parts of Madison, fixed bus routes are clearly underused. By substituting service routes for fixed routes in some areas, the city could better balance its mix of transportation services. The general public would still have access to public transit services, while service to people with disabilities and the elderly would be greatly improved.

Research shows that there are significant concentrations of people with disabilities and the elderly in certain areas of the city. An analysis of traffic patterns indicates that destinations of these people are concentrated in an area relatively close to their housing locations. Thus, service routes may be very useful in Madison.

Clearly, a fixed-route bus lumbering up and down the street on the same route all day long or a paratransit vehicle darting haphazardly throughout the city simply cannot provide the necessary level of public transit service for persons with disabilities and the elderly. Service routes are a market-driven concept which provides all users with a high degree of public transit service.

To learn more about Madison Metro's project, call Transit General Manager Paul Larrousse at (608) 267-8777.

G.6 - An Overview of Travel Training Models

The following information was provided by Ms. Catie Simpson of Independent Training Consultants, Pleasanton, California.

Travel training is designed specifically to teach people with mental and physical disabilities how to use the fixed route bus system. There are a few successful approaches to this type of program. These include:

Peer Training

Peer training is an approach that has proven to be successful and preferable with the elderly. In this program, seniors in the community who already use public transit are identified and matched with those who need assistance in learning the system. This requires a central coordinator who can identify the existing riders and establish a pool of people to call upon when an individual needs assistance. This is preferable to the elderly, because they feel that a peer understands their limitations due to age and will be more patient. An elderly person may only need a couple of rides with a peer to gain knowledge of the system and confidence in their own ability.

Destination Training

A more involved type of training is destination (route specific) training. This is more applicable to developmentally disabled and some physically disabled people. In this model the individual is taught by certified professional instructors, to use the fixed route system to travel to daily destination. The instruction is provided on a one to one basis and tailored to the individual abilities of the student. Due to the mental limitations, particularly with the developmentally disabled, the instruction also includes training in appropriate ways to deal with strangers and emergency skills, street crossing and safety.

Destination training requires a more involved coordination effort. Candidates for this type of training have a lot of other people responsible for their care and they must all be involved in supporting the individual who is receiving the training. To implement this type of training instructors must assess the ability of the student and match their capability with the difficulties of the route for the specific destination. This program requires a formal model and certified instructors to be successful.

General Use Training

The last category of travel training is general use of the fixed route system. This is applicable to those who are physically

disabled with little or no mental limitations. This training requires a certified instructor who is knowledgeable about disabilities and is most effective if a model similar to the destination training model is followed.

The article reprinted below, from the August 5, 1991 edition of Passenger Transport, describes a joint effort to develop travel training programs in eastern and central Massachusetts. This kind of cooperative effort can reduce the start-up and administrative costs associated with developing a travel training program.

Massachusetts Group Creates New Mobility Training Program

ATTLEBORO, MASS. — Three Massachusetts transit authorities—the Greater Attleboro-Taunton Regional Transit Authority, the Merrimack Valley Regional Transit Authority, and the Worcester Regional Transit Authority—working with a consultant firm, have created a new cooperative program, the Mobility Training Program.

The transit authorities, working with Independent Training Consultants of Pleasanton, Calif., have pooled their financial and personnel resources to create a new program that enables the developmentally disabled, elderly, or physically disabled persons to learn to use fixed-route public transportation.

The program, which is self-paced, instructs students in areas such as route training, landmark identification, emergency skills, and stranger awareness. The individuals can be taught destination training on how to travel to and from a particular destination, or general travel training on how to read and understand bus schedules for the entire transit system.

"Mobility training is a win-win situation for everyone," said Francis Gay, GATRA administrator. "The elderly person or person with disabilities benefits from the increased independence and opportunities fixed route provides and the community benefits from the savings realized by switching people

from paratransit to fixed route service."

Gay said, "The authorities' benefits are two-fold. First, we benefit through the nature of the cooperative effort itself, the team approach. Second, the Mobility Training Program is a means of complying with the Americans with Disabilities Act."

Start-up funding for the cooperative training program is being provided by the three authorities. As the program continues, however, funding responsibility will shift to the social service agencies involved.

When asked how the social service agencies were reacting to the future funding responsibility in a time of budget cuts, Joseph Costanzo, administrator for Merrimack Valley, said: "The agencies understand that this program will not require additional funding. The money used to provide daily paratransit service for their clients will be shifted to provide Mobility Training. Of course, the authorities will still provide paratransit services for those individuals who cannot access the fixed-route system."

"This program is the first of its kind for Massachusetts and we're all very excited to be a part of this inaugural effort," declared Worcester Administrator Robert Ojala. "I believe that the authorities, people with disabilities, the community, and the social service agencies will reap the benefits of this cooperative program in a very short time."

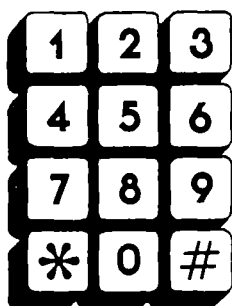
APPENDIX H

Census Information

H.1 - Census Bureau Phone Numbers

H.2 - State and National Data on Persons with "Public Transportation Disabilities" as defined in the 1980 Census

H.3 - Information about the Census Bureau's TIGER Files



U.S. Department of Commerce • Bureau of the Census • Washington, D. C. 20233

telephone contacts bureau of the census

A Data User Services Division Publication

April 1991

CENSUS BUREAU

Regional Information Services

Atlanta, GA	404/347-2274
Boston, MA	617/565-7078
Charlotte, NC	704/371-6142
Chicago, IL	312/353-0980
Dallas, TX	214/767-7105
Denver, CO	303/969-7750
Detroit, MI	313/354-4654
Kansas City, KS	816/891-7562
Los Angeles, CA	818/904-6339
New York, NY	212/264-4730
Philadelphia, PA	215/597-8313
Seattle, WA	206/728-5314

Washington, DC Staff

Note—Unless otherwise indicated, all telephone numbers listed below are in area code 301. Division abbreviations are spelled out on page 6.

Frequently Called Numbers

Census Customer Services	763-4100
(FAX: 763-4794)	
Census Personnel Locator	763-7662
Congressional Affairs	763-2446
General Information	763-4100
Population Information	763-5002/5020 (TTY)
Press	763-4040

U.S. Department of Commerce

Robert A. Mosbacher, Secretary

Rockwell A. Schnabel, Deputy Secretary—Designate

Michael R. Darby, Under Secretary of Economic Affairs and Administrator of the Economics and Statistics Administration

Key User Contacts

Age Search (Access to Personal Census Records) -	
Staff (DUSD)	763-7936
Bulletin Board - Staff (DUSD)	763-1580
Business/Industry Data Centers -	
John Rowe (DUSD)	763-1580
Census Catalog - John McCall (DUSD)	763-1584
CD-ROM - Staff (DUSD)	763-4673
CENDATA - Staff (DUSD)	763-2074
Census and You (Monthly Newsletter) -	
Jackson Morton/Neil Tillman (DUSD)	763-1584
Census Awareness (Regional Offices) -	
Staff (FLD)	763-4683
Census History - Frederick Bohme (DUSD)	763-7936
Clearinghouse for Census Data Services -	
Staff (DUSD)	763-1580
Confidentiality and Privacy Issues - Jerry Gates	
(PPDO)	763-5062
County and City, State and Metropolitan Area	
Data Books - Wanda Cevis (DUSD)	763-1034
Customer Services - Staff (DUSD)	763-4100
Education and Curriculum Support Projects -	
Staff (DUSD)	763-1510
Exhibits, Conventions - Joanne Dickinson (DUSD)	763-2370
Guides - Gary Young (DUSD)	763-1584
Historical Statistics - Staff (DUSD)	763-7936
International Visitors Program -	
Nina Pane Pinto/Gene Vandrovec (ISPC)	763-2839
Legislation - Valerie Gregg/Velma Lacy	
(PPDO)	763-7787/4001
Library - Staff (DUSD)	763-5042
Monthly Product Announcement -	
Bernice L. Baker (DUSD)	763-1584
National Services Information Centers -	
Sam Johnson (DUSD)	763-1384
Ordering Information (Computer Software/Tapes,	
Microfiche, Publications, etc.) - Customer	
Services (DUSD)	763-4100
Public-Use Microdata Samples -	
Carmen Campbell (DUSD)	763-2005
State Data Center Program - Larry Carbaugh	
(DUSD)	763-1580
Statistical Abstract - Glenn King (DUSD)	763-5299
Statistical Briefs - Robert Bernstein (DUSD)	763-1584
Training Courses - Staff (DUSD)	763-1510
Year 2000 Research and Development - Staff (2KS)	763-8601

**WORK DISABILITY, LABOR FORCE STATUS, AND TRANSPORTATION DISABILITY OF NONINSTITUTIONALIZED PERSONS
16-64 AND 65 AND OVER, BY STATE: APRIL 1980**

State	Noninstitutionalized persons 16-64						Noninstitutionalized persons 65 and over	
	Total number	Percent reporting work disability				Percent reporting public transportation disability	Total number	Percent reporting public transportation disability
		Total	In labor force	Not in labor force				
				Able to work	Prevented from working			
<i>East South Central</i>								
Kentucky	2,292,066	11.39	3.50	1.05	6.84	2.52	389,048	18.29
Tennessee	2,924,804	10.37	3.35	0.97	6.06	2.34	494,346	18.67
Alabama	2,426,576	10.59	3.33	1.03	6.22	2.63	421,935	20.20
Mississippi	1,509,014	11.76	3.62	1.08	7.06	2.95	277,234	22.04
<i>West South Central</i>								
Arkansas	1,380,343	12.73	4.13	1.26	7.33	2.65	296,671	18.43
Louisiana	2,616,035	9.56	3.20	0.92	5.44	2.41	383,426	20.02
Oklahoma	1,889,020	10.76	4.16	1.18	5.41	1.90	354,274	16.07
Texas	9,034,363	7.84	3.19	0.76	3.89	1.71	1,312,171	16.25
<i>Mountain</i>								
Montana	497,946	8.14	3.82	1.08	3.24	1.02	79,222	9.36
Idaho	575,405	8.74	4.16	1.05	3.53	1.21	88,971	10.69
Wyoming	301,618	6.14	3.24	0.74	2.16	0.71	35,058	7.95
Colorado	1,927,480	7.23	3.47	0.89	2.87	1.23	232,186	12.86
New Mexico	820,401	8.17	3.00	0.94	4.23	1.64	112,696	13.82
Arizona	1,710,015	9.07	3.47	1.12	4.48	1.90	298,650	13.28
Utah	860,162	7.54	3.74	1.07	2.73	1.09	104,961	13.22
Nevada	545,153	7.80	3.84	0.83	3.13	1.32	63,653	11.87
<i>Pacific</i>								
Washington	2,690,196	8.76	3.96	1.15	3.65	1.23	406,564	13.79
Oregon	1,686,245	9.85	4.57	1.27	4.01	1.40	287,850	12.24
California	15,610,807	8.19	3.17	0.88	4.15	1.70	2,278,038	14.89
Alaska	274,019	5.40	2.84	0.73	1.83	0.83	10,456	9.84
Hawaii	644,993	5.92	2.58	0.78	2.55	1.19	72,917	11.66

SOURCE: U.S. Bureau of the Census, 1980 Census of Population; prepared from data reported in *Advance Estimates of Social, Economic, and Housing Characteristics*, parts 1-51, table P-2.

**WORK DISABILITY, LABOR FORCE STATUS, AND TRANSPORTATION DISABILITY OF NONINSTITUTIONALIZED PERSONS
16-64 AND 65 AND OVER, BY STATE: APRIL 1980**

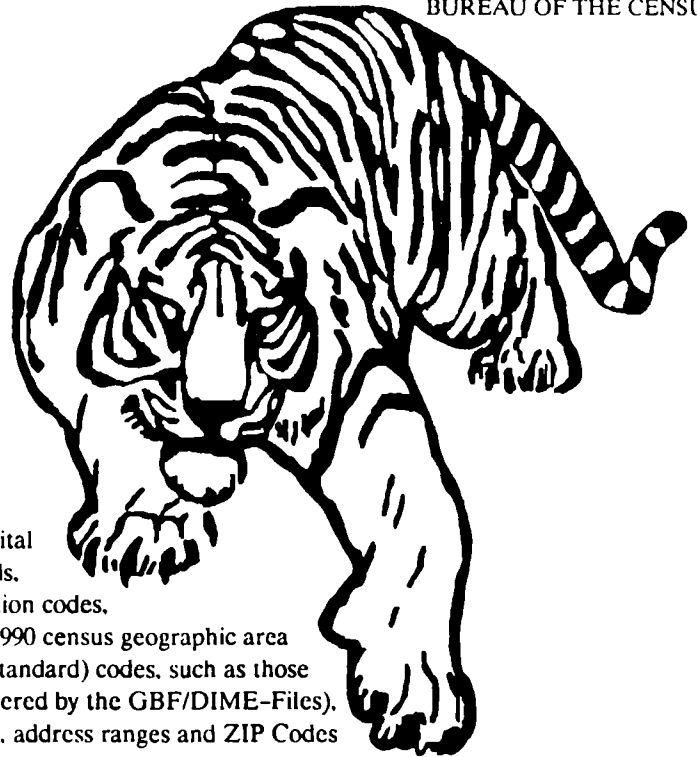
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		Total	In labor force	Not in labor force				
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United States, total	144,560,822	8.58	3.25	0.90	4.43	1.81	24,184,588	14.94
<i>New England</i>								
Maine	700,315	9.75	3.74	1.04	4.96	1.66	131,697	12.87
New Hampshire	591,095	7.51	3.41	0.78	3.31	1.19	96,639	11.59
Vermont	325,524	8.51	3.50	0.87	4.15	1.35	54,142	13.64
Massachusetts	3,710,159	7.29	2.94	0.75	3.61	1.70	676,384	14.54
Rhode Island	607,367	8.63	3.40	0.79	4.45	1.93	118,457	13.87
Connecticut	2,022,407	6.51	2.88	0.73	2.90	1.36	339,870	12.84
<i>Middle Atlantic</i>								
New York	11,271,775	7.68	2.52	0.80	4.36	2.12	2,034,437	14.80
New Jersey	4,765,766	6.86	2.56	0.70	3.60	1.76	821,766	14.92
Pennsylvania	7,589,547	8.47	2.92	0.90	4.65	1.79	1,455,886	14.28
<i>East North Central</i>								
Ohio	6,891,633	8.80	3.35	0.90	4.56	1.75	1,102,947	14.80
Indiana	3,473,591	7.98	3.36	0.88	3.75	1.38	549,173	13.30
Illinois	7,298,682	7.26	2.93	0.81	3.51	1.68	1,188,176	14.45
Michigan	5,916,060	9.28	3.62	1.07	4.58	1.83	861,395	15.43
Wisconsin	2,948,090	6.76	3.07	0.77	2.93	1.12	520,231	10.07

WORK DISABILITY, LABOR FORCE STATUS, AND TRANSPORTATION DISABILITY OF NONINSTITUTIONALIZED PERSONS

16-64 AND 65 AND OVER, BY STATE: APRIL 1980

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United States, total	144,560,822	8.58	3.25	0.90	4.43	1.81	24,184,588	14.94
West North Central								
Minnesota	2,563,841	7.04	3.58	0.86	2.60	0.99	437,367	10.10
Iowa	1,796,809	7.24	3.42	0.85	2.96	1.05	355,123	10.73
Missouri	3,069,087	9.13	3.54	0.97	4.62	1.75	612,449	15.10
North Dakota	402,349	6.70	3.31	0.87	2.52	0.91	73,590	7.71
South Dakota	417,867	7.56	3.82	0.87	2.87	1.05	83,280	8.54
Nebraska	968,836	7.01	3.50	0.79	2.73	1.12	189,057	10.72
Kansas	1,479,791	7.61	3.60	0.86	3.15	1.20	284,061	11.65
South Atlantic								
Delaware	389,196	7.91	3.22	0.89	3.81	1.64	55,731	15.88
Maryland	2,798,663	8.00	3.19	0.91	3.90	1.76	374,244	16.51
District of Columbia	437,788	9.88	3.37	1.23	5.28	2.48	71,096	18.03
Virginia	3,540,722	8.44	3.08	0.93	4.43	1.70	479,245	15.98
West Virginia	1,214,538	12.34	3.26	1.15	7.92	2.51	230,679	16.93
North Carolina	3,808,398	9.75	3.56	0.91	5.29	2.07	575,123	17.83
South Carolina	1,999,332	9.81	3.36	0.86	5.59	2.34	275,127	19.07
Georgia	3,481,650	10.36	3.60	0.96	5.80	2.36	489,452	19.75
Florida	5,982,901	9.93	3.42	1.11	5.40	2.19	1,648,917	13.39

TIGER Questions and Answers



1.Q. What is TIGER?

- A. TIGER is a Census Bureau acronym for the new digital (computer-readable) map data base that automates the mapping and related geographic activities required to support the census and survey programs of the Census Bureau.

2.Q. What is in the TIGER File?

- A. The TIGER File or TIGER data base contains digital data for all 1990 census map features (such as roads, railroads, and rivers), feature names and classification codes, alternate feature names, the associated 1980 and 1990 census geographic area codes and FIPS (Federal Information Processing Standard) codes, such as those for census tracts, blocks (for 1980 only in areas covered by the GBF/DIME-Files), cities and townships and within metropolitan areas, address ranges and ZIP Codes for streets.

3.Q. Is TIGER information available to the public?

- A. Yes. Extracts of the TIGER data base, known as the Precensus TIGER/Line[®] files, are now available. They contain digital data for all 1990 census map features as well as the preliminary 1990 census geographic area codes, such as census tracts and blocks, and 1988 political boundaries.

4.Q. Will other TIGER/Line file extracts be made available?

- A. An Initial Voting District Codes version will be released from August - October 1990. These files will update the political boundaries to January 1, 1990, include map feature information added by 1990 census enumerators and local officials, contain the initial set of codes identifying voting districts for those states in the 1990 Census Redistricting Data Program, and provide selected landmark (c.g. churches, schools) and polygon (e.g. airport or forest area boundaries) information.

The 1990 Census version will be released from January - March, 1991. These files will show the final 1990 census tabulation geography, including, census designated places and the final voting districts. They will also include map feature corrections from the postcensus local review operation.

5.Q. What is the size of a TIGER/Line files?

- A. A TIGER/Line[®] file data of each county are contained in a series of up to six files. Additional files will be added for Initial Voting District Codes and later versions. The sizes of a Precensus TIGER/Line[®] files are as follows: Average file size for a state is 400 megabytes. The average file size for a county is 6 megabytes (individual county files range from less than 1 to over 100 megabytes). The estimated size of all files for the entire nation, including Puerto Rico, the Virgin Islands of the United States and the Outlying Areas of the Pacific is 19,700 megabytes.

¹ TIGER is a Census Bureau acronym for the Topologically Integrated Geographic Encoding and Referencing System.

6.Q. Are the TIGER/Line files similar to the GBF/DIME Files?

- A. **YES** and more. The TIGER/Line[®] files replace the 1980 GBF/DIME-Files. The GBF/DIME-Files covered only the urbanized portions of the SMSAs. The TIGER/Line[®] files cover every county in the United States as well as Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, Palau, and the Pacific territories for which the U.S. Census Bureau assists in the census taking process. However, the address ranges and ZIP Codes in the TIGER/Line[®] files will be found only in the areas covered originally by the 1980 GBF/DIME-Files.

7.Q. What can I do with a TIGER/Line file?

- A. You can combine the geographic and cartographic data of a TIGER/Line[®] file with other statistical information (such as census population and housing data, census economic data, or information from other sources) using mainframe computers, microcomputers, workstations, or personal computers and appropriate software for various applications. Examples of TIGER/Line[®] file uses included thematic or other types of mapping, geocoding of spatially-referenced data for marketing research, routing or dispatching, address matching, redistricting, as well as a variety of applications using geographic information systems (GIS).

8.Q. What software will the Census Bureau provide?

- A. **NONE.** We will leave user application software to the private sector. However, we will provide references to existing commercial software through the National Clearinghouse for Census Data Services. For information on current software availability, call the numbers list below.

9.Q. How can I get a TIGER/Line file? How much does it cost?

- A. All Precensus TIGER/Line[®] files are available on computer tape: 9 track, 1600 bpi or 6250 bpi, ASCII or EBCDIC, labeled. The cost of these tapes is **\$200** for the first county ordered in each state plus **\$25** for each additional county in that state ordered at the same time. Refer to the tape chart below for the cost for each state.

The Precensus TIGER/Line[®] files also are available on CD-ROM for use on personal computers. The TIGER/Line[®] files for the Nation are contained on 37 CD-ROM discs. California and Texas require more than one CD-ROM for complete coverage, however, many states utilize far less than the total disc space and several other states are contained on a single disc. For example, the six states that comprise New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont) are on a single CD-ROM disc. The price of a Precensus TIGER/Line[®] file CD-ROM is **\$250** per disc. Refer to the chart below for contents of specific CD-ROMs.

To order TIGER/Line[®] file tapes or CD-ROMs, send a prepaid order, payable to "Commerce-Census," to **Customer Services Branch, Data User Services Division, Bureau of the Census, Washington, D.C. 20233**, or to charge your order to your VISA or Master Card or to establish a deposit account, call **(301) 763-4100**. For tape orders, please specify either 1600 or 6250 bpi, ASCII or EBCDIC. Documentation for the files can also be obtained separately for \$5.

10.Q. What other TIGER-related geographic products are available?

- A. **FORTTRAN Mapping Source Code File:** The Census Bureau makes available the FORTRAN source code routines that it used to produce TIGER maps on its Unisys 1100 Series mainframe computers, so that experienced FORTRAN systems analysts can learn how our mapping algorithms work. **However, the routines will not run on any computer system without extensive additional programming. Also we will not support the routines, nor answer questions about them.** Price: \$600.

UNISYS TIGER Documentation, 3-volume set, \$25 per set, if purchased without the FORTRAN Mapping Source Code File.

VAX TIGER Documentation, 4-volume set, \$25 per set.

Map Sheet Corner Point Coordinate File: This file contains the basic information about the scale and geographic extent of the Census Bureau's 1990 Precensus Map sheets as defined by latitude and longitude. Information is

contained on maximum/minimum values for the image area of the Census Bureau's 1990 Precensus Map sheets that the Census Bureau used for Phase 2 of the Redistricting Data Program, the Precensus Local Review Program and the Census Designated Place Program. Price: \$275.

Public Version of GRF-N (Geographic Reference File-Names) File: This file contains names and associated 1990 census codes for geographic areas, such as state, county, minor civil division/census county division, and place. Price: \$275.

PRECENSUS TIGER/LINE® FILES ON COMPUTER TAPE

State	No. of Counties	Cost	State	No. of Counties	Cost
Alabama	67	\$1,850	Montana	57	\$1,600
Alaska	25	\$ 800	Nebraska	93	\$2,500
Arizona	15	\$ 550	Nevada	17	\$ 600
Arkansas	75	\$2,050	New Hampshire	10	\$ 425
California	58	\$1,625	New Jersey	21	\$ 700
Colorado	63	\$1,750	New Mexico	33	\$1,000
Connecticut	8	\$ 375	New York	62	\$1,725
Delaware	3	\$ 250	North Carolina	100	\$2,675
District of Columbia	1	\$ 200	North Dakota	53	\$1,500
Florida	67	\$1,850	Ohio	88	\$2,375
Georgia	159	\$4,150	Oklahoma	77	\$2,100
Hawaii	5	\$ 300	Oregon	36	\$1,075
Idaho	44	\$1,275	Pennsylvania	67	\$1,850
Illinois	102	\$2,725	Rhode Island	5	\$ 300
Indiana	92	\$2,475	South Carolina	46	\$1,325
Iowa	99	\$2,650	South Dakota	66	\$1,825
Kansas	105	\$2,800	Tennessee	95	\$2,550
Kentucky	120	\$3,175	Texas	254	\$6,525
Louisiana	64	\$1,775	Utah	29	\$ 900
Maine	16	\$ 575	Vermont	14	\$ 525
Maryland	24	\$ 775	Virginia	136	\$3,575
Massachusetts	14	\$ 525	Washington	39	\$1,150
Michigan	83	\$2,250	West Virginia	55	\$1,550
Minnesota	87	\$2,350	Wisconsin	72	\$1,975
Mississippi	82	\$2,225	Wyoming	23	\$ 750
Missouri	115	\$3,050	Puerto Rico	78	\$2,125
			Outlying Areas*	67	\$1,850

*Includes American Samoa, Guam, the Northern Mariana Islands, the Virgin Islands of the United States, Palau, plus the other areas comprising the former Trust Territory of the Pacific Islands.

PRECENSUS TIGER/LINE® FILES ON CD-ROM

Alabama, Alaska	Mississippi, Puerto Rico, VI,
Arizona	Outlying Areas of the Pacific
Arkansas	Missouri
California (Alameda - Plumas)	Montana
California (Riverside - Yuba), Hawaii	Nevada, Wyoming
Colorado	New Jersey, South Carolina
New England (Connecticut, Maine,	New Mexico
Massachusetts, New Hampshire,	New York
Rhode Island, Vermont)	North Carolina
Delaware, D.C., Maryland, Virginia	North Dakota, South Dakota
Florida	Ohio
Georgia	Oklahoma
Idaho, Nebraska	Oregon
Illinois	Pennsylvania
Indiana, West Virginia	Tennessee
Kansas	Texas (Anderson - Hardin)
Kentucky, Utah	Texas (Harris - Sherman)
Louisiana	Texas (Smith - Zavala), Iowa
Michigan	Washington
Minnesota	Wisconsin

The TIGER/Line® file CD-ROMs are the standard 4 3/4" in size. They are in the ISO 9660 format and require Microsoft CD-ROM Extensions Version 2.0 or higher. The current version is 2.1. The discs can also be used with Apple Macintosh CD-ROM readers and software setup. For your individual system see your supplier about your CD-ROM reader configuration and operation. The Precensus TIGER/Line® files are placed on the CD-ROM in their magnetic tape formats. The TIGER/Line® file data for each county are contained in a series of up to six files in flat ASCII format. Each CD-ROM also contains the TIGER/Line® file technical documentation and a census code and name reference file for the applicable state(s).

An electronic bulletin board containing TIGER-related information is also available on (301) 763-1568.

For more information on the TIGER data base and related products, call (301) 763-4100.



APPENDIX I

Sample Advisory Committee Memorandum of Understanding

SAMPLE

MEMORANDUM OF UNDERSTANDING

This is a Memorandum of Understanding, made this ____ day of _____, 19__ between the (name of transit authority) (herein called the Authority) and the (name of committee) (herein called the Committee).

Whereas the Authority is duly organized under (enabling legislation) to provide public transportation services in the 78 cities and towns including and surrounding Boston; and

Whereas the Committee is a body which was formed in (date) to advise and comment on Authority programs for transportation that may affect persons with disabilities and to present said advice and comment to the Authority.

Whereas 45 CFR, Part 13 calls for active consumer participation in the planning process of transit agencies that are recipients of Federal transportation monies (Section 613.204, and 609.9 through 609.25); and

Whereas both 29 United States Code 794 and (applicable state law) requires non-discrimination for persons with disabilities; and

Whereas the Committee will consist of representatives appointed by public and private human service agencies, consumer groups, and individuals interested in the accessible services of the Authority and there is a chairperson who establishes subcommittees and appoints committee members as needed; and

Whereas general meetings of the Committee shall be held monthly or as deemed necessary by the Chairperson of the Committee, and voting eligibility will be accorded by attendance at least thirty-three (33) percent of the regular scheduled meetings within a six-month period to insure an informed voting membership and the organized conduct of meetings; and

Whereas the Authority and the Committee are committed to working toward improvement and expansion of accessible transportation services for persons with disabilities and form this understanding as a vehicle to forward this work; and

Whereas a good faith effort by both parties to this Memorandum of Understanding shall result in a cooperative effort to establish a policy of providing safe, reliable, efficient and effective multi-modal accessible transportation;

Now therefore, in consideration of the mutual understandings and agreements entered herein, the Committee and the Authority agree as follows:

The Authority shall, barring extraordinary circumstances, request the Committee to review and comment within a reasonable time on all vehicle acquisitions and relevant modification plans including: Bus, Light Rail, Trackless Trolley, Commuter Rail, Heavy Rail, and Paratransit Vehicles. Excluded from this would be non-revenue maintenance and repair vehicles. Review will occur prior to finalization of specifications barring extraordinary circumstances, such as those that may occur which present the Authority with a short time frame for decision making in order to maximize the public interest.

The Authority shall make quarterly presentations for Committee review and comment, outlining construction projects under design that involve public access to transportation facilities. Updates shall be provided at subsequent quarterly meetings if any significant changes affecting accessibility are required.

The Authority shall advise the Committee of planning efforts in advance of public hearings to ensure that programs are responsive to the actual needs of persons with disabilities.

Furthermore, the Authority shall advise the Committee through its Chairperson and request the Committee to advise, review, and comment on plans to significantly alter system signage, install new elevators, initiate publicity or public information efforts on the Authority's services.

The Authority shall provide an opportunity for review and comment by the Committee on the special efforts element of the Transportation Improvement Plan.

The Authority shall provide the Committee at least (25) working days for review and comment on any of the above matters, whenever possible.

The Authority shall respond, through its (name of office overseeing access issues) or Authority designated personnel, in writing, when requested, to all correspondence initiated by the Committee and Subcommittee Chairpersons which have been voted on by the Committee or Subcommittees and processed through the Chairperson.

The Authority shall be required, to the maximum extent possible, to keep the Committee informed of the above plans and changes, through the Committee with copies to relevant subcommittee chairpersons with reasonable time for review and comment prior to final decision making.

The Committee shall respond to all requests for advice, review and comment on Station Modification, Modernization, or new Construction; acquisition of fixed route buses, trackless trolleys, and paratransit vehicles; acquisition of other rolling stock such as Heavy and Light Rail vehicles and Commuter Rail cars; fixed route bus modification or changes and trackless trolley route modification or changes; and plans to alter signage, install new elevators, and initiate publicity or public information efforts on the Authority's services in a timely manner, making a good faith effort to provide said responses within a time frame that renders them usable by the Authority.

The Committee shall make a good faith effort to assist the Authority in soliciting consumer comments on pending Federal Mass Transit Legislation and by supporting when possible, Authority applications for State and Federal grants providing they meet the requirements of Section 504 of the Rehabilitation Act, as amended, the Americans with Disabilities Act and 1990, and associated regulations.

The Committee shall make a good faith effort, whenever possible, to assist the Authority by keeping abreast of developments in transportation of persons with transportation disabilities in other parts of the State and Nation. This information shall be made available for use by the Authority.

The Committee shall make a good faith effort to assist the Authority, as much as

possible, in developing and promoting outreach efforts and publicizing the Authority's programs and services for persons with disabilities.

The Committee, in addition to the above defined responsibilities and activities, shall assist in general planning, design, implementation, development, and evaluation of the Authority's programs for persons with disabilities. The word "assist" is hereby defined as: help or aid in the development of the Authority's programs and services for persons with disabilities.

The Committee and its subcommittees shall be responsible for maintaining their own meeting minutes and meeting announcements and for requesting appropriate interpreters for meetings in a timely manner from the Authority's (name of office overseeing access issues), which will arrange for the provision of interpreters.

In any instance where the Authority and the Committee shall hold different positions, upon request from either party, each party shall put forth its rationale in writing and the correspondence shall be addressed to the Committee Chairperson with copies to the appropriate subcommittee Chairpersons and the Manager of the Authority's (name of office overseeing access issues) with copies to relevant personnel, respectively.

This Memorandum of Understanding shall remain in full force and effect unless written notice to terminate or amend same is submitted by either party. A meeting between both parties will be held within sixty (60) days of receipt of said written notice, and the parties will have sixty (60) days from the meeting date to mutually agree upon changes to the Memorandum of Understanding, otherwise same becomes null and void.

In witness whereof, the Authority and the Committee have caused this Memorandum of Understanding to be executed by their duly authorized officers as of the day and year above written.

AUTHORITY

COMMITTEE

APPENDIX J

Computer-Assisted Scheduling Information

- J.1 - General Information about PC-TRANS**
- J.2 - Currently Available Software for Scheduling, Dispatching and Recordkeeping**



Find an Informative, Helpful Hand with PC-TRANS

The world of microcomputers is filled with fascination and frustration. It is amazing how quickly and accurately a computer can process data that would have taken us hours or even days to process! When you've got the hi-tech world at your fingertips, everyday feels like Friday! But, when something goes wrong—it's Monday morning all over again!!

Whether you're just starting out with computers or are an old hand at them, computers always offer a challenge—from selecting the right software program and hardware system to mastering the program once it's up and running. So where can you find help? For over five years, transportation professionals have been turning to PC-TRANS (Personal Computers in Transportation Resource and News Service) to help them with their microcomputer questions and transportation software needs.

PC-TRANS, an FHWA-designated software distribution center, was established to meet the microcomputer application and information needs of transportation professionals including engineers, planners, administrators and transit providers. PC-TRANS provides technical support and a forum for the exchange of ideas, information and experience among microcomputer users in the transportation field. Major areas addressed by the Center include highway engineering, regional and rural transportation planning, traffic engineering and safety, and transit operations.



PC-TRANS
University of Kansas
(913) 864-5655

What Are People Saying About PC-TRANS?

"I have found [pc-trans] to be very valuable in my own 'keeping-up' effort."

"The range of topics and programs covered by your publication is quite broad, and the articles are both interesting and informative. Please keep up the good work!"

"I wanted to express my appreciation to you for the review of our software. I have already received many calls of interest as a result of this article."

"There is something informative, interesting or useful in each issue."

"I particularly enjoy the 'Tech File' section of the magazine. It presents information that many computer-knowledgeable people assume is standard knowledge—and often isn't. I've learned a lot in the past few months from that section."

"I really appreciate your in-depth coverage of the software that is available for today's transportation professional. It keeps us from using obsolete material."

A Technology Transfer Program

PC-TRANS is the microcomputer-support component to the Kansas University Transportation Center's Technology Transfer Program. In efforts to meet the microcomputing needs of transportation professionals, PC-TRANS offers a full range of information, microcomputer application and technical assistance services.

Information Services

pc-trans: A bi-monthly magazine

pc-trans is published six times a year and targets microcomputing issues of interest to the transportation professional. From the mass of information and daily breaking developments in the microcomputing field, *pc-trans* provides pertinent information on new developments in hardware and software in an easily understood manner. Simply call (913) 864-5655 to get your free subscription.

Special sections of the magazine include feature articles by users on the lessons they've learned in implementing microcomputer systems; news briefs as well as in-depth coverage of microcomputing and transportation issues; regular columns for new users, advanced users and multimedia applications; and a "Ask Our Readers" column for readers' input on current microcomputer issues.

Also included are software and publication reviews to assist users in selecting software programs. The Program Notes section provides up-to-date information on new and revised software available through PC-TRANS. Each issue also carries a calendar of events relevant to microcomputing in transportation so users can be aware of training and professional meetings in their area.

PCs in Transportation Software Directory

Knowing where to find the software you need can be a little bewildering. To help you in this task, PC-TRANS has published the *PCs in Transportation Software Directory*. The directory contains information on over 600 software products and sources of software and information and covers the areas of:

- Traffic Engineering
- Transit & Paratransit Operation
- Transportation Planning
- Civil Engineering
- Facilities Management
- Freight Transportation

For further information regarding the directory, contact PC-TRANS.

PC-TRANSport: Electronic Bulletin Board

PC-TRANSport was established to provide direct access to the software and information resources of the Center. Available on a 24-hour basis, the bulletin board provides on-line answers to commonly asked questions, brief informational notices, documents and software, and message communication with PC-TRANS staff and other users. To access the BBS call (913) 864-5058.

Microcomputer Applications Services

Software Distribution Service

PC-TRANS is constantly updating and expanding its library of software programs and documentation for transportation applications. Many of the programs are in the public domain and are made available at a minimal cost. Other products are fully supported, copyrighted software marketed through agreements with their authors. The Distribution Service is an easy way to keep current with software updates and new transportation applications.

If you have developed a program that you would like to distribute through PC-TRANS' Software Distribution Service, call us at (913) 864-5655. The Center can arrange a distribution plan to meet your needs.

Microcomputer Seminars

Microcomputer workshops for transportation professionals are offered from time to time, with notice announced through the *pc-trans* magazine.

Technical Services

PC-TRANSaction: A Telephone Hotline

A team of transportation microcomputer professionals is available for consultation in areas related to the implementation of microcomputer applications in the transportation office.

The PC-TRANSaction telephone hotline can be reached by calling (913) 864-5655, week days, 8:00 a.m. to 5:00 p.m. Central Time.

Technical Advisory Program

If your questions exceed the service range of the PC-TRANS Hotline, microcomputer and transportation experts are available on a fee-for-service basis. This assistance includes on-site technical consultation in assessing hardware and/or software needs and in developing requests for bids to procure equipment; assistance in developing special application software; or help in testing software applications that will meet a user's specific needs.

Table J.1 - Currently Available Software for Scheduling, Dispatching and Recordkeeping¹

NAME	APPLICATION	DEVELOPER	AVAILABLE FROM
Special Trips/ Reservation System	Scheduling	BISPAC Systems	Gary Coverdale 916-985-7009
CRSS	Trip Scheduling and Vehicle Routing	COMSIS Corporation	Martin J. Fertal, Senior VP 412-279-9110
CSP-25	Client Information, Handicapped and Elderly Services	Philip G. Dorcas & Associates	817-921-9704
DISPATCH-A-RIDE	Client Registration, Trip Reservation and Scheduling System	Multisystems, Inc.	Kurt D. Dossin, Director of Marketing 617-864-5810
GIRO/ACCESS	Client Information, Scheduling and Dispatching	Multisystems, Inc.	Kurt D. Dossin, Director of Marketing 617-864-5810
GMS Client Transportation and Reporting System	Driver Scheduling	Grants Management Systems	R. Webster and K. McLamb 301-933-3500
PARATRANSIT MANAGEMENT AND INFORMATION SYSTEM	Client Information	New Alternatives, Inc.	Rick Kuner, President 312-263-2808
PARIS	Trip Scheduling and Dispatching	COMSIS Corporation	Martin J. Fertal, Senior VP 412-279-9110

¹ List derived from *PCs in Transportation Software Directory*, March 1991, PC-TRANS, edited by Mehrdad Givechi, Transit and Paratransit Operations section.

PARMIS	Client Information and Scheduling	Ketron, Inc.	Deborah A. King, Programmer/Analyst 215-648-9000
PAX-1: MANAGEMENT INFORMATION FOR PARATRANSIT SERVICES	Trip Scheduling and Reporting	Amherst Computer Associates	Paul McOwen, President 413-498-4443
PSP-25: PARATRANSIT SCHEDULING PACKAGE	Handicapped and Elderly Services, and Dispatching	Philip G. Dorcas & Associates	817-921-9704
SST3	Scheduling	PC-TRANS and McTrans	913-864-5655 and 904-392-0378
TRANSIT: GENERIC SMALL TRANSIT DATA MANAGEMENT SOFTWARE	Handicapped and Elderly Transit	PC-TRANS	913-864-5655
BID PROCESSING AND DISPATCH CONTROL/ TIMEKEEPING	Dispatching and Scheduling	Multisystems, Inc.	Kurt D. Dossin, Director of Marketing 617-864-5810
TOPDOG: Transit Operator Planning, Diagnostics and Optimization Guidelines	Driver Scheduling	PC-TRANS and McTrans	913-864-5655 and 904-392-0378
CHS: CHAPEL HILL SCHEDULER	Scheduling	PC-TRANS and McTrans	913-864-5655 and 904-392-0378
HASTUS SCHEDULING SYSTEM	Scheduling	Multisystems, Inc.	John Attanucci 617-864-5810
SCOOTER		Modeling Systems, Inc.	Modeling Systems, Inc.
Teleride Sage Limited	Scheduling	Teleride Sage Ltd.	Josef Kates, Chairman 416-596-1940

APPENDIX K

Sources of Additional Information and Technical Assistance

- K.1 - USDOT/UMTA Contacts**
- K.2 - UMTA Regional Offices**
- K.3 - Other Implementing Agency Contacts**
- K.4 - Transportation Associations and Technical Information Centers.**
- K.5 - National Organization on Disability (NOD) State Contacts**
- K.6 - National Disability Organizations**
- K.7 - Sources of Information on Independent Living Centers**
- K.8 - Disability Information and Research Centers**
- K.9 - Selected Documents and Publications**

K.1 - USDOT/UMTA Contacts

For further information, contact:

**Ms. Susan Schruth
Office of the Chief Counsel
Urban Mass Transportation Administration
400 7th Street, S.W.
Room 9316
Washington, D.C. 20590**

phone: (202) 366-4011 (voice); (202) 366-2979 (TDD)

or:

**Mr. Robert C. Ashby
Deputy Assistant General Counsel
for Regulation and Enforcement
Department of Transportation
400 7th Street, S.W.
Room 10424
Washington, D.C. 20590**

phone: (202) 366-9306 (voice); (202) 755-7687 (TDD)

For assistance with legal issues, contact:

**Ms. Susan Schruth, or;
Ms. Elizabeth Martineau, (202)366-1936.**

For assistance with paratransit issues, contact:

Mr. Robert McManus, (202) 366-4020.

For assistance with technical standards, contact:

Mr. Vincent DeMarco, (202) 366-0224.

K.2 - UMTA Regional Offices

Region 1: Includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont

Urban Mass Transportation Administration
Transportation Systems Center
Kendall Square
55 Broadway
Suite 920
Cambridge, MA 02142

Region 2: Includes New Jersey, New York and the Virgin Islands

Urban Mass Transportation Administration
26 Federal Plaza
Suite 2940
New York, NY 10278

Region 3: Includes Delaware, District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia

Urban Mass Transportation Administration
841 Chestnut Street
Suite 714
Philadelphia, PA 19107

Region 4: Includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, and Tennessee

Urban Mass Transportation Administration
1720 Peachtree Road, N.W.
Suite 400
Atlanta, GA 30309

Region 5: Includes Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin

Urban Mass Transportation Administration
55 East Monroe Street
Room 1415
Chicago, IL 60603

Region 6: Includes Arkansas, Louisiana, New Mexico, Oklahoma and Texas

**Urban Mass Transportation Administration
819 Taylor Street
Suite 9A32
Ft. Worth, TX 76102**

Region 7: Includes Iowa, Kansas, Missouri and Nebraska

**Urban Mass Transportation Administration
6301 Rockhill Road
Suite 303
Kansas City, MO 64131**

Region 8: Includes Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming

**Urban Mass Transportation Administration
1961 Stout Street, 5th Floor
Denver, CO 80294**

Region 9: Includes Arizona, California, Guam, Hawaii, Nevada and Pacific Territories

**Urban Mass Transportation Administration
211 Main Street, Room 1160
San Francisco, CA 94105**

Region 10: Includes Alaska, Idaho, Oregon and Washington

**Urban Mass Transportation Administration
3142 Federal Building
915 Second Avenue
Seattle, WA 98174**

K.3 - Other Implementing Agency Contacts

Architectural and Transportation Barriers Compliance Board

**Contact: Mr. James Ragglo
Office of the Chief Counsel
(202) 653-7834 (Voice/TDD)**

Department of Justice

**Contacts: Ms. Barbara Drake
Deputy Assistant Attorney General**

**Mr. John Wodatch
Director, Office on Americans with Disabilities Act**

**ADA Information Line: (202) 514-0301 (Voice)
(202) 514-0381 (TDD)**

Equal Employment Opportunity Commission

**Contacts: Ms. Elizabeth M. Thorton
Deputy Legal Counsel
(202) 663-4638 (Voice)
(202) 663-7026 (TDD)**

**Mr. Christopher G. Bell
Acting Associate Legal Counsel for ADA Services
(202) 663-4679**

Federal Communications Commission

**Contacts: Ms. Linda Dubroof (for substantive issues)
Attorney, Common Carrier Bureau
(202) 634-1808**

**Ms. Martha Conte
Office of Public Affairs
(202) 632-7260 (Voice)
(202) 632-6999 (TDD)**

**Mr. Paul Taylor (for technical issues)
(202) 634-1855 (TDD)**

K.4 - Transportation Associations and Technical Information Center

**American Public Transit Association (APTA)
1201 New York Avenue, N.W.
Washington, D.C. 20005**

**Contacts: Edward Gill, Deputy Counsel
(202) 898-4060
Deborah Dubin, Regulatory Analyst
(202) 898-4098**

APTA is an international organization representing local mass transit systems. APTA's members include over 400 American public and private mass transit systems which carry over 95 percent of the persons using public transit in the United States. In addition, APTA represents more than 500 manufacturers, suppliers, consultants, academic institutions, and government agencies involved in the mass transit industry.

**Architectural and Transportation Barriers
Compliance Board (ATBCB)
1111 18th Street, N.W., Suite 507
Washington, D.C. 20036-3894**

**Contact: Mr. Dennis Cannon, Transportation Specialist
1-800-USA-ABLE (Voice/TDD)**

**Community Transportation Association of America (CTAA)
725-15th Street, N.W.
Washington, D.C. 20005**

**Contact: David Raphael, Executive Director
1-800-527-8279**

The CTAA is a national association dedicated to improving mobility for all people. CTAA focuses on improving transportation in rural areas and small cities, and wherever older Americans, persons with disabilities or poor people do not have access to conventional public transit.

The CTAA operates the RTAP National Program (Rural Transit Assistance Program) under contract to the Urban Mass Transportation Administration which provides training and technical assistance to both states and local transit systems in rural areas. CTAA also operates the

CTAP Program (Community Transportation Assistance Program) under contract to the U.S. Department of Health and Human Services which provides assistance to human service agencies transporting their clients with a special emphasis on meeting ADA requirements. Both programs include an Information Center and Hotline which can be reached by calling 1-800-527-8279.

**International Taxicab and Livery Association (ITLA)
3849 Farragut Avenue
Kensington, MD 20895**

**Contact: Alfred LaGasse, Executive Vice President
(301) 946-5700**

**Project ACTION
National Easter Seal Society
1350 New York Avenue, N.W., Suite 915
Washington, D.C. 20005**

**Contacts: David Capozzi, Vice President
(202) 347-3066**

TDD: (202) 347-7385

Project ACTION (Accessible Community Transportation In Our Nation) is managed by the National Easter Seal Society and is funded through a Cooperative Agreement with the Urban Mass Transportation Administration. Twenty-five projects were funded in 1991 that will develop improved outreach and marketing strategies, training programs for transit providers and persons with disabilities, securement systems for accessible vehicles, and techniques for identifying persons with disabilities and their transit needs.

Public Private Transportation Network (PPTN)

The PPTN is an UMTA-funded program designed to provide technical assistance to those interested in establishing, expanding, or enhancing public transportation through public-private partnerships. The program operates on a peer-to-peer approach, responding to requests for assistance from public entities at all levels, as well as private, non-profit agencies. The PPTN can be contacted by calling 1-800-522-PPTN.

K.5 - National Organization on Disability (NOD) State Contacts

Many of the individuals listed below are state-level disability office representatives. Where state-level offices do not exist, NOD identifies other individuals from key organization in that state. The National office can be contacted at:

**National Organization on Disability
910 16th Street, N.W.
Washington, D.C. 20006**

(202) 293-5960

STATE REPRESENTATIVES TO N.O.D.

April 1991

ALABAMA
Angeline Pinckard
(205) 281-8780

ILLINOIS
James de Jong
(217) 522-7016

MONTANA
Joe Mathews
(406) 444-2590

PENNSYLVANIA
Gil Selders
(717) 787-5244

ALASKA
Terry Coon
(907) 474-2440

INDIANA
Sue Ellen Jackson-Boner
(317) 232-7773

NEBRASKA
Frances Warholtz
(402) 477-9912

RHODE ISLAND
Edward Schroeder
(401) 277-3731

ARIZONA
Karen Van Epps
(602) 542-4049

IOWA
Donald Westergard
(515) 281-5969

NEVADA
Kathleen Olson
(702) 885-5348

SOUTH CAROLINA
June Licata
(803) 737-3200

ARKANSAS
Carol Cato
(501) 682-6696

KANSAS
Stephen Schiffelbein
(913) 296-3911

NEW HAMPSHIRE
Michael D. Jenkins
(603) 271-2773

SOUTH DAKOTA
Dave Knudson
(605) 339-6730

CALIFORNIA
Director of Rehabilitation
(916) 445-3971

KENTUCKY
Gerald N. Williams
(606) 231-7403

NEW JERSEY
Rick Shanberg
(609) 292-5987

TENNESSEE
Bill Manning
(615) 741-2345

COLORADO
Clair Arnold
(303) 233-1666

LOUISIANA
Patsy Barrett
(504) 342-2723

NEW MEXICO
Judy Myers
(505) 827-6465

TEXAS
Virginia Roberts
(512) 483-4380

CONNECTICUT
Stan Kosloski
(203) 297-4300

MAINE
Robert McKeagney
(207) 289-2909

NEW YORK
Francis C. Berko
(518) 474-2825

UTAH
Sherry L. Repsher
(801) 533-6770

DELAWARE
Diane Treacy
(302) 571-3915

MARYLAND
Gertrude Jeffers
(301) 333-3098

NORTH CAROLINA
Roger B. Foushee
(919) 733-9250

VERMONT
Stanley Greenberg
(802) 863-1358

FLORIDA
Thom DeLilla
(904) 488-3116

MASSACHUSETTS
Jim Gleich
(617) 727-7440

NORTH DAKOTA
Georgene Emard
(701) 775-4910

VIRGINIA
Sarah Liddle
(804) 225-2042

GEORGIA
Phil Payne
(404) 894-6737

MICHIGAN
Patrick Cannon
(517) 373-8397

OHIO
David Williams
(614) 466-9956

WASHINGTON
Paul Wysocki
(206) 753-1547

HAWAII
Francine Wai Lee
(808) 548-7606

MINNESOTA
Rachel Wobschall
(612) 297-1554

OKLAHOMA
Steven Stokes
(405) 521-3756

WEST VIRGINIA
Earl W. Wolfe
(304) 348-0627

IDAHO
Janet Wright
(208) 334-6193

MISSISSIPPI
Janet Larson
(601) 949-2012

OREGON
Bill Kachmarik
(503) 826-7515

WISCONSIN
Robert Barrow
(414) 351-1400

MISSOURI
Richard Powell
(314) 751-2600

WYOMING
Martin Mueller
(307) 777-7385

K.6 - National Disability Organizations

Americans Disabled for Attendant Programs Today (ADAPT)
12 Broadway
Denver, Colorado 80213

Contact: Robin Stephens, Co-Coordinator

American Foundation for the Blind
1515 M Street, N.W.
Suite 250
Washington, D.C. 20036

Contact: Alan Dinsmore, Legislative Network Coordinator

Association for Retarded Citizens
1522 K Street, N.W.
Suite 516
Washington, D.C. 20005

Contact: Paul Marchand, Director of Governmental Affairs

Disability Rights Education and Defense Fund, Inc.
1633 Q Street, N.W.
Suite 200
Washington, D.C. 20009

Contact: Marilyn Golden

Eastern Paralyzed Veterans Association
75-20 Astoria Boulevard
Jackson Heights, New York 11370-1178

Contact: Jim Weisman, Program Counsel

**National Alllance for the Mentally Ill
2101 Wilson Boulevard
Suite 320
Arlington, Virginia 22209**

Contact: Fred Fredelly

**National Association of the Deaf
800 Florida Avenue, N.E.
Box 2304
Washington, D.C. 20002**

Contact: Marc Charmatz

**National Easter Seal Society
1350 New York Avenue, N.W.
Suite 915
Washington, D.C. 20005**

Contact: David Capozzi, Vice President

K.7 - Sources of Information on Independent Living Centers and Programs

Independent Living Centers and Programs are an excellent source of local information and assistance on all types of disabilities. There are over 400 programs nationwide. The following organizations can help you identify programs in your area.

**National Council on Independent Living
Troy Atrium
4th Street and Broadway
Troy, New York 12180**

(518) 274-1979

**Independent Living Research Utilization Program
2323 South Shepherd
Houston, Texas**

(713) 520-0232

K.8 - Disability Information and Research Centers

Info use

**1995 University Avenue, Suite 215
Berkeley, California 94704**

Info use maintains a Disability Statistics Hotline which can be reached by calling: (415) 644-9901

**Health Care Financing Administration
Room 2502 Oak Meadows
6325 Security Boulevard
Baltimore, Maryland 21207**

(301) 966-7718

**National Institute on Mental Health
Room 18-105
5600 Fishers Lane
Rockville, Maryland 20857**

(301) 443-2908

**Research and Training Center on Blindness
and Low-Vision Rehabilitation
Mississippi State University
P.O. Box 5365
Mississippi State, Mississippi 39762**

(601) 325-2001

**National Institute on Disability and
Rehabilitation Research
U.S. Department of Education
400 Maryland Avenue, S.W.
Room 3060 MES
Washington, DC 20202-2572**

**(202) 732-1134 (Voice)
(202) 732-5079 (TDD)**

K.9 - Selected Documents and Publications

Note: Each of the publications and materials listed below was developed prior to the issuance of the USDOT regulations. While they are included as helpful sources of general information, they may not reflect the latest requirements and standards.

For Population and Demand Information:

Grey Advertising, Inc., Summary Report of Data from National Survey of Transportation Handicapped People, prepared for the Urban Mass Transportation Administration, USDOT, June, 1978.

Crain & Associates, Inc., Pat Piras Consulting Services, Nelson/Nygaard Consulting Services, "Working Paper 6: Service Needs Analysis, San Francisco Bay Area Regional Paratransit Plan, prepared for the Metropolitan Transportation Commission, January, 1990.

Urban Studies Center, A Needs Assessment and Planning Study of the Transportation - Disabled Population of Louisville and Jefferson County, College of Urban and Public Affairs, University of Louisville, August, 1988.

KETRON, Inc., Market Survey - Planning, Development and Implementation of a Paratransit Program for the Transportation Disabled Residents of New York City, Volume 2, prepared for the Office of Management and Budget, New York City, September, 1987.

Southeastern Wisconsin Regional Planning Commission, A Regional Transportation Plan for the Transportation - Handicapped in Southeastern Wisconsin: 1978-1982, April, 1978

Bureau of the Census, General Social and Economic Characteristics, reports of the U.S. Census of Population and Housing, 1980, U.S. Department of Commerce.

National Center for Health Statistics, Current Estimates from the National Health Interview Survey, 1989, October, 1990 (DHHS/PUB/PHS-90-1504)

For Demand Estimation Techniques:

Peat, Marwick, Mitchell & Co., Planning Services for Transportation - Handicapped People: Data Collection Manual, prepared for the Urban Mass Transportation Administration, USDOT, revised January, 1985. (DOT-1-83-40R)

Charles River Associates, Inc. and Multisystems, Inc., Design and Implementation of the Pittsburgh Travel Diary, prepared for the Transportation Systems Center, USDOT, 1983.

For Coordination of Services:

Center for Systems and Program Development, Inc., Best Practices in Specialized and Human Services Transportation Coordination, prepared for the U.S. Department of Health and Human Services and the U.S. Department of Transportation, July, 1989 (DOT-T-89-20)

Erskine S. Walther, Transportation Institute, North Carolina A&T State University, Coordination of Rural Public Transportation Services in Three Southeastern States, prepared for the Urban Mass Transportation Administration, USDOT, June, 1990 (DOT-T-90-17)

Urban Systems, Inc., Coordinating Special Transportation Services in Louisiana, prepared for the Urban Mass Transportation Administration, USDOT, December, 1988. (DOT-T-89-08)

Comsis Corp., HSTC - Consolidation of Human Services Transportation in Bridgeport, Connecticut, prepared for the Urban Mass Transportation Administration, USDOT, December, 1983 (DOT-TSC-UMTA-83-44)

Applied Resource Integration, Planning Guidelines for Coordinated Agency Transportation Services, 1980 (DOT-I-87-33; NTIS # PB 88-240874)

Applied Resource Integration, Implementation Guidelines for Coordinated Agency Transportation Services, 1980 (DOT-I-87-34; NTIS # PB 89-130983)

Knapp, Sue, Ecosometrics, Wisconsin Manual to Coordinate Elderly and Handicapped Transportation Services in Rural and Small Urban Counties, 1980

For Paratransit Brokerage Information:

Charles River Associates, ACCESS: Brokering Paratransit Services to the Elderly and Handicapped in Allegheny County, PA, prepared for the Urban Mass Transportation Administration, USDOT, December, 1984 (DOT-TSC-UMTA-84-35)

Charles River Associates, LISTS: Transportation Brokerage for the Elderly and Handicapped in Lancaster, PA, prepared for the Urban Mass Transportation Administration, USDOT, June, 1984 (DOT-TSC-UMTA-84-21)

Comsis Corp., Transportation Brokerage Demonstration - Bridgeport, Connecticut, prepared for the Urban Mass Transportation Administration, USDOT, 1984 (DOT-TSC-UMTA-84-35)

Schreffler, Eric N. and Spear, Bruce D., Transportation Brokerage: A Comparative Analysis of 13 Projects, Transportation Systems Center, USDOT, June, 1985

For User-Side Subsidy Information:

Cambridge Systematics, Inc., User-Side Subsidy Programs for Special Needs Transportation, A Planning Handbook, prepared for the Urban Mass Transportation Administration, USDOT, June 1983 (DOT-TSC-UMTA-83-35).

Charles River Associates, The Milwaukee County User-Side Subsidy Program: A Case Study, prepared for the Urban Mass Transportation Administration, USDOT, September, 1982 (UMTA-MA-06-0049-82-4)

Roth, J.H., Marx, L.E., and Kraus, J.E., Chicago Transit Authority, The Chicago Transit Authority's Hybrid User-Side Subsidy Program for the Disabled, presented at the 1986 Annual Meeting of the Transportation Research Board, Washington, D.C., 1986

For Paratransit Vehicle and Equipment Information:

Battelle Columbus Laboratories, National Workshop on Bus-Wheelchair Accessibility, Guideline Specifications for Active Wheelchair Lifts, prepared for the Urban Mass Transportation Administration, USDOT, May, 1986 (UMTA-IT-06-0322-87-2)

Battelle Columbus Laboratories, Guideline Specifications for Wheelchair Securement Devices (UMTA-IT-06-0322-87-4)

Battelle Columbus Laboratories, Guideline Specifications for Wheelchair Ramps (UMTA-IT-06-0322-87-3)

Pennsylvania Department of Transportation, Handbook for Purchasing a Small Transit Vehicle, prepared for the Urban Mass Transportation Administration, USDOT, October, 1988

Ohio Department of Transportation, Vehicle Catalog, December, 1990 (DOT-T-91-10)

Garber, Connie and Seitz, Joe, Vehicle Procurement, UMTA/RTAP Technical Assistance Brief Number 2.

Giuliani, Clarence, Bus Inspection Guidelines, Transportation Research Board, June, 1987

Daucher, Dale, E., Securement of Wheelchairs and Other Mobility Aids on Transit Vehicles, prepared for the Architectural and Transportation Barriers Compliance Board, printed by Project ACTION, Washington, D.C., September, 1990.

For Employee Training:

Henderson, W.H., Dabney, R.L., Thomas, D.D., Passenger Assistance Techniques: A Training Manual for Vehicle Operators of Systems Transporting the Elderly and Handicapped, Transportation Management Associates, Ft. Worth, Texas

ISS, Inc., "Understanding the Capabilities and Needs of Special Passengers", UMTA/RTAP Training Module

Community Transportation Association of America, Training Resources Catalog for Rural and Specialized Transit Systems, UMTA/RTAP National Resource Center

Uslan, Mark M., Stern, Arlene, Access to Mass Transit for Blind and Visually Impaired Travelers, American Foundation for the Blind, New York.

Murphy, Joanne, How Does a Blind Person Get Around?, American Foundation for the Blind, New York.

For Paratransit Operating Policies:

Ness, Margl, Special Policies for Special Passengers, UMTA/RTAP Technical Assistance Brief Number 3

For Ongoing Evaluation of Service:

Miller, James H., The Pennsylvania Transportation Institute, Shared-Ride Paratransit Performance Evaluation Guide, prepared for the Urban Mass Transportation Administration, USDOT, September, 1990 (DOT-T-90-10)

For Advanced Technologies Such As Smart Cards, GIS, and Computer-Aided Scheduling and Recordkeeping:

Carol L. Schweiger, Current Use of Geographic Information Systems in Transit Planning, prepared for John A. Volpe National Transportation Systems Center, August, 1991 (DOT-T-92-02)

Robert F. Casey, Lawrence N. Labell, Simon P. Prenskey and Carol L. Schweiger, Advanced Public Transportation Systems: The State of the Art, prepared for UMTA, April 1991, DOT-VNTSC-UMTA-91-2

Givechi, M., PCs in Transportation Software Directory, PC-TRANS, Kansas University Transportation Center, March, 1991