

FOREWORD

This report describes the evaluation of a sampling of over- and undercrossing structures to identify major and minor access barriers for the physically handicapped. From this evaluation, it was determined that it is feasible to accommodate the physically handicapped on crossing structures. However, further research on specific design problems (ramp gradients, lengths, etc.) is needed before recommendations for the design or retrofitting of over- and undercrossing structures can be developed.

Research in pedestrian safety is included in the Federally Coordinated Program of Highway Research and Development as Task 1 of Project 1E, "Safety of Pedestrians and Abutting Property Occupants." Mr. John C. Fegan is the Project Manager.

One copy of this report is being distributed to each FHWA regional and division office.

for Charles F. Scheffey

Director, Office of Research Federal Highway Administration

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FEDERAL LEGISLATION REVIEW



The first national legislation directed at the elimination of architectural barriers has been enacted only within the past two decades. For the elderly and handicapped pedestrian, the legislation has had little impact up to now because it has been primarily directed at buildings and, in particular, at buildings financed in whole, or in part, with Federal funds. The sidewalks, streets, street crossings, public open spaces, parking lots, building sites, shopping centers, parks and recreation areas that are under the legal control of cities, towns, countries and local authorities remain substantially inaccessable.

This report is a review of Federal legislation and regulations which pertain to the provision of crossing structures for pedestrians and the accessability of structures to handicapped individuals. A major information source for this review was the survey of legislation previously conducted by researchers of the Pedestrian Research Laboratory entitled, "Provisions for Elderly and Handicapped Pedestrians: Volume 2, Hazards, Barriers, Problems, and the Law. That review covered legislation enacted through the middle of 1977, plus certain significant laws passed later in 1977 and during 1978, is broader in scope than the present review. This report includes legislation enacted through May 31, 1979.

Several significant laws have contained reference to the needs and rights of elderly and handicapped citizens. Although none of these laws identify crossing structures specifically, they do refer to the removal of architectural barriers in public buildings and facilities. The "Architectural Barriers Act of 1968" as amended requires the establishment of minimum accessibility standards for buildings and facilities constructed with Federal funds. The requirements for the elimination of architectural barriers also include transportation systems, housing and community development (the Urban Mass Transportation Act of 1964 as amended, the Federal-Aid Highway Act of 1973 as amended, the Surface Transportation Assistance Act of 1978), and "services to assist physically and mental impaired older people to lead more independent lives" (The Older Americans Act of 1965 as amended). The Surface Transportation Assistance Act of 1978 includes specific reference to pedestrian provisions. It allows Federal aid highway funds to be used for construction or improvement of pedestrian walkways and grants authority to the states to purchase adequate rightsof-way to accommodate bicycle and pedestrian travel. The Federal-Aid Highway Act of 1973 initially permitted Federal-aid highway funds to be used for bicyclist and pedestrian travel.

Definitions

The American Association of State Highway and Transportation Officials' Policy on Design of Urban Highways and Arterial Streets 1973 defines over and undercrossings as follows: "A grade separation is defined as a crossing of two highways, or a highway and a railroad, at different levels. The terms "overpass" and "overcrossing" are used to designate the grade separation where the subject highway passes over an intersecting street or railroad. The terms "underpass" and "undercrossing" apply where the subject highway passes under

the street or railroad." This definition is directed toward vehicular crossings and is somewhat limited when applied to the pedestrian situation. For the purposes of this report this definition has been expanded to include crossings over or under natural features such as rivers, crossings which pass through buildings and air-rights structures. The crossings themselves are those which accommodate vehicular, bicycle, and/or pedestrian traffic.

For the purposes of this report the definintion of a handicapped individual will be "any person who (a) has a physical or mental impairment which substantially limits one or more of such person's major life activities; (b) has a record of such impairment, or (c) is regarded as having such impairment." This definition appears in the Rehabilitation Act Amendments of 1974, U.S.C. 706(6). For further discussion of the definition of handicapped refer to the report, "Provisions for Elderly and Handicapped Pedestrians: Volume 2, Hazards, Barriers, Problems and the Law."

Federal Legislation

1. Architectural Barriers Act (Public Law 90-480, 1968). An Act to Ensure that Certain Buildings Financed with Federal Funds are so Designed and Constructed as to be Accessible to the Physically Handicapped. August 12, 1968. (42 USC 4151 et seq.)

Congress recognized that approximately twenty-two million physically handicapped people were restricted in their movements and that these people were a valuable asset to society and must be afforded every opportunity to enter the mainstream of American life. Congress also realized that it had to mandate minimum accessibility standards since voluntary barrier-free standards had not assured disabled people total accessibility to and utilization of Federal Government facilities. The Architectural Barriers Act of 1968 states:

"... the term 'building' means any building or facility (other than (A) a privately owned residential structure and (B) any building or facility on a military installation designed and constructed primarily for use by able-bodied military personnel) the intended use for which either will require that such building or facility be accessible to the public, or may result in the employment or residence therein of physically handicapped persons ... to be constructed or altered by or on behalf of the United States, leased in whole or in part by the United States or to be financed in whole or in part by a grant or loan made by the United States subject to this Act."

Section 2 states the Administrator of General Services, in consultation with the Secretary of Health, Education, and Welfare, shall prescribe standards for the design, construction, and alteration of certain Federal buildings to insure whenever possible that physically handicapped persons will have ready access to, and use of, such buildings. The GSA has issued regulations as required (Regulations at 41 C.F.R. 101-19.6, effective September 12, 1969).

Section 5 states every building designed, constructed, or altered after the effective date of a standard issued under this Act which is applicable to such building, shall be designed, constructed, or altered in accordance with such standard.

Section 6 states the Administrator of General Services, with respect to standards issued under Section 2 of this Act, and the Secretary of Housing and Urban Development, with respect to standards issued under Section 3 of this Act, and the Secretary of Defense with respect to standards issued under Section 4 of this Act, and the United States Postal Service with respect to standards issued under Section 4a of this Act:

- (1) is authorized to modify or waive any such standard, on a case-by-case basis, upon application made by the head of the department, agency or instrumentality of the United States concerned upon a determination by the Administrator or Secretary, as the case may be, that such modification or waiver is clearly necessary, and
- (2) shall establish a system of continuing surveys and investigations to insure compliance with such standards.
- 2. Rehabilitation Act of 1973 (Public Law 93-112) as amended through December 31, 1978. (29 USC 792)

Section 502 established the Federal Architectural and Transportation Barriers Compliance Board which shall be composed as follows:

- 1. Eleven members shall be appointed by the President from among members of the general public of whom five shall be handicapped individuals.
- 2. The remaining 10 members shall be heads of each of the following departments or agencies (or their designees): Department of Health, Education, and Welfare, Department of Transportation, Department of Housing and Urban Development, Department of Labor, Department of the Interior, Department of Defense, Department of Justice, General Services Administration, Veterans Administration, and United States Postal Service.

It shall be the function of the Board to:

- (1) insure compliance with the standards prescribed pursuant to the Architectural Barriers Act of 1968, as amended, including but not limited to enforcing all standards under that Act, and insuring that all waivers and modifications of standards are based upon findings of fact and are not inconsistent with the provisions of such Act;
- (2) investigate and examine alternative approaches to the architectural, transportation, communication, and attitudinal barriers confronting handicapped individuals, particularly with respect to telecommunication devices, public buildings and monuments, parks and parkland, public transportation, and residential and institutional housing;
- (3) determine what measures are being taken by Federal, State, and local governments and by other public or nonprofit agencies to eliminate the barriers described in clause (2) above;
- (4) promote the use of the International Accessibility Symbol in all public facilities that are in compliance with the standards prescribed by the Administrator of the General Services Administration, the Secretary of Defense, and the Secretary of Housing and Urban Development pursuant to the Architectural Barriers Act of 1968;
- (5) make to the President and Congress reports on results of investigations and

recommendations for legislation and administration which it deems necessary or desirable to eliminate barriers;

(6) establish minimum guidelines and requirements for the standards issued pursuant to the Architectural Barriers Act of 1968, as amended.

In carrying out its functions, the Board shall conduct investigations, hold public hearings, and issue orders as it deems necessary to insure compliance with other provisions of the applicable law. An order of compliance issued by the Board shall be a final order for purposes of judicial review. Any such order affecting any Federal department, agency, or instrumentality of the United States shall be final and binding on such department, agency, or instrumentality. An order of compliance may include the withholding or suspension of Federal funds with respect to any building or public conveyance or rolling stock found not to be in compliance with standards enforced under the Board's jurisdiction. Pursuant to Chapter 7 of Title 5, United States Code, any complaint or participant in a Board proceeding may obtain review of a final order issued by the Board.

In December 1977, the Board issued a citation against the Federal Highway Administration (FHWA) and the Department of Transportation (DOT) alleging that a pedestrian overpass paid for in part by Federal-aid highway funds, had not been built in accordance with the American National Standards Institute standards. The Board, through its Executive Director, claimed that this overpass was not in conformance with the Architectural Barriers Act; the FHWA asserted that the structure had been built in accordance with its approved construction criteria. Without determining if laws were violated and to end this dispute the parties entered into an Agreement which was accepted by the administrative law judge, who dismissed the citation, in March 1979. The Agreement set forth the following pertinent stipulations and provisions:

WHEREAS the Department of Transportation and the Federal Highway Administration desire to assure continued progress in making Federal-aid highway facilities accessible to physically handicapped persons; and

WHEREAS the Architectural and Transportation Barriers Compliance Board is charged with determining what measures are being taken to eliminate architectural and transportation barriers to physically disabled persons and insuring compliance with standards issued under the Architectural Barriers Act of 1968, as amended; and

WHEREAS the parties wish to cooperate in achieving their mutual goals; and

WHEREAS it is agreed by the parties that for purposes of this agreement the following terms shall bear the following definitions:

Overpasses and underpasses are pathways designated for pedestrians, which pass over and under, respectively, through lanes for motor vehicles, and which are constructed in whole or in part with Federal-aid funds.

Physically handicapped person is an individual who has a physical impairment that substantially limits one or more major life activities.

The FHWA agreed that until further regulations are issued, Federal funds would not be spent on structures unless the design met certain specific provisions of the ANSI standards.

The FHWA is working to develop standards for the design and construction of pedestrian overpasses and underpasses for accessibility and usability by physically handicapped persons, which standards will supplement and clarify the ANSI standards. The new standards will be consistent with DOT's 504 regulations, as they apply to overpasses and underpasses. Any variance in design from the standards or regulations, proposed for new projects must be approved by the Federal Highway Administrator or designee, after notifying the Executive Director and finding that the variance is clearly necessary.

In addition, the FHWA has agreed to continue or consider certain actions to enhance accessibility and usability of overpasses and underpasses. This will include research and development, feasible demonstration projects, exchanges of information and consultations with the Board, and exchanges of technical assistance.

The FHWA agreed to issue a notice urging States to develop an inventory identifying certain overpasses and underpasses. The States are asked to pinpoint in such inventory those most in need of modification, according to criteria such as steepness of grade, seriousness of hazard, potential frequency of use, and location. States are urged to establish a timetable for modification by altering intersections and correctly ramping existing facilities. The FHWA and the Board will jointly develop guidelines for the modifications and the State's progress will be reported and reviewed.

Further portions of the Agreement address training in the needs of physically handicapped persons and consultation with their representative groups. The Agreement provides for a procedure between FHWA and the Board for processing complaints regarding accessibility of overpasses and underpasses. The Board will not initiate proceedings against FHWA if they plan to modify the particular overpass or underpass, or the State in which it is located is making reasonable progress towards modifying on a priority basis its overpasses and underpasses. The agreement is viewed by the Board as a step to provide increased accessibility of highway overpasses and underpasses.

3. Department of Transportation law affecting transportation for elderly and handicapped persons.

United States Code, Title 23: Highways

23 USC 109(a)

The Secretary shall not approve plans and specifications for proposed projects on any Federal-aid system if they fail to provide for a facility ... that will be designed and constructed in accordance with standards best suited to accomplish the ... objectives and conform to the particular needs of each locality.

23USC 217(a)

To encourage the multiple use of highway ... States may ... on Federal-aid highway projects, include to the extent practicable, suitable, and feasible, the construction of separate ... and pedestrian walkways....

23 USC 402(b) (1) (F)

The Secretary shall not approve any State highway safety program under their section which does not ... provide adequate and reasonable access for the safe and convenient movement of phycially handicapped persons, including those in wheelchairs, across curbs constructed or replaced on or after July 1, 1976, at all pedestrian crosswalks throughout the State.

١.

Surface Transportation Assistance Act of 1978. Title I, Federal-aid Highway Act of 1978. Section 168 (a) Section 152 of Title 23, USC, is amended to read: "Each state shall conduct and systematically maintain an engineering survey of all public roads to identify hazardous locations, sections and elements, including roadside obstacles and unmarked or poorly marked roads, which may constitute a danger to motorists and pedestrians, assign priorities for the correction of such locations, sections and elements, and establish and implement a schedule of projects for their improvement."

Urban Mass Transportation Act of 1964, as amended, Public Law 88-365. An amendment in 1970 Public Law 91-453, Section 16, declared that it is a "national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services." Under Section 6, 1 1/2% of funds may be set aside and used to increase information and technology for elderly and handicapped mass transportation needs. Section 16(b) of this Act states that UMTA under the Secretary "may" set aside 2% of funds to finance programs:

- to states for local public roads and for providing mass transportation services;
- (2) to private non-profit corporations which provide transportation services meeting the special needs of elderly and handicapped people.

Executive Order

On April 28, 1976, the President issued Executive Order 11914 (41 FR 17871) (29 USC 794) which states: The Secretary of Health, Education, and Welfare shall coordinate the implementation of Section 504 of the Rehabilitation Act of 1973, as amended, for all Federal departments and agencies empowered to extend financial assistance to any Federal program or activity.

The Exectuive Order directs the Secretary of HEW to establish certain standards and guidelines, as well as the procedures to guide other Federal departments or agencies in implementing Section 504. Standards and procedures and guidelines were issued by HEW on January 13, 1978, 43 FR 2132, to provide the framework for a comprehensive government effort to elininate discrimination against the handicapped.

The Department of Transportation's final rule implementing Section 504 was published in the Federal Register of May 31, 1979. Section 27.75, Federal Highway Administration - Highways, states ...

- (2) Curb cuts. All pedestrain crosswalks constructed with Federal financial assistance shall have curb cuts or ramps to accommodate persons in wheelchairs.
- (3) Pedestrain overpasses, underpasses and ramps. Pedestrain overpasses, underpasses and ramps, constructed with Federal financial assistance, shall be accessible to handicapped persons, including having gradients no steeper than 10 percent, unless:
 - (i) Alternate safe means are provided to enable mobility-limited persons to cross the roadway at that location; or
 - (ii) It would be infeasible for mobility-limited persons to reach the overpasses, underpasses or ramps because of unusual topographical or architectural obstacles unrelated to the federally assisted facility.

American National Standards Institute Standard Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped, (American National Standards Institute Standard Specifications) A117.1-1961 (ANSI).

The ANSI specifications include general principles and considerations regarding barrier-free design, and address the specific problems and potentials of site development and buildings. They do not include specifications for walks, streets, or crossings.

The Standards have been widely followed in both federal and state statutes since their preparation in 1961. However, they no longer adequately meet the needs of today's handicapped population. For this reason, Syracuse University was awarded a contract by the Department of Housing and Urban Development to prepare revisions and additions to the ANSI Standards and to bring them up to the state-of-the-art to date and submit them to the American National Standards Institute. Although the revisions currently under preparation will update and expand the scope of the ANSI Standards, no reference is made specifically to over- or undercrossing structures.

REFERENCES

- American Association of State Highway and Transportation Officials, A Policy on Design of Urban Highways and Arterial Streets, Washington, D.C., 1973, p. 499.
- Rehabilitation Act Amendments of 1974, P.L. 93-516.
- 3. "Architectural Barriers Act", P.L. 90-480, An Act to Ensure that Certain Buildings Financed with Federal Funds are so Designed and Constructed as to be Accessible to the Physically Handicapped, 1968.
- 4. Legislative Mandate of the Architectural and Transportation Compliance Board, 1977.
- 5. Urban Mass Transportation Assistance Act of 1964 as Amended in 1970, P.L. 91-453.
- 6. American National Standards Institute, Inc., American National Standards Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped, A117.1, (R71) New York, ANSI, 1961.

DATA COLLECTION FORM

Location:



| | Date: |
|---|---|
| | Time: |
| | Weather: |
| | Portions of walkway are hidden from view (crime potential). |
| | Over/underpass is not close to public transportation stop. |
| | No sidewalk at end condition. |
| | Parked cars restrict approach. |
| | Parked cars obstruct view of approach. |
| | No accessible parking. |
| | No detectable pedestrian crosswalk to approach. |
| | Driver's view of pedestrian blocked. |
| | Pedestrian walkway on only one side. |
| | Walkway less than 48" (too narrow). |
| | Head room below 6'10". |
| - | Walkway through "long" tunnel (over 40'). |
| | Structure vibrates (traffic). |
| | Abrasive or perferated material on vertical surface adjacent to walk-way. |
| | Objects project into walkway (signs, trees, etc.). |
| | Manhole covers and gratings in walkway. |
| | Highly reflective surface materials. |

| Grooves and patterns (cast into walkways or caused by small paving units). | - |
|--|---|
| Large, deep expansion joints. | |
| Uneven and irregular surfaces. | |
| Loose and soft surfaces (gravel, sand, etc.). | |
| Rough surfaces. | |
| Discontinuous surface materials. | |
| Debris from erosion on walkway. | |
| Disrepair (i.e., frost heaves, pot- holes, etc.). | |
| Disrepair from vandalism or accident (handrails, guardrails, etc.). | |
| Stairway is only means of access to structure. | |
| Stairway only on one side of structure. | |
| Poorly lighted steps, stairs, ramps. | |
| Treads less than 11" (too small). | |
| Projecting nosings. | |
| Open risers. | |
| Risers greater than 7" (too high). | |
| Curb greater than 6" (too high). | |
| Step (settlement) between approach and structure. | |
| Dangerous stair location. | |
| Only ramps provided. | |

| Only ramps provided on one side of structure. | |
|---|---|
| Pathway leading to over/under- crossing too steep and long. | |
| Ramp too long (exceeds 30 feet). | |
| Ramp too steep (slope greater than 1:12). | |
| Ramp too narrow (less than 48"). | |
| Cross slope greater than 1:50 (too steep). | |
| No curb cuts. | |
| Helical ramp. | |
| Ramp layout inconvenient. | |
| Abrupt transition to connecting walkways. | |
| Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | |
| Bollards in the middle of entrance to the ramp. | |
| Steps in the middle of the ramp. | |
| Handrails higher than 36" (too high). | |
| Handrails lower than 32" (too low). | |
| No handrails. | |
| Handrails inadequate for comfortable grasp. | |
| Handrail material metal or aluminum (hot in hot weather, cold in cold). | • |
| Handrails not continuous. | |

| Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | |
|---|--|
| No handrails on ramps. | |
| Barricades not detectable (blind cane). | |
| Guardrails not continuous. | |
| Guardrails too low (less than 42"). | |
| No pedestrian guardrails. | |
| Inadequate guardrails. | |
| Guardrail mesh hazardous. | |
| No detectable separation between bikeway and pedestrian way. | |
| No detectable separation between roadway and walkway. | |
| No detectable separation between walkway and parking lot. | |
| Unprotected sidewalks (cars, edges, etc.). | |
| Escalators. | |
| Elevators. | |
| Resting places not under cover (wind, rain, sun). | |
| Not enough places to stop and rest. | |
| No provision for scenic overlook. | |
| Benches that are too high, too low, too deep or shallow or with no armrest. | |
| No alternative route for flood condition structures. | |

| No pedestrian emergency provisions. | |
|--|--|
| Significant change of light level in tunnel at entrance. | |
| Interior lighting not adjusted to outside light conditions. | |
| Glare at end of tunnel. | |
| Tunnel too dark. | |
| Glare and flashing lights from vehicles. | |
| Poor illumination. | |
| No signage indicating location of rest areas. | |
| Street signs and signals too high, low or far. | |
| No special signage for the visually impaired. | |
| Traffic lights with short green cycle. | |
| Complicated instructions on signs. | |
| No warning of potential hazards. | |
| No orientation cue as to start of approach. | |
| Lack of orientation cues generally. | |
| Pathway junctions which are not at 90° angle or which curve. | |
| No detectable orientation cue as to start of channelization. | |
| Walkway not channelized. | |

| Traffic noise. | |
|--|--|
| High wind gusts present. | |
| Wind generated by traffic. | |
| Inadequate provision for rain water run off. | |
| Walkways and sidewalks not kept clear of snow, ice and debris. | |

BARRIERS MATRIX



This appendix correlated environmental barriers with groups of people with various handicapping conditions. Environmental barriers are listed across the top of each sheet while the handicapping conditions are enumerated along the left hand column of the matrix. The list of handicapping conditions is four pages long; on the fifth page of the matrix it begins again, linking the list with the next group of environmental barriers.

For example, the effect of different environmental barriers on people with the handicapping condition, "Difficulty with environmental orientation" is found in matrix sections A1, B1, C1, etc. However, the different effects of the environmental barrier entitled, "Driver's view of pedestrian blocked" on all groups of people can be found in the matrix sections A1, A2, A3, and A4 (matrix section numbers are found in the top right hand corner of each page).

| | - | | | | | | Al | |
|--|---|--|-------------------------------|--------------------------------|---|------------------------|---|--|
| | Lo | cation a | nd End | Condi | tion | (LEC) | | |
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Portions of walkway are hidden from view (crime potential). | Overcrossing/undercross- ing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. | |
| Difficulty with environ- mental orientation. | I | I | D/B | N | ı | N | I | |
| Understanding deficit. | N | I | D/B | I | I | N | 1 | |
| Limited attention span. | I | I | D | I | I | N | I | |
| Memory deficit. | I | I | I/D | I | I | N | I | |
| Decreased ability to sequence, judge time, direction, distance, size. | I | N | I/D | I | I | N | I | |
| Impaired night vision. | D | D | I/D | D | D | N | I | |
| Impaired cutaneous sensation detection. | I | I | N | I | I | N | I | |
| Chronic stooped posture. | I | I | I | I | I | N | I | |
| Difficulty in main- taining equilibrium. | I | D | I | I | I | D | I | |
| Moves at slow speed. | 1 | I | I | 1 | I | I | I | |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | I | I | I/D | I | I | I | I | |
| Frequent need to rest during exercise. | I | D | I/D | I | I | D | I | |

| | I | ocation | and Enc | Cond: | ition | (LEC) | |
|---|---|--|-------------------------------|--------------------------------|--|------------------------|---|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Portions of walkway are hidden from view (crime potential). | Overcrossing/undercross- ing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. |
| Reduced tolerance to brisk exercise (need to move slowly). | I | I | I/D | N | N | N | N |
| Limited ability to stand for long periods. | I | D | I | N | N | D | I |
| Impaired bladder control. | N | N | N | N | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N | I | I | N | N | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N |
| Uses powered or manual wheelchair. | I | I | В | D | I | D | D |
| Uses walker, crutches, orthopedic cane. | I | Ţ | D | I | I | I | I |
| Prosthesis (including braces) for lower extremities. | I | I | D | I | I | I | I |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | . N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | I | N | N | N | N |
| Limited reach. | N | N | I | N | N | N | N |

| | Lo | cation a | and End | Condi | tion | (LEC) | |
|--|---|--|----------------------------------|-----------------------------------|---|------------------------|---|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Portions of walkway are hidden from wiew (crime potential). | Overcrossing/undercross- ing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. |
| Limited manual dexterity. | N | N | N | N | N | N | N |
| Inability to turn head. | I | N | N | 1 | D | I | I |
| Decreased ability to stoop. | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | I | I | I/D | I | I | I | I |
| Limited horizontal motion with legs and feet. | I | I | D | I | I | I | I |
| Decreased ability to tolerate heat and cold. | N | D | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | I | I/D | I | I | I | I |
| Fear of crime. | D | I | N | N | N | N | N |
| Fear of heights (vertigo). | N | N | N | N | N | N | N |
| Agoraphobia. | N | N | N | N | N | N | N |
| Claustrophobia. | 1 | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N |

| | Loca | ition and | i End | Condití | on (L | EC) | |
|--|---|---|-------------------------------|--------------------------------|---|------------------------|---|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Portions of walkway are hidden from view (crime potential). | Overcrossing/undercross-ing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. |
| | | | | | | | |
| Uses white came for guidance (visually impaired). | D | I | I/D | I | I | | D |
| Uses guide dog. | 1 | I | I/D | I | I | | D |
| Limited ability to acquire or process visual stimuli. | D | I | D | I | I | I | I |
| Limited ability to per- ceive or process auditory stimuli. | D | N | N | N | N | I | Ι |

| | (LEC) | | | W | alkway | s | • | P 1 |
|---|---|---|--|-------------------------|--|-------------------------------|--|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10" | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walkway (signs, trees, etc). |
| Difficulty with environ- mental orientation. | N | I | N | N | D | N | N | N |
| Understanding deficit. | N | I | N | N | I | ı | N | N |
| Limited attention span. | N | I | N | N | I | N | N | 1 |
| Memory deficit. | N | I | N | N | I | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | I | I | D | N | I | N | N | I |
| Impaired night vision. | D | I | I | N | D | N | I | D |
| Impaired cutaneous sensation detection. | I | I | N | N | N | N | I | N |
| Chronic stooped posture. | I | I | N | N | N | N | N | N |
| Difficulty in main- taining equilibrium, | I | 1 | D | N | I | I | N | I |
| Moves at slow speed. | I | I | N | N | N | N | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | I | D | D | N | Ñ | I | N | I |
| Frequent need to rest during exercise. | N | N | N ——— | N | I | N | N | N |

| | (LEC) | | | W | alkway | s | | B2 |
|---|---|---|--|-----------------------|--|-------------------------------|--|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walkway (signs, trees, etc). |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | N | N | 1 | N | N | N |
| Limited ability to stand for long periods. | N | N | N | N | I | N | N | N |
| Impaired bladder control. | N | N | N | N | I | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | I | N | D | D | Ň | N | N | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | N |
| Uses powered or manual wheelchair. | I | I | D | N | I | I | I | I |
| Uses walker, crutches, orthopedic cane. | I | I | I | N | I | I | I | I |
| Prosthesis (including braces) for lower extremities. | I | N | N | N | I | I | I | I |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | N | N | N | N | N |
| Limited reach. | N | N | N | N | N | N | Ņ | N |

| · | (LEC) | | | W | alkways | 6 | | |
|--|---|---|--|--------------------------|--|----------------------------------|--|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Driver's view of pedestrian blocked, | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical sur- face adjacent to walkway. | Objects project into walkway (signs, trees, etc). |
| Limited manual dexterity. | N | N | N | N | N | N | N | N |
| Inability to turn head. | 1 | ı | N | N | N | N | N | I |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | İ | N | N | N | I | N | I | ı |
| Limited horizontal motion with legs and feet. | I | N | N | N | I | N | I | I |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | . N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | N | N | N | I | I | N | 1 |
| Fear of crime. | N | N | N | N | I/D | N | N | N |
| Fear of heights (vertigo). | N | N | N | N | N | N | N | N |
| Agoraphobia. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | I | N | D/B | N | N | N |
| Fear of loud noises. | N | N | N | N _ | N | Ι | N | N |

| | (LEC) | | | W | alkway | 5 | | |
|--|---|---|--|-----------------------|--|-------------------------------|---|---|
| Kew: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical sur- face adjacent to walkway . | Objects project into walkway (signs, trees, etc). |
| Uses white cane for guidance (visually impaired). | D | I | I | N | I | N | I | I |
| Uses guide dog. | D | 1 | I | N | I | N | 1 | I |
| Limited ability to acquire or process visual stimuli. | I | I | I | N | D | I | N | I/D |
| Limited ability to per- ceive or process auditory stimuli. | D | N | N . | N | I/D | N | N | N |

| | | | Surf | ace Ma | terial | s | | |
|---|--|---|---|----------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier .</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces, | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Difficulty with environ- mental orientation. | N | I | N | N | N | N | N | N |
| Understanding deficit. | N | ī | N | I/D | I | N | N | N |
| Limited attention span. | I | I | N | I | I | N | N | N |
| Memory deficit. | N | N | N | N | N | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | I | N | N | I/D | N | N | N | I |
| Impaired night vision. | D | I | I | D/B | I | I/D | I/D | I/D |
| Impaired cutaneous sensation detection. | N | N | N | N | N | I | I | 1 |
| Chronic stooped posture. | N | N | N | D/B | N | N | N | N |
| Difficulty in main- taining equilibrium. | I | N | N | В | I | I | I | I |
| Moves at slow speed. | N | N | N | I/D | N | N | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | I | N | N | D/B | I | I/D | I/D | I/D |
| Frequent need to rest during exercise. | N | N | N | I/D | N | N | N | N |

| | | | Suri | face Ma | ateria: | | - | |
|---|---|--------------------------------------|---|----------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | N | I/D | N | N | N | N |
| Limited ability to stand for long periods. | N | N | N | N | N | N | N | N |
| Impaired bladder control. | N | N | N | N | N | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N | N | D . | N | N | N | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | И | N | N | N | N | N |
| Uses powered or manual wheelchair. | D/I | N | I | В | D/I | I/D | I/D | I/D |
| Uses walker, crutches, orthopedic cane. | D/I | N | N | В | D/I | I/D | I/D | I/D |
| Prosthesis (including braces) for lower extremities. | 1 | N | N | D/B | I | I/D | I/D | I/D |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | I/D | N | N | N | N |
| Limited reach. | N | N | N | I/D | N | N | N | N |

| | | | Surfac | e Mate | rials | | | |
|--|--|---|---|----------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Limited manual dexterity. | N | N | N | I/D | N | N | Ŋ | N |
| Inability to turn head. | I | N | N | I/D | N | N | N | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | I | N | N . | I/D | I | I | I | I |
| Limited horizontal motion with legs and feet. | 1 | N | N | В | I | I | I | I |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | N | N | I/D | I | I | I | I |
| Fear of crime. | N | N | N | N | N | N | N | N |
| Fear of heights (vertigo) | Ð | N | N | N | N | N | N | N |
| Agoraphobia. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | | | Surfa | ce Mat | erials | | | |
|---|--|---|---|----------------------------------|--------------------------------|---|--------------------|-------------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Uses white came for guidance | | | <u> </u> | | | | | _ |
| (visually impaired). | I | N | I | D | I | I | I | I |
| Uses guide dog. | I | I | I | I/D | I | I | I | I |
| Limited ability to acquire or process visual stimuli. | I/D | D | N | Đ | I | I | I | I |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N | Ŋ | N | N |

| | Ma | intena | ınce | | Sta | airway | s | |
|---|------------------------------------|---|---|--|---|---|--------------------------------------|------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier .</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
| Difficulty with environ- mental orientation. | N | N | N | N | N | I | N | N |
| Understanding deficit. | N | N | N | N | N | N | N | N |
| Limited attention span. | N | N | N | N | N | N | N | N |
| Memory deficit. | N | N | N | N | 1 | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | I | N | N | N | 1 | N | I | I |
| Impaired night vision. | I/D | I/D | I/D | I/D | I | D | I/D | I/D |
| Impaired cutaneous sensation detection. | I | I | I | I | N | I | I | I |
| Chronic stooped posture. | N | N | N | N | I | N | N | N |
| Difficulty in main- taining equilibrium. | I | ı | I | I | I | I/D | I | 1 |
| Moves at slow speed. | N | N | N | I | N | ı | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | I/D | I/D | I/D | I/D | N | I/D | I/D | I/D |
| Frequent need to rest during exercise. | N | N | N | 1 | N | I | N | N |

| | Ma | intena | nce | | Sta | eirway | - <u></u> | |
|---|------------------------------------|---|---|---|---|---|--------------------------------------|------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | N | I | I | I | N | N |
| Limited ability to stand for long periods. | N | N | N | I | N | I | N | N |
| Impaired bladder control. | N | N | N | N | N | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N | N | I | . N | N | I | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | N |
| Uses powered or manual wheelchair. | I/D | I/D | I/D | В | В | I | В | В |
| Uses walker, crutches, orthopedic cane. | I/D | I/D | I/D | D/B | D | I | D/B | D/B |
| Prosthesis (including braces) for lower extremities. | I/D | I/D | I/D | I/D | I/D | I | I/D | I/D |
| Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds. | N | N | N | N | Ŋ | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | N | N | N | N | N |
| Limited reach. | N | N | N | N | N | N | N | N |

| | ŀ | Mainte n | ance | | St | airway | /s | - |
|--|------------------------------------|---|---|--|---|--------------------------------------|-----------------------------------|------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
| Limited manual dexterity. | N | N | N | N | N | N | N | И |
| Inability to turn head. | N | N | N | N | N | I | N | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | Ň | N | N |
| Limited vertical motion with legs and feet. | I | I | I | I | I/D | I | I | I |
| Limited horizontal motion with legs and feet. | I | I | I | I/D | N | I | I | I |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | I | I | I | N | I | I | I |
| Fear of crime. | N | N | N | Ŋ | N | I | N | N |
| Fear of heights (vertigo) | N | N | 1 | N | N | I | N | N |
| Agoraphobia. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | Ma | inten | ance | | Sta | irways | | |
|--|------------------------------------|---|---|--|---|---|-----------------------------------|------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
| Uses white came for guidance (visually impaired). | I | I | I | I | I | I | I | I |
| Uses guide dog. | I | I | I | I | 1 | I | I | I |
| Limited ability to acquire or process visual stimuli. | I | I | I | I | I/D | I | I | I |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N | N | N | N |

| | | Si | tairwa | ys | | | Ramps | |
|--|-----------------|---------------------------------------|----------------------------------|--|-------------------------------|-------------------------|---|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure . | Dangergous stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Difficulty with environ- mental orientation. | N | N | N | N | N | N | N | N |
| Understanding deficit. | N | N | N | N | I | N | N | N |
| Limited attention span. | N | N | N | N | D/B | N | N | ı |
| Memory deficit. | N | N | N | N | I/D | N | I | I |
| Decreased ability to sequence, judge time, direction, distance, size. | N | N | N | N | I/D | N | I | I/D |
| Impaired night vision. | N | N | N | N | D/B | N | ı | I |
| Impaired cutaneous sensation detection. | I | I | I | I | N | N | N | N |
| Chronic stooped posture. | N | N | N | N | I/D | N | I | D/B |
| Difficulty in main- taining equilibrium. | I/D | I/D | I | I | D/B | N | I | D/B |
| Moves at slow speed. | N | N | N | N | N | N | I | D/B |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | I | 1 | I | I | D/B | N | N | D/B |
| Frequent need to rest during exercise. | N | I | N | N | I | N | N | D/B |

| | | St | airway | s | | | Ramps | |
|--|-----------------|------------------------------------|-------------------------------------|---|------------------------------|-------------------------|---|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | I | N | N | I | N | I | D/B |
| Limited ability to stand for long periods. | N | N | N | N | I | N | I | D/B |
| Impaired bladder control. | N | N | N | N | N | N | N | I/D |
| Extreme of size (dwarfism, giantism, obesity, etc.). | I | I | I . | I | N | N | N | D/B |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | D |
| Uses powered or manual wheelchair. | В | В | В | D/B | В | N | В | В |
| Uses walker, crutches, orthopedic cane. | D/B | D/B | D | I | D | N | I/D | D/B |
| Prosthesis (including braces) for lower extremities. | D | D | D | I | I/D | N | I/Đ | D/B |
| Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | N | I | N | N | N |
| Limited reach. | N | N | N | N | I | N | N | N |

| | Stairways | | | | | Ramps | | |
|---|-----------------|------------------------------------|-------------------------------------|---|------------------------------|-------------------------|---|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangeroug stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Limited manual dexterity. | N | N | N | N | I | N | N | N |
| Inability to turn head. | N | N | N | N | I/D | N | Ŋ | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | N | I | I | N | D/B | N | I/D | D/B |
| Limited horizontal motion with legs and feet. | D | D | D | D | D | N | I/D | D/B |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | N | N | N | N | D/B | N | N | D/B |
| Fear of crime. | N | N | N | N | N | N | N | N |
| Fear of heights (vertigo). | I | D | N | N | N | N | N | N |
| Agoraphobia. | I/D | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | | Sta | irways | | | | Ramps | |
|---|-----------------|---------------------------------------|---|------------------------------|-------------------------------------|----------------------|---|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Open risers. | Risers greater than 7" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Curb greater than 6" (too high). | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Uses white came for guidance (visually impaired). | N | N | N | N | D | N | I/D | I/D |
| Uses guide dog. | N | N . | N | N | I/D | N | I | I |
| Limited ability to acquire or process visual stimuli. | N | N | N | N | D | N | I | I/D |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N . | N | N | N | N . |

| | | | | Ramp | 5 | | | |
|---|---------------------------------|---|-------------------------------------|---|--|------------------|------------------|------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier .</pre> | Ramp too long(exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts, | Helical ramp. | Ramp layout inconvenient. |
| Difficulty with environ- mental orientation. | N | N | N | N | N | N | I | N |
| Understanding deficit. | N | N | N | N | N | N | N | N |
| Limited attention span. | N | N | N | N | I | N | N | N |
| Memory deficit. | N | N | N | N | I | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | N | N | N | N | I/D | N | N | N |
| Impaired night vision. | N | N | N | N | I | N | N | N |
| Impaired cutaneous sensation detection. | N | I | I | I | N | N | N | N |
| Chronic stooped posture. | N | N | N | N | D/B | N | N | N |
| Difficulty in main- taining equilibrium. | N | I | N | I/D | D/B | N | I | I |
| Moves at slow speed. | N | N | N | N | D/B | N | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | N | I | N | I | D/B | N | I | N |
| Frequent need to rest during exercise. | I | I | N | I | D/B | N | I | I |

| r | | | | | | | | |
|--|-------------------------------------|---|-------------------------------------|---|---|---------------|------------------|------------------------------|
| | | | | Ramps | 3 | | | |
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep, | No curb cuts, | Helical ramp. | Ramp layout inconvenient. |
| Reduced tolerance to brisk exercise (need to move slowly). | I | I | N | I | D/B | N | I | I |
| Limited ability to stand for long periods. | I | N | N | N | D/B | N | I | I |
| Impaired bladder control. | N | N | N | N | I/D | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | I | I | I | D/B | N | N | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | D | N | N | N |
| Uses powered or manual wheelchair. | I | Ŋ | I/B | D | В | D | D | D/B |
| Uses walker, crutches, orthopedic cane. | N/I | ī | 17 | I/D | D/B | I | I | I |
| Prosthesis (including braces) for lower extremities. | I | I | N | I | D/B | N | I | I |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | N | N | N | N | N |
| Limited reach. | N | N . | N | N | N | N | N/I | N/I |

| | | | | Ramp | s | | | |
|--|-------------------------------------|---|-------------------------------------|---|---|------------------|------------------|------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout inconvenient. |
| Limited manual dexterity. | N | N | N | N | N | N | N | N |
| Inability to turn head. | N | N | N | N | N | N | N | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | I | D | N | ĭ | D/B | I | D | I |
| Limited horizontal motion with legs and feet. | N | I | N | I | D/B | I | Ð | ı |
| Decreased ability to tolerate heat and cold. | N | N | N | Ň | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | Ñ | N |
| Loss of normal speed in motor coordination/slowed reflexes. | N | N | N | N | I | N | N | N |
| Fear of crime. | N | N | N | N | N | N | N | N |
| Fear of heights (vertigo). | N | N | N | N | N | N | D | N |
| Agoraphobia. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | 1 | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N . | N | N | N | N |

| V | | | | Ramp | s | | | |
|--|-------------------------------------|---|-------------------------------------|---|---|------------------|------------------|------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Ramp too long (exceeds 30 feet), | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout inconvenient. |
| Uses white cane for guidance | | | | | | | | |
| (visually impaired). | N | N | N | 1 | I | N | N | I |
| Uses guide dog. | N | N | N | I | I | N | N | I |
| Limited ability to acquire or process visual stimuli. | N | N | N | N | I/D | N | N | I |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N | N | N | N |

| | | Ramps | · | | | Handra | ails | |
|---|---|---|---|----------------------------------|--|-------------------------------------|------------------|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier .</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handralls higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
| Difficulty with environ- mental orientation. | N | I | N | I/D | N | N | N | N |
| Understanding deficit. | N | N | I | 1 | N | N | N | N |
| Limited attention span. | N | N | Ŋ | I | N | N | N | N |
| Memory deficit. | N | N | N | N | N | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | N | N | N | I | N | N | N | N |
| Impaired night vision. | I | I | I | I/D | N | N | N | N |
| Impaired cutaneous sensation detection. | N | N | Ŋ | N | Ň | N | N | Ñ |
| Chronic stooped posture. | N | N | N | N | N | N | N | N |
| Difficulty in main- taining equilibrium. | I | I | N | I | I | D | I | I |
| Moves at slow speed. | N | N | N | N | N | I | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | N | N | I/D | N | N | I | N | N |
| Frequent need to rest during exercise. | N | N | N | N | N | N | N | N |

| | | Ramps | | | | Handra | ils | |
|--|---|--|---|-------------------------------------|--|-------------------------------------|------------------|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | N | Ñ | N | N | N | N |
| Limited ability to stand for long periods. | I | N | N | N | I | I | I | I |
| Impaired bladder control. | N | N | N | N | N | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N | N | N . | D | I | D | I |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | N |
| Uses powered or manual wheelchair. | D | D | N | В | I | 1 | I | I |
| Uses walker, crutches, orthopedic cane. | 1 | N | N | D/B | I | I | I | I |
| Prosthesis (including braces) for lower extremities. | 1 | N | N | N | I | I | I | I |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | I | D | D | D | D |
| Limited reach. | N | N | N | 1 | B/D | N | B/D | B/D |

| | | Ramps | | | | Handr | ails | |
|--|---|---|---|----------------------------------|--|-------------------------------------|------------------|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
| Limited manual dexterity. | N | N | N | N | 1 | I | I | D |
| Inability to turn head. | N | N/I | N | N | N | N | N | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | D | I | N | I | I | I | I | I |
| Limited horizontal motion with legs and feet. | D | I | N | I | N | N | N | N |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | I | N | D | I | I | I | 1 |
| Fear of crime. | N | N | N | N | N | N | N | N |
| Fear of heights (vertigo). | N | N | N | N | N | N | N | N |
| Agoraphobia. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | | Ramps | 3 | | | Hand | rails | |
|---|---|---|---|----------------------------------|--|-------------------------------------|------------------|--|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
| Uses white came for guidance (visually impaired). | I | D | I | D | N | N | N | N |
| Uses guide dog. | I | I | I | I | N | N | N | N |
| Limited ability to acquire or process visual stimuli. | I | I | I/D | D/B | N | N | N | N |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N | N | N | Ñ |

| 77 | | Handr | ails | | Guard | rails, | Barrí | cades |
|---|---|---------------------------|---|---------------------------|---|----------------------------|-------------------------------------|------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Difficulty with environ- mental orientation. | N | N | N | N | D | N | N | N |
| Understanding deficit. | N | N | N | N | D | N | N | N |
| Limited attention span. | N | N | N | N | N | N | N | N |
| Memory deficit. | N | N | N | N | N | N | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | N | N | N | N | D | I | N | I |
| Impaired night vision. | N | N/I | N | N | D | I | I | ı |
| Impaired cutaneous sensation detection. | N | N | N | N | I | N | N | N |
| Chronic stooped posture. | N | N | N | N | N | N | N | N |
| Difficulty in main- taining equilibrium. | I | I | I | D | N | I | I | I |
| Moves at slow speed. | N | I | N | N | N | N | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | N | I | I | 1 | I | N | N | N |
| Frequent need to rest during exercise. | N | N | I | I | N | N | N | N |

| | | Handr | ails | 7.7 | Guard | lrails, | Barri | cades |
|--|---|---------------------------|---|---------------------------|---|----------------------------|-------------------------------------|------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (l' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | I | I | N | N | N | N |
| Limited ability to stand for long periods. | 1 | I | I | D | N | N | N | N |
| Impaired bladder control. | N | N | N | N | N | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | I | N | N | I. | N | Ñ | N | N |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | N |
| Uses powered or manual wheelchair. | I | I | N | N | N | I | I | I |
| Uses walker, crutches, orthopedic cane. | I | I | I | ı | N | N | N | N |
| Prosthesis (including braces) for lower extremities. | I | I | I | I | N | N | N | N |
| Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds. | N | N | N | N | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | I | D | I | I | N | N | N | N |
| Limited reach. | N | D/B | 1 | N | N | N | N | N |

| | -, -, -, -, -, -, -, -, -, -, -, -, -, - | Handr | ails | | Guard | rails, | Barri | cades |
|--|---|---------------------------|---|---------------------------|---|-------------------------------|-------------------------------------|------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Limited manual dexterity. | I | I | I | I | N | N | N | N |
| Inability to turn head. | N | N | N | N | N | N | Ñ | N |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | I | I | N | I | N | N | N | N |
| Limited horizontal motion with legs and feet. | N | N | I | D | N | N | N | N |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | I | I | D | D | N | D | D | I |
| Fear of crime. | N | N | N | N | N | N | N | N |
| Fear of heights (vertigo) | N | N | N | I/D | N | N | N | I/D |
| Agoraphobía. | N | N | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | N | N |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | | Handra | ails | | Guard | rails, | Barri | cades |
|---|---|------------------------------|---|---------------------------|---|-------------------------------|--|------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Uses white cane for guidance (visually impaired). | I | I | I | I | D | D | N | D |
| Uses guide dog. | I | I | N | N | N | N | N | I |
| Limited ability to acquire or process visual stimuli. | I | N | I/D | I/D | I/D | I/D | I/D | D |
| Limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N . | N | N | N . |

| | Pe | | rdrails, | | cades eparatio | n | Escal | ators |
|--|---------------------------|------------------------------|--|--|---|--|-------------|------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. |
| Difficulty with environ- mental orientation. | I/D | N | I | I | I | ı | N | N |
| Understanding deficit. | I/D | N | N | N | N | I | I/N | N |
| Limited attention span. | I/D | N | N | N | N | D | N | N |
| Memory deficit. | I/D | N | N | N | N | N/I | N | N |
| Decreased ability to sequence, judge time, direction, distance, size. | I/D | N | I | I | I | В | I | N |
| Impaired night vision. | D/B | I | I | ı | I | D/B | N | N |
| Impaired cutaneous sensation detection. | N | I | N | N | N | I/D | N | N |
| Chronic stooped posture. | I/D | N | N | N | N | I | N | N |
| Difficulty in main- taining equilibrium. | D/B | I | I | I | I/D | В | N | N |
| Moves at slow speed. | N | N | N | N | N | I | D/B | I |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | D/B | N | I | I | I | B/D | I/D | N |
| Frequent need to rest during exercise. | N | N | N | N - | N | N | N | N |

| | Pe | | ardrails Lan/Vehic | | icades Separatio | n | Escalators | | |
|--|---------------------------|------------------------------|--|---|---|--|-------------|------------|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. | |
| Reduced tolerance to brisk exercise (need to move slowly). | N | N | N | N | N | I | I | N | |
| Limited ability to stand for long periods. | N | N | N | N | N | D/B | I/D | N | |
| Impaired bladder control. | N | N | N | N | N | N | N | N | |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N | N | N | . N | N | N/I | N/I | |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | N | N | N | N | N | |
| Uses powered or manual wheelchair. | 1/D | I | I | D | I | D/B | В | I | |
| Uses walker, crutches, orthopedic cane. | I | N | I | D | I | D/B | B/D | N | |
| Prosthesis (including braces) for lower extremities. | I | N | N | N | N | I/D | D/B | N | |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | N | N | N | I/D | |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | I | N | N | N | N | N | I/D | I | |
| Limited reach. | I | N | N | N | N | N | I/D | I/D | |

| | Guardrails, Barricades Pedestrian/Vehicular Separation Escalator | | | | | | | | | | |
|--|--|------------------------------|--|---|---|--|-------------|------------|--|--|--|
| Key: | Pe | destri | an/Vehic | ular S | eparatio | n | 200010 | | | | |
| <pre>N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. | | | |
| Limited manual dexterity. | I | N | N | N | N | N | I | I | | | |
| Inability to turn head. | I/D | N | D | D | D | I/D | N | N | | | |
| Decreased ability to stoop. | N | N | N | N | N | N | N | N | | | |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N | | | |
| Limited vertical motion with legs and feet. | N | N | N | N | N | D | D | N | | | |
| Limited horizontal motion with legs and feet. | N | N | N | N | N | I | D | I | | | |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N | N | | | |
| Speech disorder. | ĸ | N | N | N | N | N | N | Ŋ | | | |
| Loss of normal speed in motor coordination/slowed reflexes. | N | I | N | N | N | I/D | I/D | I/D | | | |
| Fear of crime. | N | N | N | N | N | N | N | В | | | |
| Fear of heights (vertigo) | D/B | I | N | N | N | В | I/D | I | | | |
| Agoraphobia. | N | N | N | I | I | ď | N | N | | | |
| Claustrophobia. | N | N | N | N | N | N | N | В | | | |
| Fear of loud noises. | N | N | N | I/D | I/D | I | N | N | | | |

| | Guardrails, Barricades Pedestrian/Vehicular Separation | | | | | | | lators |
|---|---|------------------------------|--|--|---|---|-------------|------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. |
| Uses white came for guidance (visually impaired). | D/B | I | D | D | D | В | I | N |
| Uses guide dog. | I | I | I/D | I/D | I/D | D/B | В | N |
| Limited ability to acquire or process visual stimuli. | D/B | I | D | D | D | D/B | I | N |
| Limited ability to per- ceive or process auditory stimuli. | N | N | I | I | I | I | N | N |

| | R | est Ar | eas/Be | nches | Emer: Provi | gency sions | | hting, |
|--|---|--|-----------------------------------|---|--|-------------------------------------|--|---|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No prov'sion for scenic overlock. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Difficulty with environ- mental orientation. | N | N | I | N | I | N | I | I |
| Understanding deficit. | N | N | N | N | D/B | N | I | N |
| Limited attention span. | N | N | N | N | D | N | N | N |
| Memory deficit. | N | N | N | N | D/B | D/B | I | N |
| Decreased ability to sequence, judge time, direction, distance, size. | N | D | N | N | В | D | D/B | I/D |
| Impaired night vision. | N | N | N | N | D/B | N | D | D |
| Impaired cutaneous sensation detection. | I | N | N | N | N | N | N | N |
| Chronic stooped posture. | N | I | N | I | I | N | I | N |
| Difficulty in main- taining equilibrium. | N | I | N | I | D | N | D/B | D/B |
| Moves at slow speed. | N | D/B | N | I | D/B | I | N | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | N | I/D | N | I | I/N | N | D | D |
| Frequent need to rest during exercise. | D/B | В | N | D/B | D/B | D/B | N | N |

| | Res | st Are | as/Ben | ches | Emer Provi | gency sions | | hting, ination |
|---|---|-------------------------------------|-----------------------------------|---|---|--|--|---|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Reduced tolerance to brisk exercise (need to move slowly). | D/B | D/B | N | I | D/B | N | N | N |
| Limited ability to stand for long periods. | D/B | В | N | D/B | I/D | D/B | I | I |
| Impaired bladder control. | I/D | I/D | N | N | N | I/D | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | N/I | N | I/D | N . | N | N/I | N/I |
| Cardiac Pacemaker affected by electrical interference. | I | D/B | N | N/I | N | D | I | I |
| Uses powered or manual wheelchair. | I/D | D/B | N | N | B/D | I | D | I |
| Uses walker, crutches, orthopedic cane. | I/D | B/D | N | I/D | D/B | I | I/D | I/D |
| Prosthesis (including braces) for lower extremities. | I | D/B | N | D/B | В | I | I/D | I/D |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | D/B | I | N | N | N | I | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | N | N | N | N | I | I |
| Limited reach. | N | N | N | N | N | N | I | I |

| | Re | st Are | as/Ben | ches | Emerg Provis | gency sions | | hting, ination |
|--|---|-------------------------------------|-----------------------------------|---|--|-------------------------------------|--|---|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Limited manual dexterity. | N | N | N | N | N | N | Ι | I |
| Inability to turn head. | N | N | N | N | N | N | I | I |
| Decreased ability to stoop. | N | N | N | I/D | N | N | I | I |
| Difficulty standing from sitting position, or in sitting down. | I | I | N | D/B | N | N | N | N . |
| Limited vertical motion with legs and feet. | N | I | N | I | N | N | I | I/D |
| Limited horizontal motion with legs and feet. | N | D | N | N | В | N | N | N |
| Decreased ability to tolerate heat and cold. | В | I/D | N | N | N | D | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | N | N | N | I/D | В | I | I/D | D |
| Fear of crime. | N | Ñ | N | N | N | N | D | D |
| Fear of heights (vertigo) | N | N | N | N | N | N | N | N |
| Agoraphobia. | N | N . | N | N | N | N | N | N |
| Claustrophobia. | N | N | N | N | N | N | D | D/B |
| Fear of loud noises. | N | N | N | N | N | N | N | N |

| | Re | st Are | as/Ben | ches | Emer: Provi | gency sions | Lighting, Illumination | |
|---|---|--|-----------------------------------|---|--|---------------------------------------|--|---|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provision. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Uses white cane for guidance (visually impaired). | N | N | N | I | D/B | I | Ð | D |
| Uses guide dog. | N | N | N | I | D/B | N | I | I |
| Limited ability to acquire or process visual stimuli. | N | N | N | I | D/B | N | D | D |
| limited ability to per- ceive or process auditory stimuli. | N | N | N | N | N | N | N | N |

| | Light | ing, | Illumi | nation | | Signag | e/Medi | a Cues | |
|--|----------------------------|------------|---|-----------------------|---|---|--|--|------------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Glare at end of tunnel. | Tunnel too | Glare and flashing lights from vehicles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Difficulty with environ- mental orientation. | I | I | D/B | I | D/B | D | N | 1 | D/B |
| Understanding deficit. | N | I | D/B | N | D | D/B | N | N | D/B |
| Limited attention span. | N | I/D | I/D | I/D | D/B | D | N | N | D/B |
| Memory deficit. | N | I | I/D | I | D | D/B | N | N | D/B |
| Decreased ability to sequence, judge time, direction, distance, size. | I | D/B | D/B | ם | D/B | D/B | N | D/B | D/B |
| Impaired night vision. | D | D/B | I | D/B | I | 1 | N | I | I/D |
| Impaired cutaneous sensation detection. | N | I | N | I | N | N | N | N | N |
| Chronic stooped posture. | N | I | N | I | D | D | N | D | D |
| Difficulty in main- taining equilibrium. | D/B | D/B | D/B | D/B | N | N | N | I | I |
| Moves at slow speed. | N | N | N | N | D/B | D/B | N | B/D | D/B |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | D | D | D | D | I/D | I | N | D | D |
| Frequent need to rest during exercise. | N | D | N | D | В | D/B | N | В | D/B |

| | Lighti | ing, I | llumir | nation | | Signag | ge/Med | lia Cues | 3 |
|---|----------------------------|--------|---|-----------------------|--|---|---|--|------------------------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | Glare at end of tunnel. | too | Glare and flashing lights from vehicles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Reduced tolerance to brisk exercise (need to move slowly). | N | I | N | I | I | I | N | В | D/B |
| Limited ability to stand for long periods. | I | D | N | D | В | D | N | D | D/B |
| Impaired bladder control. | N | N | N | N | D/B | I | N | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | N | I/D | N | 1/D | N | I | N | I/D | N |
| Cardiac Pacemaker affected by electrical interference. | I | I/D | I/D | I/D | D | I | N | I/D | N |
| Uses powered or manual wheelchair. | I | D | I | D | D | D | N | D/B | I/D |
| Uses walker, crutches, orthopedic cane. | I/D | D | I/D | D | D | I/D | N | D/B | D/B |
| Prosthesis (including braces) for lower extremities. | I/D | D | I/D | D | D | I/D | N | D/B | D/B |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | N | N | I/D | I | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | I | N | I | N | N | N | N | N |
| Limited reach. | N | I | N | I | N | N | N | N | Ň |

| | Light | ing, | Illumin | ation | | Signag | e/Medi | a Cues | , |
|--|----------------------------|---------------------|---|-----------------------|---|---|--|--|------------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehicles. | Poor 111umination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Limited manual dexterity. | N | I | N | I | N | N | N | N | N |
| Inability to turn head. | I | I/D | I/D | I/D | N | D/B | N | D | D |
| Decreased ability to stoop. | I | I | I | I | I | N | N | N | Ñ |
| Difficulty standing from sitting position, or in sitting down. | N | N | N | N | N | N | N | N | N |
| Limited vertical motion with legs and feet. | I | D | I | I | I/D | I/D | N | D/B | I |
| Limited horizontal motion with legs and feet. | I | Ð | I | I | I | N | N | D/B | I/D |
| Decreased ability to tolerate heat and cold. | N | N | N | N | I | N | N | N | N |
| Speech disorder. | N | N | N | N | N | N | N | N | I/D |
| Loss of normal speed in motor coordination/slowed reflexes. | D | D | D | D | I | I | N | D/B | I/D |
| Fear of crime. | D | В | 1 | В | N | N | N | N | D |
| Fear of heights (vertigo). | N | N | N | N | N | N | N | N | I |
| Agoraphobia. | N | N | N | N | N | N | N | N | I |
| Claustrophobia. | N | В | N | B/D | N | N | N | N | I |
| Fear of loud noises. | N | N | N | N | N | N | N | N | N |

| | Light | ing, | Illumin | nation | | Signag | e/Medi | a Cues | |
|--|----------------------------|---------------------|---|-----------------------|--|---|--|--|------------------------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehicles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Uses white cane for guidance (visually impaired). | D | I | D | I | I | D | D/B | D/B | D/B |
| Uses guide dog. | I | D | D | I | I | I | D/B | I | D/B |
| Limited ability to acquire or process visual stimuli. | D | D | D | D | D | D | D/B | D/I | D/B |
| Limited ability to per- ceive or process auditory stimuli. | N | I | I | I | D | D | N | N | I/D |

| | | | Siona | ge/Media | Cues | | |
|--|----------------------------------|---|-------------------------------------|--|--|-----------------------------|-------------------|
| Key: | | | | | | | |
| <pre>N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
| Difficulty with environ- mental orientation. | D/B | D/I | D/B | I/D | I/D | I | I/D |
| Understanding deficit. | D/B | D | D/B | I/D | I | I/D | I/D |
| Limited attention span. | I/D | I/D | D/B | N | N | I | I/D |
| Memory deficit. | I/D | I/D | В | I/D | I/D | I | N |
| Decreased ability to sequence, judge time, direction, distance, size. | D/B | D | D/B | I | D | I | N |
| Impaired night vision. | I/D | I/D | 1/D | N | N/I | N/I | N |
| Impaired cutaneous sensation detection. | N | N | N | N | N | N | N |
| Chronic stooped posture. | D/B | D | D | I | D | I | Ŋ |
| Difficulty in main- taining equilibrium. | D/B | I/D | I | N | N | N | N |
| Moves at slow speed. | D | D | D | N | I/D | I | N |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | D/B | I/D | D | N | I/D | I/D | N |
| Frequent need to rest during exercise. | D/B | D/B | D/B | . N | D | N | N |

| | | | Signa | ge/Media | Cues | | |
|---|----------------------------------|---|-------------------------------------|--|--|-----------------------------|-------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
| Reduced tolerance to brisk exercise (need to move slowly). | D | D | D | N | I/D | I | N |
| Limited ability to stand for long periods. | D/B | D/B | D/B | N | D | N | N |
| Impaired bladder control. | N | N | I/D | N | I/D | N | N |
| Extreme of size (dwarfism, giantism, obesity, etc.). | I | N | N | N | N | N | N |
| Cardiac Pacemaker affected by electrical interference. | D/B | N | I | N | N | N | N |
| Uses powered or manual wheelchair. | D/B | I/D | I/B | I | ı | N | N |
| Uses walker, crutches, orthopedic cane. | D/B | I/D | D/B | N | I | N | N |
| Prosthesis (including braces) for lower extremities. | D/B | I/D | D/B | N | I | N | N |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | N | N | I | N | N | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | I | N | I | N | N | N | N |
| Limited reach. | I | N | I | N | N | N | N |

| | | | Sign | age/Medi | a Cues | | |
|--|----------------------------------|--|-------------------------------------|--|--|--------------------------|-------------------|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traff1c noise. |
| Limited manual dexterity. | 1 | N | I | N | N | N | N |
| Inability to turn head. | I/D | I/D | I/D | N | N | N | I/D |
| Decreased ability to stoop. | I | N | I | N | N | N | N |
| Difficulty standing from sitting position, or in sitting down. | I | N | 1 | , N | N | N | N |
| Limited vertical motion with legs and feet. | D | I/D | D/B | N | I/D | N | N |
| Limited horizontal motion with legs and feet. | D/B | D | D/B | N | I | N | N |
| Decreased ability to tolerate heat and cold. | N | N | N | N | N | N | N |
| Speech disorder. | N | I/D | D/B | N | N | N | N . |
| Loss of normal speed in motor coordination/slowed reflexes. | D/B | D | I/D | N | I | N | N |
| Fear of crime. | D | D/B | D/B | N | I | N | N |
| Fear of heights (vertigo). | D/B | I/D | D/B | N | N | N | N |
| Agoraphobia. | D/B | I/D | D/B | N | N | N | N |
| Claustrophobia. | D/B | I/D | D/B | N | N | N | N |
| Fear of loud noises. | D/B | I | D/B | N | N | N | В |

| | | 5 | Signage | e/Media (| Cues | | |
|---|----------------------------------|--|-------------------------------------|--|--|-----------------------------|-------------------|
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
| Uses white cane for guidance (visually impaired). | D/B | D/B | D/B | I/D | D | D | I/D |
| Uses guide dog. | D/B | D/B | D/B | I/D | D | D | I |
| Limited ability to acquire or process visual stimuli. | D/B | D/B | D/B | I/D | D | D | I/D |
| Limited ability to per- ceive or process auditory stimuli. | D/B | I | I/D | N | I | N | I/D |

| | | | atic F | actors, tion |
|--|-----------------------------|----------------------------|--|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | High wind gusts present. | Wind generated by traffic. | Inadequate provision for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
| Difficulty with environ- mental orientation. | I | I | I | I |
| Understanding deficit. | I/D | I/D | D/B | D/B |
| Limited attention span. | I/D | I | I | I/D |
| Memory deficit. | N | N | I/D | I/D |
| Decreased ability to sequence, judge time, direction, distance, size. | D/B | D/B | D/B | D/B |
| Impaired night vision. | D/B | D/B | D | D/B |
| Impaired cutaneous sensation detection. | N | N | I/D | I/D |
| Chronic stooped posture. | D | D | I/D | D/B |
| Difficulty in main- taining equilibrium. | D/B | В | D/B | D/B |
| Moves at slow speed. | D/B | N | D/B | D/B |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | D/B | В | D/B | D/B |
| Frequent need to rest during exercise. | D/B | D/B | D/B | D/B |

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|---|-----------------------------|----------------------------|---------------|--|
| | | | | ctors, |
| Keu. | We | ather/ | | |
| <pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier</pre> | High wind gusts present. | Wind generated by traffic. | legua raín | Walkways and sidewalks not kept clear of snow, ice and debris. |
| | H 20 | <u> </u> | Inad | Walk not ice |
| Reduced tolerance to brisk exercise (need to move slowly). | D/B | D/B | D/B | D/B |
| Limited ability to stand for long periods. | D/B | D/B | D/B | D/B |
| Impaired bladder control. | N | N | N | I |
| Extreme of size (dwarfism, giantism, obesity, etc.). | I | I | I/D | D/B |
| Cardiac Pacemaker affected by electrical interference. | N | N | N | I/D |
| Uses powered or manual wheelchair. | I/D | I | В | В |
| Uses walker, crutches, orthopedic cane. | D/B | I/D | D/B | В |
| Prosthesis (including braces) for lower extremities. | D/B | I/D | D/B | D/B• |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | D/B | D/B | N | N |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | N | N | I/D | D/B |
| Limited reach. | N | N | I/D | I/D |

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|--|-----------------------------|----------------------------|--|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | High wind gusts present. | Wind generated by traffic. | Inadequate provision for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
| Limited manual dexterity. | N | N | I/D | I/D |
| Inability to turn head. | I | I | I/D | D/B |
| Decreased ability to stoop. | N | N | N | I/D |
| Difficulty standing from sitting position, or in sitting down. | N | N | I | D/B |
| Limited vertical motion with legs and feet. | I | I | D/B | D/B |
| Limited horizontal motion with legs and feet. | I | I | D | D/B |
| Decreased ability to tolerate heat and cold. | D | I | N | D |
| Speech disorder. | N | N | N | N |
| Loss of normal speed in motor coordination/slowed reflexes. | D | D/B | D | D/B |
| Fear of crime. | N | N | N | N |
| Fear of heights (vertigo) | N | N | N | N |
| Agoraphobia. | N | N | Ñ | N |
| Claustrophobia. | N | N | N | N |
| Fear of loud noises. | N | N | N | N |

| 77 | | | atic F /Pollu | actors, tion |
|--|-----------------------------|----------------------------|--|--|
| Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier | High wind gusts present. | Wind generated by traffic. | Inadequate provision for rain-water runoff, | Walkways and sidewalks not kept clear of snow, ice and debris. |
| Uses white cane for guidance (visually impaired). | D | D | D | D/B |
| Uses guide dog. | I | I | D | I/D |
| Limited ability to acquire or process visual stimuli. | I/D | I/D | D | D |
| Limited ability to per- ceive or process auditory stimuli. | I | N | N | N |

CITY MATRICES



| | , | | | 1 | | | | _ | . – | |
|--------------------------------------|----------------|--|--------------|--------------|----------|----------|-----------------|-------------|----------|--------------|
| ۸ . | er | Li Li | ı, | , l | ä | ≱⊣ | 'n | L L | H | ΑT |
| A | Under | Over | Over | Over | Under | Over | Over | Over | Over | TOTAL |
| | - | | | _ | · | | - | | | |
| LOCATION & END CONDITION | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Portions of walkway are | Х | X | Х | X | | | | | | 4 |
| hidden from view | | , | Į | | | | | | | |
| (crime potential). | ! | <u> </u> | <u> </u> | | <u></u> | | | ļ | | |
| Overcrossing/undercrossing | 1 |] | X | | | | | | 1 | 1 |
| is not close to public | | | | | | | 1 | | 1 1 | |
| transportation stop. No sidewalk at | ┪╌─ | | - | - | | | ,, | | | \vdash_{i} |
| end condition. | | | i | | X | X | Х | X | | 4 |
| Parked cars | + | | | | | | | | | |
| restrict approach.* | | | | | | İ | | | 1 | |
| Parked cars obstruct | | | | | | | | | | |
| view of approach.* | | | ł | | | | | } | | |
| No accessible | | X | † | | - | | | | | 1 |
| parking.** | | ^ | | | | | | | | 1 |
| No detectable pedestrian | + | X | | x | х | X | x | х | | 6 |
| crosswalk to approach. | | ↑ | | ^ | ^ | ^ | ^ | ^ | • | 0 |
| Driver's view of | - | | | <u> </u> | | | | | | |
| pedestrian blocked.* | | | } | | | | • | | | |
| | _ | \vdash | · | | | | | | | |
| WALKWAYS | | | | | | | | | | |
| Pedestrian walkway on | | | | | | | | | | |
| only one side. | | | | | | | | L | | |
| Walkway less than | | | | | | | | | | |
| 48" (too narrow).** | ╽. | ļ | <u> </u> | | | <u>.</u> | <u> </u> | <u> </u> | L | |
| Headroom below | T | | | | i | | | | | |
| 6'10".** | | <u> </u> | | | | | | <u> </u> | | |
| Walkway through | x | | | | | | | | | 1 |
| "long" tunnel | | ļ | | | | | | | | |
| (over 40'). | <u> </u> | L | ļ | | | | | ↓ | L | |
| Structure vibrates | | | | | | • | | | | 1 |
| (traffic). | 4 | | | - | | | | | | |
| Abrasive or perforated | | | | X | | | | | | 1 |
| material on vertical sur- | | | | | | | | i | | |
| face adjacent to walkway. | +- | \vdash | ļ | | | <u> </u> | | + | | |
| Objects project into | | | | | | ļ | | | | |
| walkway (signs, trees, etc. | + | - | | | | | 1 | - | + | \vdash |
| SURFACE MATERIALS | | | } | | | | : | ļ | | |
| Manhole covers and gratings | 1 | | | х | | x | † | | | 2 |
| in walkway. | | { |) | ^ | | ^ | | 1 | | |
| Highly reflective | | | | | | ľ | | T | | |
| surface materials. | | | | <u></u> | | L | | | <u> </u> | |
| Grooves and patterns (cast | T | | | T | | | | | | 1 |
| into walkways or caused by | | | i | | | ŀ | | | | 1 |
| small paving units). | | | | | <u> </u> | | <u>L</u> _ | | | <u></u> _ |

| 1 _ | H | Ī. | | | H | | | | | J. |
|--|--|----------|------|------|-------|------|------|----------|------------------|--------------|
| Α | Under | Over | Over | Over | Under | Over | Over | Over | Over | TOTAI |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Large, deep | | X | Х | X | | | X | X | | 5 |
| expansion joints.** | <u>.</u> | <u> </u> | | | | | | | | |
| Uneven and irregular | | | | | | X | X | | X | 3 |
| surfaces. | ↓ | | | | | | | | | |
| Loose and soft surfaces | | X | | X | X | Х | | | | 4 |
| (gravel, sand, etc.). | ļ | <u> </u> | ļ | | | | | | | |
| Rough | | | | | | | | | X | 1 |
| surfaces. | - | <u> </u> | | | | | | <u> </u> | | |
| Discontinuous surface materials. | ļ | | | | X | | | | X | 2 |
| materials. | | | | | | | | | | _ |
| MAINTENANCE | | | | | | | | | | |
| Debris from erosion | | | | | | | | | | |
| on walkway. | | | | | | : | | | | |
| Disrepair (frost heaves, | | | | Х | | | | | | 1 |
| potholes, etc.). | 1 | | | | | | | | | |
| Disrepair from vandalism | Γ | | | X | | | | | | 1 |
| or accident (handrails, | [| | | | | | |] [| | ! ! |
| guardrails, etc.). | | | | | | | | | | |
| STAIRWAYS | |] | | | | | | | | |
| Stairway is only means | X | X | Х | | | | | | L . — | 3 |
| of access to structure.** | ^ | ^ | ^ | | i | | | | | ا |
| Stairway only on one | †· | | | | | | | | - | |
| side of structure.** | | |] ! | | | | | | | |
| Poorly lighted steps, | | Х | Х | X | | | | | | 3 |
| stairs, ramps. | İ | | | | | | | į | | |
| Treads less than 11" | | | | | | | | | | |
| (too small). | | | | | | | | l | | |
| Projecting | Ţ | | | | | | | | | |
| nosings. | <u> </u> | | | | | | | | | |
| Open | i | | | | | | | | | |
| risers. | <u> </u> | | ļ— | | | | | <u> </u> | | |
| Risers greater than | | | | | | | | | | |
| 7" (too high).** | <u></u> | ļ | | | | | | | | |
| Curb greater than | | } | | | | | | | | |
| 6" (too high). Step (settlement) between | | | | | | | | | | ⊢ , - |
| approach and structure.** | | | | | | | | | X | 1 |
| Dangerous stair | | - | | | | | | | | |
| location. | | | | | | | | | | |
| | <u> </u> | <u></u> | | | | | | L . | | |

| | | | | } | | | | | | |
|------------------------------|--------------|---------------|----------|--|---------------|------|---------------------------------------|----------------|--------------|----------|
| Λ | Under | l H | <u> </u> | 1 11 | Under | Ä | Ä | ļ, | 뇌 | [AI |
| A | <u> </u> | Over | Over | Over | Ĕ | Over | Over | Over | Over | TOTAI |
| RAMPS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Only ramps | _ | | 1 | X | | | | | | 1 |
| provided. | | | | ~ | | | | | | * |
| Only ramps provided on | | 1 | | 1 | | | | Γ- | Х | 1 |
| one side of structure. | | | | | | ĺ | |] | ^ | ^ |
| Pathway leading to over- | X | | | X | - | | Х | | х | 4 |
| undercrossing too | ** | Ì | | | | | • | | 1 | " |
| steep and long.** | | | | | | | | | | |
| Ramp too long (exceeds | | | | x | | | | <u> </u> | | 1 |
| 30 feet).** | | | | | | | | 1 | | * |
| Ramp too steep (slope | | | | x | | | | | | 1 |
| greater than 1:12).** | ! | | | ^ | | | | | | 1 1 |
| Ramp too narrow (less | | 1 | | | | | | | | |
| than 48").** | | | |] | • | 1 | | | 1 | |
| Cross slope greater than | _ | | | Х | x | | х | | | 3 |
| 1:50 (too steep). | | | ĺ | ^ | ^ |] | ^ | | , | , |
| Slope across structure | | _ | | x | | | · · · · · · · · · · · · · · · · · · · | | | 1 |
| too long and steep.** | | | | ^ | | | | | | |
| No curb | | | 1 | х | x | х | Х | | X | 5 |
| cuts.** | 1 | | | ^ | ^ | ^ | ^ | Ì | ^ | |
| Helical | <u> </u> | | <u> </u> | | | ļ | | - - | | |
| ramp. | | Ì | | | | Ì | | | | 1 1 |
| Ramp layout | | $\overline{}$ | | | | | | | | |
| inconvenient. | • | | | | ĺ | | | | ļ | |
| Abrupt transition to | | | | | <u> </u> | | | † — | | П |
| connecting walkways. | | ļ | | | | | | | | |
| Ramp exits directly into | | 1 | | \vdash | T | | | \vdash | | |
| street or parking area (less | ĺ | į | | | | | 1 | | | |
| than 6' clearance at bottom | | | | 1 | ļ | ì | l | | | |
| of ramp). | | | | | | | l | | ļ | ! } |
| Bollards in the middle | | $\overline{}$ | | $\overline{}$ | 1 | _ | | <u> </u> | | |
| of entrance to the | | | | | | | |] | | |
| ramp. | | | | | Ì | | |] | | |
| Steps in the middle | 1 | | 1 | † | ļ — | | | 1 | | |
| of the ramp. | | | | | | | | | | |
| | - | - | + | | | | | | 1 | - |
| HANDRAILS | | | | | | | | | | |
| Handrails higher than | T., | | | | | | | 1 | | 1 |
| 36" (too high). | X | | ļ | | | ì | | | | <u> </u> |
| Handrails lower than | | 1 - | † | X | † | | | Τ. | 1 | 1 |
| 32" (too low).** | | | | ^ | | ! | | | | _ ^ |

| <u> </u> | 1 | | | | | | | | | ۰. |
|---|--|--------------|----------|----------|-------|------|------|---|----------|--|
| Δ | Under | Over | Over | Over | Under | Over | Over | Over | Over | TOTAI |
| | <u> 5</u> | Ó | 0 | Ó | | δ | 5 | 6 | 6_ | ŭ |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7. | 8 | 9 | |
| No | | | | | X | X | X | X | X | 5 |
| handrails.** | ┼ | | | | | | | | | |
| Handrail inadequate for |] | İ | Х | | | | | | | 1 |
| comfortable grasp. | | | | | | | | | | \vdash |
| Handrail material metal | X | X | Х | X | | | | | | 4 |
| or aluminum (hot in hot | } | | | | | | | | | |
| weather, cold in cold). | — | | | | | | | | | Ш |
| Handrails not | | X | Х | X | | | | | | 2 |
| continuous. | + | - | | | | | | | | |
| Handrails don't extend | X | | | Х | | | | | | 2 |
| far enough (1' at top and | | İ | | | | | | | | li |
| bottom of stairs and ramps).** | - | | | | L | | | | | \sqcup |
| No handrails on | | | | | | | | | X | 1 1 |
| ramps. | | | | | | | | | | |
| GUARDRAILS, BARRICADES, | | ! | | | | | | | | 1 1 |
| | | i | | | | | | | | 1 1 |
| PEDESTRIAN/VEHICULAR SEPARATION Barricades not detectable | ┼─ | | | | - | | | | | \vdash |
| (blind cane). | | Х | | | | | | | | 1 1 |
| Guardrails not | | | | <u> </u> | | | | | <u> </u> | 1 |
| continuous. | | | | | | | | | X | 1 |
| Guardrails too low | | | <u>-</u> | | | X | х | | | 2 |
| (less than 42"). | | 1 | | | | ^ | ^ | | | - |
| No pedestrian | | - | — | | X | | | X | | 2 |
| guardrails. | İ | 1 | į | | ^ | | | Λ | | - |
| Inadequate | | | - | | - | | - | | Х | 1 |
| guardrails. | - | | | İ | | : | | | Λ | ^ |
| Guardrail mesh | + | | | X | | | | | | 1 |
| hazardous.* | | | | 1 | | | | | | * |
| No detectable separation | + | | | X | | х | X | | x | 4 |
| between bikeway and | | | | ^ | | Λ | A | | Λ. | " |
| pedestrian way. | | i | | | | | İ | | Ì | 1 1 |
| No detectable seperation | † | | | | | | | X | | 1 |
| between roadway and walkway. | | | j | | | | | 11 | | |
| No detectable separation | 1- | | | | | | | • | | $\dagger \lnot \dagger$ |
| between walkway and parking | | | | | | | | | | |
| lot. | | | | | | | | | | 1 |
| Unprotected sidewalks | 1 | | | | Х | | Х | X | | 3 |
| (cars, edges, etc.). | | } | | Ī | | l | " | | | |
| | | | | | | | | | | П |
| ESCALATORS/ELEVATORS | | | | | | | | | | |
| Escalators. | | | | | | | | — | | 1- |
| Elevators. | | | | | | | | | | |

| Α | Under | Over | Over | Over | Under | Over | Over | Over | Over | TOTAL |
|------------------------------|--|--------------------------|------|----------|-----------------|--------------|------|-----------|--------|--|
| REST AREAS/BENCHES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Resting places not under | | | | | | | | | X | 1 |
| cover (wind, rain, sun). | | | | | | | | | | |
| Not enough places to | | | | Х | X | х | х | X | | 5 |
| stop and rest. | | | | | | | | | ļ. _ | |
| No provision for | | | | | | | | | | |
| scenic overlook. | ↓ | | | <u></u> | | | | | ļ | $ldsymbol{ldsymbol{ldsymbol{\sqcup}}}$ |
| Benches too high or low, | | | | | | | | | X | 1 |
| too deep or shallow, or | | | | | | | | | | i |
| with no armrest. | <u> </u> | | | | | | | | | |
| EMERGENCY PROVISIONS | | | | | | | | | | |
| No alternative route for | | 1 | | | | | | | | ┡ |
| flood condition structures. | i | ! | | | | | | | | |
| No pedestrian emergency | ,, - - | 1,, | 77 | | - ,, | | •- | <u></u> - | | 1 |
| provisions. | Х | X | X | X | Х | Х | X | X | X | 9 |
| | | | | | | | | | | - |
| LIGHTING ILLUMINATION | | | | | | 1 | | |] | i |
| Significant change of light | | | | | х | | | | | 1 |
| level in tunnel at entrance. | | | | | | | | | | |
| Interior lighting not | х | | | | X | | | | | 2 |
| adjusted to outside | | | | i | • | | | | | - |
| light conditions. | | | | | | | | | | ! |
| Glare at end | X | | | | | | | | | 1 |
| of tunnel.* | | | | | | ļ | | | | 1 |
| Tunnel too | | | | | X | | | | | 1 |
| dark.* | <u> </u> | | | | | | | | | |
| Glare and flashing | | х | | | X | | | | | 2 |
| lights from vehicles.* | | | | | | | | | | |
| Poor | | | X | Х | X | Х | X | X | | 6 |
| illumination.* | | | |]] | | | : | | ł | |
| SIGNAGE/MEDIA CUES | | | | | | | | | | |
| No signage indicating | - | - <u></u> | | | | | | <u> </u> | | _ |
| location of rest areas. | X | X | | | X | | | Х | X | 5 |
| Street signs too high, | | | | - | | ļ. — | | | | H |
| too low or far. | | , 1 | | | | | | | | |
| No special signage for | 77 | -,, | 77 | - ,, | 77 | 77 | 37 | 77 | 1,7 | |
| the visually impaired. | X | X | X | Х | X | X | X | X | X | 9 |
| Traffic lights with | | $\vdash \vdash$ | | | | | | | _ | - |
| short green cycle. | | | | | | | | | | |
| Complicated instructions | | | Х | | | | | | | 1 |
| on signs. | | | Λ | | | | | | | |
| No warning of potential | <u> </u> | Х | | | | X | Х | | | 3 |
| hazards. | | ^ | | | | ^ | Λ | | | |

| Under | Over | Over | Over | Under | Over | Over | Over | Over | TOTAL |
|----------|----------|-----------|-----------------------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | X | | X | Х | X | X | X | X | 7 |
| | <u> </u> | <u> </u> | | <u> </u> | <u> </u> | <u> </u> | ļ | <u> </u> | |
| | X | X | X | X | | X | X | X | 7 |
| | | | | <u> </u> | | | | | |
| | | İ | X | | | | | X | 2 |
| | | | | 1 | | | 1 | | |
| | | | | | <u> </u> | <u> </u> | | | |
| X | | | | | | | | | 1 |
| | | | | | | - | | | • |
| 1 | | | | | <u> </u> | | | | |
| | X | | X | X | X | X | X | X | 7 |
| 1 | ŀ | | | 1 | <u></u> | <u> </u> | | | |
| | | X | X | X | X | X | X | Х | 7 |
| <u> </u> | | | | | | | <u> </u> | | |
| | | | | <u> </u> | | | ļ | | |
| 1 | Х | Х | X | 1 | 1 | | | | 3 |
| | | | | | | | | | |
| | | | 1 | | X | | 1 | | 1 |
| | [| | | | | | | | |
| 1 | Ī | | | Ì | | | | | |
| 1 | | | <u>i</u> | | | 1 | | L | |
| | | | X | X | | | 1 | | 2 |
| | 1 | | 1 | | | | | | |
| | | | | | | | | | |
| | 1 | 1 2 X X X | 1 2 3 X X X X X X X X | 1 2 3 4 X X X X X X X X X X X X X X X X X X | 1 2 3 4 5 X X X X X X X X X X X X X X X X X X X X | 1 2 3 4 5 6 X X X X X X X X X X X X X X X X X X X X X X X X X X X X X | 1 2 3 4 5 6 7 X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X | 1 2 3 4 5 6 7 8 X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X | 1 2 3 4 5 6 7 8 9 X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| R | er | Over | er | er | er | er | er | er | er | er | er | Over | er | Over | Over | er | Under | Over | er | TOTAL |
|------------------------|--------------|----------------|----------|----------|----------|----|----|----|----------|----------|-------|----------|--------------|----------|----------|----------|----------|----------|--------------|------------|
| U | Over | 8 | Š | 8 | Š | ઠ | ઠ | 8 | 8 | ò | 8 | 5 | ô | 8 | 8 | Š | E I | 6 | Š | TO. |
| LOCATION & END | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| CONDITION | | | | | | | | | ĺ | | | | | | | | | | | |
| Portions of | | 1 | x | 1 | | | | | | | | X | | X | X | | Х | X | | 6 |
| walkway are hidden | | | | | | | | | į | | | | ļ | | | : | | | ' | |
| from view | | | | | | | | | | | | | | : | | | | | | 1 1 |
| (crime potential). | | | | | | | | | ĺ | i | | | | : | | | | | | |
| Overcrossing/ | Γ | Γ | - | | Γ | | _ | | | | | | | · | | | | | | |
| undercrossing is | | | 1 | | | | | | | | | | | ; | | | | | | |
| not close to public | | | ĺ | ŀ | | | | | İ | | | | | | | | | | | |
| transportation stop. | 1 | | | | | | | | | | | | | | | | | | | |
| No sidewalk at end | | - | | Г | <u> </u> | | | | - | | | _ | | | | | | | | |
| condition. | | | | | | ' | | | | | | | | | | | 1 | | | |
| Parked cars | T | | Γ | | | | | | <u> </u> | | | | | | | | | | | П |
| restrict approach.* | ļ | | | | | | | ļ | | | | | 1 | ł. | | | | | | |
| Parked cars | _ | \vdash | - | Π | Ī- | Γ | | | | | | | | | | | | | | |
| obstruct view of | | 1 | i | | | | | | | | | | ļ | - | | ļ | · | | | |
| approach.* | | | l | | | | | | | | | | ļ | 1 | , | | | | l | |
| No accessible | | T | | | _ | - | | | | | | i | 1 | | | | | X | | Γ_1 |
| parking.** | | L | ļ | | _ | | L | | L | <u> </u> | | | | Ĺ | | | | | <u> </u> | |
| No detectable | i | • | X | X | | | | X | X | 1 | | 1 | | 1 | X | | ĺ | X | 1 | 6 |
| pedestrian cross- | | | | | | | | | į | į | | | 1 | | | i | | | ! | |
| walk to approach. | | L. | _ | ļ | | | | | <u> </u> | | | Ĺ | 1 | ! | L. | | | | Ĺ., | |
| Driver's view of | | Į | | 1 | | | | | İ | | | | | | | | | ļ | | |
| pedestrian blocked.* | | | | | | | | | | | | | | | | | | | | |
| WALKWAYS | | 1 | | | į | | | | | | | | | | | | | : | | |
| Pedestrian walkway | İ | | 1 | | | | | | ĺ | | | | į | 1 | | | ŀ | X | | 1 |
| on only one side. | | | | | | | | | L | | | | i | | <u> </u> | | | Ì | | |
| Walkway less than | | Ţ | Γ | | | | | | | | | | | | | | | X | | 1 |
| 48" (too narrow).** | |] | | | | | | | | ļ | | | İ | ļ | | |] | | | |
| Headroom below | T | ! | | 1 | Т | | | | Г | ! | | | | | \vdash | | | | | |
| 6'10".** | | | 1 | | | | | | | | | | | | | | 1 | | | 1 |
| Walkway through | 1 | 1 | <u> </u> | _ | T | 1 | | | | \vdash | · · · | | | <u> </u> | † | | X | | | I |
| "long"tunnel | 1 | | 1 | | ļ | | İ | 1 | | | | į | | | | ļ | | | l | |
| (over 40'). | L | |] | Ĺ | | | İ | | Ĺ. | | | <u> </u> | | <u> </u> | | <u> </u> | <u> </u> | | | |
| Structure vibrates | | | | | | | | | | | | | ! { | | | | | Х | 1 | 1 |
| (traffic). | _ | _ | L | <u> </u> | L | | | _ | Ļ. | <u> </u> | 1 | | | <u> </u> | | | l | | | <u>L</u> . |
| Abrasive or per- | | | | | X | | | X | X | | | | X | | | | 1 | | - | 4 |
| forated material on | | | | | | | | | ĺ | | | | | Ì | | | 1 | | | |
| vertical surface | | | | | | | | | | | | | | | | | 1 | | | |
| adjacent to walkway. | _ | _ | _ | _ | <u> </u> | ļ | _ | _ | _ | | | | | <u> </u> | <u> </u> | | <u> </u> | <u>_</u> | ļ | <u>_</u> |
| Objects project into | | | | | | | | | İ | X | | X | Í | | | | | | X | 3 |
| walkway (signs, trees, | | | | | | ĺ | | | | | | | | | | | | | Ì | |
| etc.). | | ļ | | ì | | | | | | 1 | | | l | | 1 | l | | | | |

| | _ | | | | | | | | | | | | | _ | | | <u>.</u> | | |] |
|---|--------------|-----------------|----------|----------|----|-----|----|-----|----|----------|-----------|--------------|----------|-----------------|--|----------|------------|-----------------|----------|-------------------|
| R | Over | er | er | ē | ēr | 'er | ēr | er | ēľ | 'er | er | er | over 3 | er | er | ä | Under | er | Over | TOTAL |
| | ô | õ | 3 | 6 | 8 | õ | 8 | õ | δ | ŏ | 6 | 6 | 8 | 8 | 8 | õ | n | ò | 00 | $ _{\mathrm{TC}}$ |
| SURFACE MATERIALS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| Manhole covers and | Х | X | X | X | | | | X | X | | | | | | | | | X | X | 8 |
| gratings in walkway. | ļ | _ | _ | | | | _ | | | | | | | | | | | | | |
| Highly reflective | X | | | | | | | | | <u>.</u> | | | | | | | | | | 1 |
| surface materials. | | | <u> </u> | | | | | | | | ļ | | | | | | | | | |
| Grooves and patterns | | | | | | | | ĺ | | | | | | | | X | | X | | 2 |
| (cast into walkways or | | | | | | | | | | | | | | | | | | | | |
| caused by small | | 1 | | | | | : | | | | | | | | 1 | | | i | | |
| paving units). | V | v | v | X | 3/ | 37 | 37 | 37 | | <u> </u> | | | 77 | | | - | | | | |
| Large, deep expan- | ^ | A | Λ | Λ | Λ | Λ | A | A | Y | | | | X | | X | | | | | 11 |
| sion joints.** | | - | _ | | X | Щ | | Ц | | | | | | | 37 | 37 | <u>-</u> | | 37 | |
| Uneven and irreg- | | | | | ^ | | | | | | |] | | | X | X | | | X | 4 |
| ular surfaces. Loose and soft | ├ | \vdash | | | _ | v | X | | | | <u> </u> | | | <u> </u> | X | X | _ _ | | | 5 |
| 1 | 1 | | | | | Λ | Λ | | | | Ę | | | ^ | Α | A | | Ì | [! | ٥ |
| surfaces (gravel, | | ì | | | | | | | | | | | | | | | | ĺ | | |
| sand, etc.). | Ļ | | | | X | | | Н | | <u> </u> | - | \vdash | | ļ - | | - | | | <u> </u> | i |
| Rough | • | | | | Λ | | | | | | | | | | | | | ļ | | 1 |
| Surfaces. Discontinuous sur- | 1_ | } | | | _ | | | | | <u> </u> | <u> </u> | | | - | | | | ├ | | |
| i e | | İ | | | | | | | | | | | | | Ì | i | | j | | |
| face materials. | ! | | | \vdash | | | | Н | | | <u> </u> | - | | | | | - | | | |
| MAINTENANCE | - | | | | | | | | | | | ' | | | | | | | | |
| Debris from erosion | +- | - - | - | - | | | | | | <u> </u> | | | | | - | | | - | | |
| on walkway. | ! | İ | | | | | Х | X | Х | 1 | | | | | | • | | Ì | | 3 |
| Disrepair (frost | 77 | X | - | | | | 17 | | | | | | | | - | | | | | |
| heaves, potholes, etc.). | | X | | | | | X | | | | | | | | | • | | 1 | Х | 4 |
| Disrepair from vandalism | | + | v | х | ₹7 | 17 | | | | | | *7 | | | | | | †— | | |
| or accident (handrails, | 1 | 1 | A | Λ | λ | А | | | | | 1 | X | Х | | Ì | | | İ | : I | 6 |
| guardrails, etc.). | | ļ | | | | | | | | |] | | | | Ì | ļ | | | | |
| , | + | 1 | \vdash | | | | _ | H | | - | - | | | | | - | | - | - | |
| STAIRWAYS | | 1 | | | | | | | | | | | | | | | | | | |
| Stairway is only means | Τ | | | | _ | | | | | | X | T- | Х | i i | | | | | | 2 |
| of access to structure* | 4 | Ì | • | | | | | • | | | 1 | ļ | ^ | | | | ļ ! | i | | |
| Stairway only on one | Τ | | 1 | | | | | | | х | | | | | | | | | | 1 |
| side of structure. | | | 1 | | | | | | | | | | <u> </u> | · | <u>. </u> | <u> </u> | | ĺ | | _ |
| Poorly lighted steps, | | ! | | | | х | X | X | X | | | X | X | X | X | X | | | | 9 |
| stairs, ramps. | ! | ì | | i | | | | į ! | | | l | | | 1 | | | | | | |
| Treads less than II" | | | ! | | | Х | | | | - | ļ | | | | | | | | | 1 |
| (too small). | | L | | : | | | | | | | | | | | | | ! | | | |
| Projecting | Γ | Г | - | | | | | | | X | X | X | Х | | | | | Ţ | | 4 |
| nosings. | | | | | | | | | | | | | | | | | l L | | 1 | |
| Open | | | - | | | | | | | - | | | | | | | | $\lceil \rceil$ | | |
| risers. | L. | - | _ | | | | | | | | <u> </u> | | | | | | | | | |
| Risers greater than | | | | | | | | | | | | | | | | | | 1 | | |
| 7" (too high).** | _ | _ | _ | | | | | Щ | | | <u> </u> | | | | | | | <u> </u> | | |
| Curb greater than | | | | | | | | | | | | | | i | | ļ | | | | |
| 6" (too high). | | | L | _ | L | | | L | | <u> </u> | <u>L_</u> | L. | | <u> </u> | | <u>L</u> | | 1 | | |

| г - | _ | | | _ | ŗ | | , | _ | _ | | | · · · · | <u> </u> | | | | т. — | - | | |
|---|--------------|------|------|------|----------------|--------|----------|------|------|------|--|---------------|----------|------|----------|--|--|----------|----------|----------|
| В | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | _ | | | 18 | | |
| Step (settlement) | X | X | X | X | | - | X | Γ | ٢ | - | | ** | 1.5 | X | | 110. | 1 | 10 | 11.7 | 7 |
| between approach | | | | | ļ | | | 1 | | | | | | ^ | Α | 1 | 1 | 1 | | l ′ |
| and structure.** | ļ | | - | | i | ĺ | | ł | | | | , | | | | ļ | ļ | ! | | • |
| Dangerous stair | | | | | T - | Г | | Г | | i | | | | | | - | | | | |
| location. | - | | | | | | | | | | | | | | Ì | | | | | |
| | | Ī | | | | | | Π | Г | | | | | | | | | | | |
| RAMPS | <u> </u> | L | L | L | <u>!</u> | _ | | L | | | | | | | _ | | | - | | |
| Only ramps | X | X | | X | | | X | | | | | | | X | X | | | Х | X | 8 |
| provided. | $oxed{oxed}$ | L_ | | | | L | <u> </u> | | | | _ | | L | | | | | | | |
| Only ramps provided | | | | | | | | - | | | | [- | | | | | | | | |
| on one side of | 1 | | ŀ | | | ļ | | | ŀ | | | | | | | | 1 | | | |
| structure. | ┸ | ┖ | | | L | | | L | | | | | | _ | ! | <u>. </u> | l | | | |
| Pathway leading to | | | | | | 1 | | | | | | | | | | | | | | |
| over-undercrossing | | | | | | | | | | | | | | | | 1 | | | | |
| too steep and long.** | | | L. | _ | | | L. | | | | | | | | | <u> </u> | | | | |
| Ramp too long (ex- ceeds 30 feet).** | X | X | X | X | | X | Х | | | | | | X | X | X | | | X | X | 11 |
| Ramp too steep | Ιx | x | | X | - | x | x | - | | | | | _x | X | X | | | X | x | 10 |
| (slope greater than | | | | | | | | 1 | | | | | Λ | Λ | ^ | | | ^ | ^ | 10 |
| 1:12).** | | |] | | ì | ĺ | | | | | | | İ | | | • | | | | |
| Ramp too narrow | + | | ┤ | - | ┢ | - | | | | | | - | | | | | ├─ | | - | |
| (less than 48').** | | | l | | | | | | | | | | | | | | | | | |
| Cross slope greater | + | ┪ | Г | 1 | 1 | - | | Н | | | | | | X | X | <u> </u> | | | \vdash | 2 |
| than 1:50 (too steep). | | | | | | | | | | | | | | 4 | ^ | ! | | - | | |
| Slope across structure | | X | : | х | - | - | | - | | | | | Ϋ́ | | X | | - | - | | 5 |
| too long and steep.** | | | | | İ. | | | | | | | | | | | 1 | | | | _ |
| No curb cuts.** | 1 | | Х | Х | x | | | | | | 7 | | Х | | Х | | | X | | 6 |
| Helical ramp. | 1 | | | _ | - | | | | | | | | | X | | | 1 | <u> </u> | | 1 |
| Ramp layout | 1- | | | | - | | | - | | | | | | | | | | | Н | <u> </u> |
| inconvenient. | Ì | | | | i i | ! ! | İ | | | | | ! | | | İ | | | | | |
| Abrupt transition to | 1 | İ | | | \Box | | | | | | | | | | | _ | | _ | | |
| connecting walkways. | | i | ĺ | |] | ' | | | | | | | | | ĺ | ļ | | | | |
| Ramp exits directly | | | X | X | | | X | Х | X | | | | | | | | | | Н | 5 |
| into street or park- | | | | | | | | | | | | | | | İ | | | | ļ. | _ |
| ing area (less than 6 | ' | | | | | | | | | | | | | | | | | | | |
| clearance at bottom | | | | | | [| | | | | | | | | | i i | | | | |
| of ramp). | | | | | | | | | | | | | | | | | | | | |
| Bollards in the mid- | | | X | | X. | | X | | | | X | | | _ | | | | | | 4 |
| dle of entrance to | - | | | | | İ | | | | | | | | | | | | | | • |
| the ramp. | | | | | | | | | | | | | | | | ! | | | | |
| Steps in the middle | | | | | 1 | | | | | | | | | | | _ | | | | |
| of the ramp. | | | | | <u> </u> | | | | | | <u>. </u> | | | | | | | | | |
| HANDRAILS | | | | | | | | | | | | | | | | | | | | |
| Handrails higher than | † | | | - | | - | | | - | v | v | х | - | | v | | | | | |
| 36" (too high). | | | _ | | | L. | | | | X | X | X | | Х | X | | | | | 5 |
| Handrails lower than | | | | | | - | | | | | | | | | | | | | | |
| 32" (too low).** | | ł | Ŀ | | Ĺ | | | | | | | | | | | | | | | |

| | | | 1 | | | | | | | | | | | | | Γ- | | | | |
|-----------------------------------|--|--------------|------------------|-----------|--------------|------|---------------|----------|------|------|------|------|------|------|----------|--------------|--|--|----------|-------|
| В | Over | Wer | Over | Jver | Over | Over | Over | Over | Jver | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| | 1 | + | - | _ | - | _ | \rightarrow | | _ | | _ | _ | | 14 | | | • | _ | | |
| No | | V | X | ¥ V | V | D | _/ _v | v | X | ŤΛ | 11 | 12 | X | 14: | 12 | X 10 | X | | 19 X | 13 |
| handrails.** | ^ | ^ | ^ | ı^^ | ^ | | Λ | ^ | ^ | | | | Α. | | | ^ | ^ | ^ | A | 13 |
| Handrail inadequate for | 1 | | - | - | | | | | - | | | | М | | | | | | | |
| comfortable grasp. | | | | | | | | | | | | | | | | | | | | 1 |
| Handrail material metal | | <u> </u> | | | - | X | Н | | | X | X | Х | | X | X | | | | \vdash | 6 |
| or aluminum (hot in hot | | | | | | Λ | | | | a l | • | ^ | | ^ | ^ | İ | | 1 | | 0 |
| weather, cold in cold). | | | | | | | | | | | | | | | | Į | | | | |
| Handrails not | ┼ | | ├ | - | • | _ | \vdash | | | X | X | X | | | | | | - | | 3 |
| continuous. | - | ļ | | | | | | | | ^ | Λ | Λ | | | | İ | | | | ט |
| Handrails don't extend | - | ╄- | - | | | | - | - | | | | | | | | | | | | |
| far enough (1' at top | 1 | | | | | | | | | | | | | : | | | | | | |
| and bottom of stairs | | | i | | | | | | | | | | | | | | | | Ì | |
| and ramps).** | | | | | | | | | | | | | | | | | | | i | |
| No handrails on | +- | Y | X | Y | - | | X | \dashv | | | | | | | | | | X | х | 6 |
| ramps. | | 1 | A | A | : | | A | | | | | | | | | | - | ^ | Λ | U |
| - ampo | \vdash | <u> </u> | | <u> </u> | | | | - | | | | | | | | | - | | | |
| GUARDRAILS, BARRICADES, | | | | | | | | | | | | | | | | | | | | |
| PEDESTRIAN/VEHICULAR | | j | | | | | | | | | | | | | | | 1 | | | |
| SEPARATION | | į | i | | | | | | | | | | | | | | | | | |
| | | ┼ | | - | | | Н | | | Х | | X | | | | | | - | | 2 |
| Barricades not detect- | | | | | | | | | | ^ | | Α. | | | | | | - | | 2 |
| able (blind cane). Guardrails not | + | ! | ┡- | ļ | ļ. <u></u> - | | | | | | | | - | | | <u> </u> | | | | - ' |
| | | 1 | ! j | | X | | | | | | | | | | | | | | | 1 |
| continuous. | ╁ | ╁ | - - | _ | <u>!</u> | | | ·· | | | | | | | | | | | | |
| Guardrails too low | | į | | | | | | | | | X | X | | | | ĺ | , | X | | 3 |
| (less than 42"). | ┦— | ļ., | ļ — | | ļ | | | | | | | | | | | | ļ | | | |
| No pedestrian | - | ļ | ŀ | | | | | | | | | | İ | | | | | | | |
| guardrails. | ╄ | <u> </u> | <u> </u> | | Ĺ., | Щ | | | | | | | | | <u> </u> | | ļ | | | |
| Inadequate | | |] . | | | | | | | | | | | | | İ | | | | |
| guardrails. | igspace | ╙ | | | | | | | | | | | | | | ļ | ļ | ļ | | |
| Guardrail mesh | X | ļ | | | X | X | X | X | Х | | | | X | | | | | | | 7 |
| hazardous.* | <u> </u> | L | ļ | | <u> </u> | | | | | | | | | | | | | | | |
| No detectabel sep- | X | X | X | X | X | X | X | X | Х | | | | | X | X | Х | X | Х | X | 15 |
| aration between bike- | | | | | | | | | | | | | | | | | | | | |
| way and pedestrian way. | | 1 | | | ļ | | | | | | | | | | | | _ | | | |
| No detectable sep- | | : | ! | | | | | | | | | | | | | | | | X | 1 |
| aration between road- | | | | | | | | | | | | | | | | | | | ! | |
| way and walkway. | 1 | | ! | <u></u> . | | L | | _ : | | | | | | | | | | <u> </u> | | |
| No detectable sep- | | 1 | | | | | | | | | | | | | | | | | | |
| aration between | 1 | | | | | | | | | | | | | | | | | | | |
| walkway and parking lot | - | - | | | L | Щ | | | Щ | | | | | | | | | | | |
| Unprotected sidewalks | | | | | | | | | | | | | | | | | X | | X | 2 |
| (cars, edges, etc.). | _ | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| ESCALATORS/ | | | | | | | | | | | | | | | | | | i | | |
| ELEVATORS | ↓. | <u> </u> _ | | | | | _ | | | | | L | | | | | | | | |
| Escalators. | _ | <u> </u> | | | \sqcup | | _ | | | X | | | | | | | | | | 1 |
| Elevators. | | | | | | | | | | X | | X | | | | | | | | 2 |

| | - | , <u> </u> | Γ- | 1 | | 1 | Γ. | | Γ- | | | | | | | | | _ | _ | |
|-------------------------|--------------|------------|------|----------|----------|----------------|--|-----------------|--------------|------|--------------|-----------------|------|----------|--|----------|----------------|----------------|----------|-------|
| В | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| REST AREAS/BENCHES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 13 | | _ | _ | | | | |
| Resting places not | х | | | - | Ť | - | Ė | X | _ | | X | X | | | | X | | 10 | | |
| under cover (wind, | - | | | | | | | Λ | ^ | ĺ | ^ | ^ | • | | | A |] ; | | X | 8 |
| rain, sun). | | | | - | | | | | | | | | | | } | | | | | |
| Not enough places to | \vdash | - | ίπ | X | X | x | x | - | _ | | | Н | | X | X | † — | X | X | | 9 |
| stop and rest. | | İ | | | - | | | | | | | | | ^ | 1 | | ^ | Λ | | 9 |
| No provision for | ┢ | - | | 1 | | | | - | | _ | | | | - | | ┝- | | - - | - | - |
| scenic overlook. | - | | | | | l | | | | | | | i | |] | | | | | |
| Benches too high or | Х | H | - | X | | \vdash | !- | - | _ | X | | Н | | <u> </u> | | | - | | | 3 |
| low, too deep or | | ĺ | | | | | 1 | | | | | | | | • | | | | l i | ا د |
| shallow, or with | | | İ. | | | l | | | | | | | | | | | | | | |
| .no armrest. | | | | İ | ١. | | | | | | | | | | | | | | | |
| | _ | | | | | | | | | | | | | | | | | | | |
| EMERGENCY PROVISIONS | | | | | | | | | | | | | | | | | | | | |
| No alternative route | | | | | | | | | | | | | - | | _ | | | | | |
| for flood condition | | | | | | | | | | | | | | | | | | | | |
| structures. | | İ | ! | | | | | | | | | | | | - | | | | | |
| No pedestrian emergency | Y | v | v | v | v | v | v | v | v | X | X | х | x | X | - | | | | | _ |
| provisions. | ^ | Λ | ^ | ^ | ^ | ^ | Λ | Λ | Λ | A | Α. | X | X | X | Х | X | X | X | X | 19 |
| F | | - | | - | \vdash | - | - | — | | | | | | - | - - | | | - | H | |
| LIGHTING ILLUMINATION | | | | | | | 1 | | | | | | | | | | | | | |
| Significant change of | _ | | | | _ | - | | | | | | \vdash | | | | - | | | \vdash | |
| light level in tunnel | | | | | | | ĺĺ | | | | | | | | | | | | | |
| at entrance. | | | | | | | | | | | | | | | | i | | | | |
| Interior lighting not | | | | | - | | - | | | | | | | | | | | | - $+$ | |
| adjusted to outside | | | | | | | | | | | | | | | | | | | | |
| light conditions. | | | | | | | | | | | | | | | | | | | | |
| Glare at end of | | - | | | | - | | - - | \vdash | | - | \vdash | | | | | - | | | |
| tunnel.* | | | | | | | | | | | | li | | | | İ | | | | i |
| Tunnel too | | - | ┝┤ | \vdash | \vdash | - | - | _ | - | | | Н | | | - | | ├─┤ | - | \vdash | |
| dark.* | | | | | | | | | | | | | | | | | | | | |
| Glare and flashing | X | _ | x | X | X | X | x | | Н | | X | | | X | X | | x | | X | 11 |
| lights from vehicles.* | | | | | | | - | | | | | | | 21 | ^ | | Λ. | | ^ | 11 |
| Poor | | - | | | | X | X | | \vdash | | | X | X | X | X | Y | X | X | | 9 |
| illumination.* | | | | | | | | | | | | | | | | • | 1 | ^ | | |
| | | | Н | | | ۲ | - | | - | | | | _ | | | - | - | | | |
| SIGNAGE/MEDIA CUES | | | | | | | | | | | | | | | | | | | | |
| No signage indicating | Y | Y | Y | y | v | y | v | v | v | х | X | х | X | X | x | 7, | X | | | 1.5 |
| location of rest | Λ | Λ | Λ | ^ | Λ | Λ | ^ | Λ | ^ | ^ | ^ | ^ | Λ | A. | X | X | X | X | X | 19 |
| areas. | | | | | | | | | | | | | | | | | | | | |
| Street signs too | | | | | | - | - | | | - | | | | | | | | | | _ |
| high, too low or far. | | | | | | | | | | | | | | | | | | | | |
| | X | x | X | X. | X | X | x | x | x | х | X | х | Х | Х | X | x | х | х | X | 19 |
| the visually impaired. | | | * | | * | | Th. | " | ^ | v | Т | ^ | ^ | Λ | Λ | ^ | A | Ā | A. | 19 |
| Traffic lights with | | | | | | | | | | | | $\vdash \dashv$ | | | | \vdash | | | | |
| short green cycle. | 1 | | | | | | | i | | · | | | 1 | | | | | | | |
| Complicated instruc- | | | | Н | \vdash | | \vdash | - | \vdash | | | \vdash | | | <u> </u> | - | | | - | |
| tions on sign. | | | | | | | | | | - \ | | | | | | | | | | |
| | | | | | | | <u>. </u> | | Ш | | | لبا | | | L., | | | | | |

| В | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
|-------------------------|------|------|----------|------------|------|------|------|------|------|------|------|---------|----------|----------|----------|----------|----------|----------|------|-------|
| | 1 | 2 | 3 | | 5 | | | 8 | 9 | 10 | | | | 14 | 15 | | | 18 | | |
| No warning of | | | <u> </u> | - | - | | | _ | - | | | | | | | | - | - | - | |
| potential hazards. | | | | ۱. [| | | ļ | | | | | | | | | | | İ | | |
| No orientation cue as | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | Х | X | X | 19 |
| to start of approach. | | | | | | | 1 | | | | | | | | | | | | | |
| Lack of orientation | X | X | X | X | X | X | Χ | X | X | X | X | X | X | X | Х | Х | X | X | X | 19 |
| cues generally | | | | | | | | | | | _ | | | | l | | | | | |
| Pathway junctions | X | X | | | Х | | | | | | | | | | | | | X | X | 5 |
| which are not at 90 | | | | | | | | | | | | - | | | ĺ | | | į | | |
| degree angle or | | | | | | | | | | | İ | | | | | | | | | |
| which curve. | | | | | | | | | | | | | | | | | <u> </u> | | | |
| No detectable orienta- | | | | | | | | | | | | | | | | | j | | i | |
| tion cue as to start | | | | | | | | | | | | | | | | | ; | ļ | į , | |
| of channelization. | | | | | | | | | | | | | | <u>L</u> | | | <u> </u> | <u> </u> | | |
| Walkway not | X | X | X | X | Х | X | Х | X | X | | | | X | Х | х | х | X | X | x | 16 |
| channelized. | | | | | | Ц | _ | | | | | | | | | | | | | |
| Traffic | | | | | | | X | | | | ļ | Ì | | | | | | X | | 2 |
| noise. | | | | | | Ц | | | _ | | | | | | | L | Ц. | | | |
| | | | | | ! | | | | | | | | | | | | | | | |
| MICRO-CLIMATIC FACTORS | | - | <u> </u> | | _ | | | | | | | <u></u> | <u> </u> | | | <u> </u> | <u> </u> | | | |
| High wind gusts | | X | X | X | | X | X | X | X | X | X | X | | Х | X | | | X | X | 14 |
| present.* | | _ | <u> </u> | <u>L</u> . | | | | | _ | | | Ĺ | | | | | <u> </u> | | | |
| Wind generated | | | | | | | | | | | | ļ | | | | - | | | X | 1 |
| by traffic.* | | _ | <u>!</u> | | | | | | | | | | | | | | | <u> </u> | | |
| Inadequate provision | | | | | | | | | | | | | | | | | | | | |
| for rain-water rumoff. | | - | <u> </u> | _ | | _ | | | | | | | | | <u> </u> | 1_ | Ļ | ļ | | |
| Walkways and sidewalks | | X | X | X | X | X | X | X | X | | | X | | | | | | | X | 10 |
| not kept clear of snow, | | | | | | | | | | | | | | | | | | | | |
| ice and debris. | | | | | | | | | | | | | | 1 | | | | | | |

^{*}Response to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| С | Over | Over | Over | Under | Over | Over | Over | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Over | over 0 | TOTAL |
|---------------------------------|--------------|------------|----------|------------|----------|----------|--------------|----------|----------|-------------|----------|--------------|--|--------------|------------|-------------|----------|--|--|--|
| LOCATION & END | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| CONDITION Portions of | - | H | Н | | <u> </u> | X | <u> </u> | — | <u> </u> | | | X | - | X | X | ļ | X | | X | 6 |
| | 1 | | | | | Λ | | | | | | ^ | | ^ | Λ. | | A | | Λ. | ١٥١ |
| walkway are hidden from view | | | | | | ļ | | | İ | i | | | | | | | İ | | į | |
| | | | | | | ļ | | | | | | 1 | | | | | | | . 1 | i l |
| (crime potential). | Ļ., | Ŀ | Ц | | _ | L | L | L | Щ | | | | <u> </u> | | ₩ | | <u> </u> | ļ | | |
| Overcrossing/ | | | | | | | | | | Х | | | X | | Ì | | } | | | 2 |
| undercrossing is | | | | | ļ | 1 | | | | | | Į | | | | | | | | |
| not close to public | | | | | | | | | | | | | | ļ | Ì | | | | | |
| transportation stop. | ↓_ | L | | | ļ | <u> </u> | ļ | L | <u> </u> | L | | | <u> </u> | ļ., | | <u> </u> | ļ | ļ | | |
| No sidewalk at end | | | | | | | } | | | İ | | | ļ | | | | 1 | | | |
| condition. | | L | L | | _ | L_ | | _ | L_ | | | ļ | | <u>L_</u> | <u> </u> | | | | | <u> </u> |
| Parked cars | ļ | | | | i | | | | | | | | | |) | | | | | |
| restrict approach.* | | | ' | | | | | | | | |] | | | | | 1 | | | |
| Parked cars | | | | | | | | | | | | | | | | | | | | |
| obstruct view of | | | | | | | | | | | | | | | | | 1 | | | |
| approach.* | | | | | | | | | | | | | | | 1 | | |] | | |
| No accessible | i | | | | <u> </u> | | | | | | | | Х | | | Х | | | | 2 |
| parking. ** | | | | | | | | | | | | | | | 1 | | ĺ |] | | 1 |
| No detectable | †- | † – | - | | | | T | | | Х | | | X | | | Х | 1 | | | 3 |
| pedestrian cross- | 1 | | | | | | | ļ | ļ | | i | | | 1 | | | | | | |
| walk to approach. | | | İ | | | | ĺ | | | | | [| | | ĺ | | | | | |
| Driver's view of | 1 | T | | | _ | \vdash | \vdash | - | X | | | | x | | † | \vdash | | | | 2 |
| pedestrian blocked.* | | | | | | | | | | | | | - | | | | | | | |
| WALKWAYS | T | T | - | _ | - | | | | - | | | | | | | | | | | |
| Pedestrian walkway | ╀ | - | - | | | | ┼- | - | 1 | \vdash | | - | | ╁ | ├ | ├- | ├- | | | ┨ |
| on only one side. | | 1 | | | | | | ŀ | | | | | | | | | | | 1 | |
| Walkway less than | | ╁ | - | | | | - | - | ├- | | | ├ ┈─ | | ╁─┈ | ┼ | ├— | ├─ | | | ┟╌╌┫ |
| 48" (too narrow).** | (| | ! | | | | | | | | | | 1 | | | ļ | | | | |
| Headroom below | + | 1 | H | - - | | ├ | ├ | | | | | | | \vdash | ├ | | \vdash | \vdash | - | ╁╌┪ |
| 6'10".** | | | | | | | | | | | | • | | | | | | | | |
| Walkway through | ┼- | - | | | | - | ├ | - | - | V | | - | - | \vdash | | | v | 1 | | 2 |
| "long"tunnel | | | | | | | | | | X | | 1 | į | | | | X | 1 | | |
| (over 40'). | | | | | | | | | İ | 1 | | İ | 1 | | | | | 1 | 1 | |
| Structure vibrates | ┼ | \vdash | \vdash | <u> </u> | X | | ├- | | - | <u> </u> | | <u> </u> | - | \vdash | - | - | \vdash | | | ┰ |
| | 1 | | | | ^ | | | | | | | | i | | | İ | | | | |
| (traffic). Abrasive or per- | \vdash | \vdash | Н | | X | | \vdash | <u> </u> | _ | | | X | | X | ├ ─ | ├ | 1 | X | X | 5 |
| forated material on | | | | | ^ | | | | | | Ì | ^ | | ^ | | | | ^ | ^ | |
| | 1 | | | | | | | | | | | | | | ļ | | | | | |
| vertical surface | } | | | | | | | | | | | | | | | | | | ì | |
| adjacent to walkway. | \vdash | ┼ | - | | - | - | | | | ├ | <u> </u> | X | - | ₩ | | ├- ~ | | ┼— | ļ | - |
| Objects project into | | | | | | | | | | | | ^ | | |] | | | | | |
| walkway (signs, trees | 1 , | | | | | | | | | | | | | | | | | | | |
| etc.). | L | | <u>_</u> | Ĺ | | <u> </u> | <u>L.</u> | L_ | <u> </u> | l | L | <u> </u> | L | <u> </u> | <u> </u> | <u>L</u> | <u> </u> | <u>L.</u> . | <u> </u> | <u>. </u> |

| | 1 | 1 | <u> </u> | <u>ا ا</u> | | Τ- | F | | ! | | | , | 1 | | |) | | Ţ | 1 | - |
|------------------------|-----------|-----------|----------|------------|--------|----|----|-----|----|----------|-------------|--------------|------|---------|----------|----------|-------------------------|-------|--------|---------------|
| | er | er | er | de | er | er | er | er | er | der | Over | J. | i. | អូ | ä | 4 | Under | i. | ř | TOTAL |
| | Over | 6 | S | Un | 8 | 0 | Š | 8 | Š | Ľ. | ð | 3 | Over | Ž | Over | Š | ŭ | Over | Over | [0] |
| SURFACE MATERIALS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 14 | 15 | 16 | 17 | 18 | 19 | |
| Manhole covers and | † | | | | X | ,— | | | | | | | | | | 1 | | | | 1 |
| gratings in walkway. | | | | | | | | | | | | | | | | | ! | | | |
| Highly reflective | Т | Т | | | | 1 | | | | | | | | - | _ | | | | | |
| surface materials. | | | | | | | | | | | | | | | | | | | | |
| Grooves and patterns | Ţ | | | | | | Х | X | | | | | | X | x | | | X | | 5 |
| (cast into walkways or | ŕ | | | | | ŀ | | | | | | | | | | | | | | |
| caused by small | | l | | | | | | | | | | | | | | | | | | |
| paving units). | | | | | | | | | | į | | [] | | | | | | | | |
| Large, deep expan- | X | 1 | - | | - | | | | | | | | х | | | | | X | X | 4 |
| sion joints. ** | | | | | | | | | | | | | | | | | | | | |
| Uneven and irreg- | Γ | | Г | П | _ | | X | Х | | | | | | Х | X | | | X | | 5 |
| ular surfaces. | İ | | | | | | | | | | | | | | | | | | | |
| Loose and soft | | - | | | | | | | | | X | | | | | | - | | 1 | 1 |
| surfaces (gravel, | | 1 | i | | | | | | | | | | | | | | | | | 1 |
| sand, etc.). | | | | | | | | | | | | l | | | | | | | | |
| Rough | Τ_ | | _ | | | | X | х | - | | | | | X | х | | - | | | 4 |
| Surfaces. | l | | | | İ | ĺ | | | Ì | | | | | | - | | | | | 7 1 |
| Discontinuous sur- | † | | | | | | | Н | | | X | | | - | - | | | | | $\overline{}$ |
| face materials. | l | | | | | | | | | - | | | 1 | | · | . | | | - 1 | 1 |
| | \vdash | - | _ | Н | | | | H | - | - | | | | | | | | | | |
| MAINTENANCE | | | | | | | | | | i | | | | i | i | 1 | | | | |
| Debris from erosion | | | | | | | | | | | | Х | | x | х | | | | \neg | 3 |
| on walkway. | |] | | | | - | | | | | i | | | 1 | 1 | 1 | į | | ŀ | |
| Disrepair (frost | | | | | | | | | | | | | | | X | | $\overline{\mathbf{x}}$ | X | | 3 |
| heaves, potholes, etc. | | | | | |] | | | | | | Ī | ļ | | | į | | ĺ | - 1 | |
| Disrepair from vandali | | 1 | X | | X | | | | | | | | 一 | X | X | | | X | х | 6 |
| or accident (handrails | , | | | [| | l | | | | | | | I | Ì | ۱ ۱ | Í | ı | - | - 1 | l |
| guardrails, etc.). | | | | | į | | | | | ŀ | i | | | 1 | | ĺ | | | | - [|
| | - | Н | | | ⊣ | | | - | - | \dashv | | | | | \dashv | | | | | |
| STAIRWAYS | <u> </u> | | | | _ | | | | | | | | | i | | | | į | ı | 1 |
| Stairway is only means | | | | | | | X | | ļ | | X | | X | | i | | | | 7 | 3 |
| of access to structure | ** | | | | \Box | | • | | _ | | | | | ! | | | | | | l |
| Stairway only on one | | | Ì | | | | ļ | | | Ì | | X | | | | | | | | $\neg \gamma$ |
| side of structure.** | _ | | | 4 | | | _ | | _ | | | | | | | 1 | | | 1 | |
| Poorly lighted steps, | | | | | X | | Ì | | | | X | ļ | - 1 | X | X | 1 | ļ | X | 1 | 5 |
| stairs, ramps. | <u> </u> | | | | | | _ | - 1 | - | _ | | | | | | | | | | |
| Treads less than 11" | | X | | } | | - | | | | | | | | | X | | | | X | 3 |
| (too small). | <u> </u> | Щ | 4 | | | _ | | | 4 | | { | | | | | | | | | |
| Projecting | | | | | | | X | l | | | | | | | 3 | | Ī | | X | 2 |
| nosings. | _ | <u>,,</u> | _ | | - | _ | _ | | | | _ | | | | | | | | | |
| Open | | X | | | X | | 1 | | X | | - | i | | | | | | | X | 4 |
| risers. | <u>.,</u> | J | _ | 4 | - | 4 | | | 4 | | \dashv | | | \perp | | $ \bot $ | | - | |] |
| Risers greater than | X. | X | | | X | | | | | | ļ | | | | | | | X | | 4] |
| 7" (too high).** | | | | | 4 | _ | _ | _ | 4 | \dashv | | | | | _ | | | | | |
| Curb greater than | | | | | | | | | | | ļ | | X | | | | 1 | | | 1 |
| 6" (too high). | | į | | | _ | | | | | | i | | | | | | 1 | | | |

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| Step (settlement) | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
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| comfortable grasp. | <u> </u> | ļ. <u></u> | | _ | | | ļ | | | | | <u> </u> | | | | | <u>ļ </u> | ļ <u>.</u> | <u> </u> | _ |
| Handrail material metal | X | X | Х | İ | X | | X | X | X | | X | X | | X | | | 1 | X | Х | 12 |
| or aluminum (hot in hot | | | | İ | | | İ | | | | | | | | | | | | | |
| weather, cold in cold). | <u> </u> | | ! | <u> </u> | | | | | | | | | | | | | ├ | | | |
| Handrails not | X | X | Ì | į | Х | | Х | | | | X | | X | X | | | | X | X | 9 |
| continuous. | | ! | - | | | _ | | - | | | | ! | ļ | ļ | | <u> </u> | ļ | ļ <u>.</u> | ļ | ļ <u>.</u> |
| Handrails don't extend | X | | | | X | | X | | X | | X | İ | ĺ | | | | | X |] | 6 |
| far enough (l' at top | | į | | | : | | [| | | | | | | • | | | | İ | | 1 |
| and bottom of stairs | | | | } | : | | į | | | | | | | İ | | | | } |] | |
| and ramps).** | ↓_ | <u> </u> | ļ | <u> </u> | | _ | | | | | | <u> </u> | ļ | <u> </u> | | <u> </u> | • | <u> </u> | <u> </u> | <u> </u> |
| No handrails on | | | | | | | | | | | | | | | | X | ì | | | 1 |
| ramps. | | <u>.</u> | | | | | | | : | | | | | | | | | | | |
| GUARDRAILS, BARRICADES, | | | | ļ | | | | | | | | ļ | | | | | | | | |
| PEDESTRIAN/VEHICULAR | | 1 | i | | | | | | ! | | | | | l | į | 1 | | ; | | |
| SEPARATION | į | | | | | i | | 1 | | | | | ĺ | ŀ | ļ ! | | | | | |
| Barricades not detect- | +- | - | + | - | | - | ! | | X | - | | | - | - | | | | | İ | 1 |
| able (blind cane). | | | l | , | ì | | ! | | - | | | | ĺ |] | | İ | | | | 1 |
| Guardrails not | +- | | ├— | - | !- | | | | X | - - | | | X | | | | ┼— | ┼— | - | 1 2 |
| continuous. | | | - | 1 | | | į | | | | | | | | | | | | | - |
| Guardrails too low | + | † | | X | - | - | | | | | | | | - | - - | | i | | | 1 |
| (less than 42"). | | | | | 1 | | İ | ! | | • | | | 1 | ĺ | į | | 1 | 1 | | - |
| No pedestrian | +- | ╁ | \vdash | - | | | - | H | - | <u>;</u> | | 1 | | | | | - | | ╁ | +- |
| guardrails. | | | | Ì | | • | 1 | | İ | i | | | | - | ! | | | | | |
| Inadequate | ┼ | | ┪ | | - | - | ┧ | | | 1 | | - | ├ | | · | | | +- | 1 | 1 |
| guardrails. | } | | İ | | ļ | | | ĺ | | İ | | | | | | i | | | 1 | } |
| Guardrail mesh | + | ╀ | ┾- | - | Х | \vdash | ┝… | | | 1 | X | X | X | ├ | | | ├ | X | x | 6 |
| hazardous.* | 1 | | | ł | l^ | | | ĺ | [| | , A | A | " | | | | ļ | 1 | 1 | |
| No detectabel sep- | + _₹ | + v | X | v | V | v. | v | v | v | - | | $\frac{1}{x}$ | | X | - | X | X | - | | 13 |
| aration between bike- | ^ | ^ | 1 | 1 | ^ | ^ | 1 | ^ | | | | ^ | 1 | ^ | | 1 | ^ | | | 1 13 |
| way and pedestrian way. | | | | | | | ļ | l | i | | | 1 | | l | | 1 | 1 |] | | |
| No detectable sep- | + | <u> </u> | \vdash | ╁ | \vdash | - | - | <u> </u> | ╄ | X | | ┼ | | ├— | ├ | | + | 1 | | |
| aration between road- | | | 1 | 1 | | İ | | | | ^ | | İ | | l | į | İ | ł | | | * |
| way and walkway. | | 1 | ļ | | İ | ļ | | İ | | ļ | ĺ | | 1 | ł | | ļ | | ì | İ | 1 |
| No detectable sep- | 1 | - | | ╬ | | } | ┼ | • | - | | ├ | <u> </u> | + | ╁ | ⊢ | - | - | | | |
| aration between | | | | | | | | i | | 1 | | | | | | | | | | |
| walkway and parking lot. | | | | | | | | (| | | | | | | | | | | | |
| Unprotected sidewalks | + | \vdash | 1 | +- | | \vdash | - | } - | | | | + | - | | | | - | | | + |
| (cars, edges, etc.). | | | | | | | | 1 | ŀ | | | | | | | | | | | |
| | + | - | + | + | - | - | \vdash | + | • | - | | + | | \vdash | | | + | | - | 1 |
| ESCALATORS/ | | | ļ | 1 | | | | | | | | | ļ | | | | | | | |
| I mar mar a more o | 1 | | ĺ | İ | - | 1 | | | 1 | i | | ĺ | | Ì | | | | | 1 | |
| ELEVATORS | | _ | - | - | - | - | - | - | - | - | _ | - | - | _ | - | | | | | |
| Escalators. | _ | _ | | | | 1 | | | | | | | 1 | | | | | | | |

| С | Over | Over | ver | nder | Ver | ver | ver | ver | Over | Under | wer | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
|-------------------------|--------------|----------------|----------|------|-----|-----|-----|-----|------|-------|-----|------|------|------|------|------|----------|--|----------|----------|
| REST AREAS/BENCHES | 1 | | | | | | | | | | | 12 | j | | | | | | _ | |
| Resting places not | X | - | X | - | Ť | Ť | | X | | | | X | | 17 | 10 | 10 | | 10 | 1 | 6 |
| under cover (wind, | | | | | | | | | | | | | | | | | | | | _] |
| rain, sun). | L | L | | | | | | | | | | | | | | | | | į | |
| Not enough places to | | X | X | X | X | | | | X | X | X | X | X | X | | X | X | X | Х | 14 |
| stop and rest. | L_ | | | | | | | | | | | | | | | | | Ĺ | | |
| No provision for | X | X | | | | | | | | | | | | | | | | | | 2 |
| scenic overlook. | <u> </u> | L | | Ц | Ц | | | _ | L | | _ | | | | | | | ļ <u>. </u> | | |
| Benches too high or | | | | | | | X | | | | | | | | | | | | | 1 |
| low, too deep or | | | | | | | | ĺ | | | | | | | | Į | ĺ | | | |
| shallow, or with | | | | | | | | | | | | | 1 | | | | | | [·] | |
| no armrest. | L_ | | | | | | | | | | | | | | | L | | | | |
| EMERGENCY PROVISIONS | | | | | | | | | | | | | | | | | | | | |
| No alternative route | X | | | | | | | | | | | | | | | | X | | | 2 |
| for flood condition | | | | | | | | | li | | | | | | | | | | | i I |
| structures. | | _ | | Ц | | | | | | | | | | | | | | | | |
| No pedestrian emergency | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 18 |
| provisions. | | L | | | | | | L | | | | | | | | | | | | |
| LIGHTING ILLUMINATION | | | | | | | | | | | | | | | | | | | | |
| Significant change of | <u> </u> | | Г | - | | | | | _ | | | | | | | | X | | | 1 |
| light level in tunnel | | | ŀ | | | | | | ļ | ĺ | | | | | | | - | | | |
| at entrance. | | | | | | | | | | | | | ļļ | | | | | | | 1 1 |
| Interior lighting not | | Г | | | | | | | | X | | | | | | | | Γ. | | ī |
| adjusted to outside | | | | | | | | | | | | | | | | | | | | |
| light conditions. | <u> </u> | L | L | | _ | | | | | | | | | | | | | | | |
| Glare at end of | | ĺ | | | | | | | | | | | | | | | | | | |
| tunnel.* | ļ., | L | L | | | | _ | _ | | | | | | | | | | | | |
| Tunnel too | | | | | | | | | | | i | | | | | | X | | | 1 |
| dark.* | | <u> </u> | _ | | | | | _ | Ш | | | | | | | L | | | | |
| Glare and flashing | X | X | X | X | X | X | | | X | X | | X | X | | | X | İ | X | X | 13 |
| lights from vehicles.* | | ļ | _ | | | Щ. | ٠. | | _ | | | | | | - | | <u> </u> | | | |
| Poor illumination.* | X | ļ | | | X | | | | | X | | | | X | X | X | X | X | Į į | 8 |
| TITUMINACION.~ | L | L | | | | | | | | | | | | | | | | <u> </u> | | |
| SIGNAGE/MEDIA CUES | | | | | | | | | | | | | | | | | Ì | | | 1 1 |
| No signage indicating | X | X | X | X | X | X | X | X | Х | | X | Х | | X | Х | _ | X | Х | X | 16 |
| location of rest | | | | | | | | | | | | | | | | | | } | | |
| areas. | | | | | | | | | | | | | | | | | |] | | |
| Street signs too | | | Γ | | | _ | | | | | | | | | | | | _ | | |
| high, too low or far. | <u> </u> | Ļ., | _ | | | L, | L., | | Ц | | | Ш | Щ | | | | ļ.,_ | | | igsquare |
| No special signage for | X | X | X | X | X | X | X | X | X | Х | X | X | X | X | X | X | X | X | X | 19 |
| the visually impaired. | Ĺ., | | L | Ļ. | _ | | | L | | | | L | | | | | | | | |
| Traffic lights with | | | | | | | | | | | | | | | | | | | | |
| short green cycle. | _ | | \vdash | | _ | | | _ | _ | | | | | | | | <u> </u> | | <u> </u> | |
| Complicated instruc- | | | | | | | | | , | | | | | | | | | | | |
| tions on sign. | | | | | L | L | | | | | L | | | | | | <u>L</u> | | <u></u> | |

| С | Over | Over | Over | Under | Over | Over | Over | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
|---|----------------|------|---------|-------|------|------|------|------|------|----------|------|----------|------------|------|------|------|-----------|----------|----------|-------|
| | 1 | 2 | | | | | | | | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| No warning of | | | | | | | | | _ | | | | Х | - | | | | | | 1 |
| potential hazards. | 1 | Ľ | | | _ | | | | | Ĺ | | L | | | | | <u> </u> | ļ | | |
| No orientation cue as to start of approach. | Х | Х | X | X | Х | Х | X | Х | X | X | X | Х | Х | X | X | Х | Х | X | Х | 19 |
| Lack of orientation cues generally | Х | X | Х | X | X | X | X | X | X | X | Х | X | Х | X | X | Х | X | X | X | 19 |
| Pathway junctions | Х | X | | - | | - | | | | | | X | Х | Х | X | X | | | | 7 |
| which are not at 90 | | | | | | | | | | | | | | į | į | | | | | |
| degree angle or | | į | | ! | | İ | | | | | | | ļ | | | | | | | |
| which curve. | | | | | | | _ | | | | | | <u> </u> - | | | | Ĺ | | | |
| No detectable orienta- |] | | | | | | | | | | | ! | | | | | İ | 1 | ļ | } |
| tion cue as to start | 1 | | | | | | | | | | | | 1 | | | | | | | İ |
| of channelization. | <u> </u> | L | _ | | | _ | _ | | | | | ļ | | | | | | <u> </u> | | |
| Walkway not | X | Х | Х | X | Х | X | X | X | Х | | | X | | X | X | | X | X | X | 15 |
| channelized. | _ | _ | | | | | L., | ļ | | <u> </u> | | <u>.</u> | | | ! | | <u></u> _ | <u> </u> | <u> </u> | |
| Traffic | | | X | X | | | | | X | | | Х | X |] | | | X | X | X | 8 |
| noise. | ļ 1 | | | | | | | | | | | | | | | | | | | |
| MICRO-CLIMATIC FACTORS | | | | | | | | | | | | | | | | | | | - | |
| High wind gusts | X | X | Х | | X | X | X | X | X | | Х | X | Х | | | Х | | Х | X | 14 |
| present.* | | ĺ | | | | | | | | | | | į į | | | | 1 | | | į |
| Wind generated | - | | | Х | | | | | | | | | | | | | | 1 | | 1 |
| by traffic.* | | | | | | | | | | | , | | | 1 | | | ļ | | | |
| Inadequate provision | | | | | | | | | | | | | | | X | | X | X | | 3 |
| for rain-water runoff. | <u> </u> | | <u></u> | | | | | | | | | | | | | | | | | |
| Walkways and sidewalks | | | X | | | Χ | | | | | | Х | | X | X | | X | | | 6 |
| not kept clear of snow, | | | | | | | | | | i | | - | | | 1 | ĺ | | | | |
| ice and debris. | | | | | | | | | | | | | | 1 | | | | | | 1 |

^{*}Response to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| · · · · · · · · · · · · · · · · · · · | | | _ | | _ | |
|---|--|--|--|--|----------------|--|
| ר | H | H | ١٢ | l i | ı, | 'AL |
| ט | Over | Over | Over | Over | Over | TOTAL |
| LOCATION & END CONDITION | 1 | 2 | 3 | 4 | 5 | |
| Portions of walkway are | | X | † <u> </u> | | | 1 |
| hidden from view | | • | ŀ | 1 | | |
| (crime potential). | | | ì | 1 | | |
| Overcrossing/undercrossing | | \vdash | 1 | 1 | | |
| is not close to public | 1 | l | 1 | 1 | | |
| transportation stop. | • | | l | , | | |
| No sidewalk at | X | x | х | \vdash | | 3 |
| end condition. | ~ | | | | 1 | _ |
| Parked cars | | 一 | ╁─ | - | | |
| restrict approach.* | 1 | l | 1 | 1 | | |
| Parked cars obstruct | Η- | 1 | | | | \vdash |
| view of approach.* | | | Ì | 1 | | |
| No accessible | _ | | | | \vdash | |
| parking.** | i | 1 | 1 |] | | |
| No detectable pedestrian | ├ | X | ┨— | ┼ | - | 1 |
| | | ^ | 1 | ĺ | | 1 |
| crosswalk to approach. Driver's view of | ⊢ | | ┿ | | ├- | |
| | | 1 | | 1 | ĺ | |
| pedestrian blocked.* | <u> </u> | ! — | ╄- | | | |
| WALKWAYS | | Ì | | | l | |
| Pedestrian walkway on | | ┼── | ┼ | 1 | + | |
| only one side. | | 1 | 1 | į | 1 | |
| Walkway less than | | - | ╀- | ┼ | \vdash | |
| 48" (too narrow).** | Į. | 1 | | 1 | ĺ | |
| Headroom below | ₩ | ┿╾╌ | ┿ | ᡛ | ₩ | ┢ |
| 6'10".** | l | 1 | | 1 | | ŀ |
| Walkway through | ┈ | ┼ | ╁─ | | - | ! — |
| "long" tunnel | i i | ĺ | 1 | 1 | | |
| (over 40'). | 1 | | İ | ı | ĺ | |
| Structure vibrates | ├ | ⊢ | ╂ | ╄ | ╄ | \vdash |
| | (| t | | 1 | l | |
| (traffic). | | - | ₩ | ╂─ | ┢ | |
| Abrasive or perforated | 1 | 1 | X | ł | • | ļ |
| material on vertical sur- | 1 | 1 | 1 | I. | l | 1 |
| face adjacent to walkway. | ├ | ┡ | ┿- | ╀ | ├ ── | ├ ─ |
| Objects project into | ! | 1 | 1 | 1 | 1 | 1 |
| walkway (signs, trees, etc.). | | ├ | ╄ | ┿ | ├- | ├ |
| SURFACE MATERIALS | | | 1 | | | |
| Manhole covers and gratings | | 1 | \top | | 1 | 1 |
| in walkway. | | | | | | 1 |
| Highly reflective | | 1 | + | ┼ | ┰ | Η- |
| surface materials. | | | | | | |
| Grooves and patterns (cast | | | l _x | † — | 1 | 1 |
| into walkways or caused by | | 1 | ^ | ļ | | i |
| small paving units). | | 1 | 1 | | | • |
| omort bearing outen). | <u> </u> | | ــــــــــــــــــــــــــــــــــــــ | ┖- | | 1 |

| | | 1 | 1 | ; | | |
|----------------------------|--|--------------|------------------|--|--|-------|
| D | H | H | H | r. | l r | AL. |
| י ע | Over | Over | Over | Ove | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | - |
| Large, deep | X | - | - | | x | 2 |
| expansion joints. ** | ^ | [] | - | İ | " | - |
| Uneven and irregular | | | X | TX | | 2 |
| surfaces. | | | i | | | |
| Loose and soft surfaces | \vdash | | - | 1 | | _ |
| (gravel, sand, etc.). | ĺ | ĺ | - |] | | ļ |
| Rough | | | X | X | \vdash | 2 |
| surfaces. | | | 1 | | | Ì |
| Discontinuous surface | | | Х | X | | 2 |
| materials. | 1 | | | 1 | į | ļ |
| | | | | | | |
| MAINTENANCE | | | | | | ļ |
| Debris from erosion | | | | | | |
| on walkway. | | | <u> </u> | | l | : |
| Disrepair (frost heaves, | | | Ţ | | X | 1 |
| potholes, etc.). | | <u>.</u> | <u> </u> | <u> </u> | <u> </u> | |
| Disrepair from vandalism | X | Х | | | | 2 |
| or accident (handrails, | } | | | j | | ļ |
| guardrails, etc.). | | | | | | |
| STAIRWAYS | | | | | | |
| Stairway is only means | | i | X | X | — | 2 |
| of access to structure. ** | | | Α. | ^ | | ~ |
| Stairway only on one | | | | 1 - | \vdash | ├─ |
| side of structure.** | | | İ | | | |
| Poorly lighted steps, | | | † ~ - | X | | 1 |
| stairs, ramps. | | | | | Ì | _ |
| Treads less than 11" | | _ | X | X | | 2 |
| (too small). | | | | | | |
| Projecting | | | | X | | 1 |
| nosings. | } | | | - | | |
| Open | | | X | X | | 2 |
| risers. | | | - | | | |
| Risers greater than | | | Х | | | 1 |
| 7" (too high).** | | <u></u> | 1 | i | | |
| Curb greater than | | - | ! | | | |
| 6" (too high). | | | <u></u> | <u> </u> | _ | |
| Step (settlement) between | | | | ; | | |
| approach and structure.** | <u> </u> | ļ | | <u> </u> | | |
| Dangerous stair | i | , 1 | } | 1 | | l . |
| location. | | | i | 5 | 1 1 | ! |

| D | Over | Over | Over | Over | Over | TOTAL |
|------------------------------------|-------------|--|--|--|--------------|----------|
| RAMPS | 1 | ĺ | - 3 | 4 | 5 | |
| Only ramps | 1 | Х | | | · | 1 |
| provided. | | L., | | | | <u> </u> |
| Only ramps provided on | | | | | X | 1 |
| one side of structure. | - | <u> </u> | ļ | - | | |
| Pathway leading to over- | | | | İ | 1 | |
| undercrossing too | | | | | | |
| steep and long.** | | x | ⊢ | ├ | Х | 2 |
| Ramp too long (exceeds 30 feet).** | | ^ | | l | ^ | |
| Ramp too steep (slope | + | X | ļ | ┡ | X | 2 |
| greater than 1:12).** | - | ^ | | 1 | ^ | _ |
| Ramp too narrow (less | + | - | ├ | ├─- | | - |
| than 48").** | | ļ | • | | | |
| Cross slope greater than | + | | | \vdash | ╌ | \vdash |
| 1:50 (too steep). | | ļ | | | | |
| Slope across structure | + | | ┢ | | - | _ |
| too long and steep.** | | ļ | ļ | ĺ | | |
| No curb | X | х | | Г | | 2 |
| cuts.** | | <u> </u> | <u> </u> | | | 2 |
| Helical | | х | | Ţ | | 1 |
| ramp. | | | | <u>L.</u> | | |
| Ramp layout | | | | | | |
| inconvenient. | | <u> </u> | | <u> </u> | | |
| Abrupt transition to | | l | l | l | | |
| connecting walkways. | | | _ | <u> </u> | <u> </u> | |
| Ramp exits directly into | | | | 1 | | |
| street or parking area (less | | | ĺ | l | | |
| than 6' clearance at bottom | | ļ · | l | 1 | | |
| of ramp). Bollards in the middle | - | <u> </u> | ┞ | | ļ | <u> </u> |
| | - | | 1 | i | | |
| of entrance to the | | | | 1 | | |
| ramp. Steps in the middle | | | | - | | |
| of the ramp. | | | | | | |
| or one semps | + | _ | | ļ | \vdash | _ |
| HANDRAILS | | | | ļ | Ì | |
| Handrails higher than | \top | Х | † | х | Г | 2 |
| 36" (too high). | | l | | " | | |
| Handrails lower than | | \Box | | <u> </u> | <u> </u> | |
| 32" (too low).** | | | | | | |
| | | | - | | _ | |

| | | _ | : | _ | | |
|---|--------------|----------|----------------|-------------|--|------------------------|
| D | Over | Over | Over | Over | Over | TOTAL |
| | 1 | , | 3 | 4 | 5 | |
| No | | T - | X | <u> </u> | X | 2 |
| handrails.** | | | L | | | |
| Handrail inadequate for | | Γ. | | | | |
| comfortable grasp. | L. | | | | | |
| Handrail material metal |] | X | } | Х | | 2 |
| or aluminum (hot in hot | | | Ì | ł | | |
| weather, cold in cold). | <u> </u> | | <u> </u> | <u> </u> | | إبيا |
| Handrails not | | Х | | Х | | 2 |
| continuous. Handrails don't extend | ļ | | ļ | | - | igwdap |
| | | X | Ì | ĺ |] . | 1 |
| far enough (1' at top and | | | Ì | ļ | | |
| bottom of stairs and ramps).** No handrails on | <u> </u> | - | - | - | | $\vdash \vdash \vdash$ |
| | | | ļ | | | |
| ramps. | | | | | _ | Н |
| GUARDRAILS, BARRACIDES, | | | | | | |
| PEDESTRIAN/VEHICULAR SEPARATION | | | | | | |
| Barricades not detectable | ┪ | \vdash | | | | Н |
| (blind cane). | | | | | | |
| Guardrails not | | | | | | |
| continuous. | | | | İ | | İ |
| Guardrails too low | Х | Х | | | Х | 3 |
| (less than 42"). | | | | | [| |
| No pedestrian | | | | Γ_ | | |
| guardrails. | | | <u>L</u> _ | <u> </u> | <u> </u> | |
| Inadequate | | | | | | |
| guardrails. | L | | | <u> </u> | <u> </u> | |
| Guardrail mesh | | | X | | 1 | 1 |
| hazardous.* | _ | ļ | - | ļ | <u> </u> | Ш |
| No detectable separation | X | Х | | | | 2 |
| between bikeway and | | | | | | |
| pedestrian way. | - | - | | ļ | | - |
| No detectable seperation between roadway and walkway. | | | | ļ | | |
| No detectable separation | \vdash | \vdash | | | - | |
| between walkway and parking | | | ļ | | ł | |
| lot. | | 1 | | | | |
| Unprotected sidewalks | <u></u> | | 1 | <u> </u> | | |
| (cars, edges, etc.). | [| ļ | | ĺ | | |
| | | | | | | \vdash |
| ESCALATORS/ELEVATORS | | | | | | <u> </u> |
| Escalators. | | | | | | |
| Elevators. | | | | | | |
| | | L | | L | L | |

| | | | 1 | | · · · · · | |
|------------------------------|--|--|----------------|----------|-----------|----------------|
| D | ı. | 片 | l _k | l i | ដូ | ľAĽ |
| D | Over | Over | Over | Over | Over | TOTAI |
| REST AREAS/BENCHES | 1 | 2 | 3 | 4 | 5 | |
| Resting places not under | 1 | | | | | |
| cover (wind, rain, sun). | <u> </u> | | <u> </u> | <u> </u> | ļ | |
| Not enough places to | X | Х | Х | X | X | 5 |
| stop and rest. | | <u> </u> | ↓_ | <u> </u> | Ц. | _ |
| No provision for | | 1 | | | | |
| scenic overlook. | L | ļ | <u> </u> | <u> </u> | <u> </u> | |
| Benches too high or low, | | | | 1 | | |
| too deep or shallow, or | İ | l | | | | |
| with no armrest. | | | ├ | ⊢ | | _ |
| EMERGENCY PROVISIONS | | | | | | |
| No alternative route for | | | - | | | - |
| flood condition structures. | | l | | l | | |
| No pedestrian emergency | Х | х | х | х | Х | 5 |
| provisions. | _ ^ | <u> </u> | ^ | ^ | ^ | |
| | | | _ | _ | | |
| LIGHTING ILLUMINATION | | | | L., | | |
| Significant change of light | | | | [| | |
| level in tunnel at entrance. | | | | 1 | | |
| Interior lighting not | | | | Ī | | |
| adjusted to outside | 1 | | | | : | |
| light conditions. | | <u> </u> | | | Ĺ | |
| Glare at end | | | | i ' | | |
| of tunnel.* | | <u> </u> | <u> </u> | <u> </u> | ldash | |
| Tunnel too | | 1 | ļ | İ | | |
| dark.* | ļ | ļ | _ | <u> </u> | | |
| Glare and flashing |] | l | Ì | X | ' | 1 |
| lights from vehicles.* | | ,, | 177 | | | , , |
| 1 | Х | Х | X | X | 1 | 4 |
| illumination.* | - | | - | - | - | _ |
| SINAGE/MEDIA CUES | | | | | | |
| No signage indicating | | | \mathbf{x} | | х | 2 |
| location of rest areas. | | 1 | | | - | - |
| Street signs too high, | | ├─ | | | \vdash | |
| too low or far. | | | | | | |
| No special signage for | х | X | х | x | Х | 5 |
| the visually impaired. | | | | | | |
| Traffic lights with | | | | | | |
| short green cycle. | | <u>L</u> | | | | L |
| Complicated instructions | | | | | | |
| on signs. | L | | <u> </u> | L | | |
| No warning of potential | | X | | X | X | 3 |
| hazards. | l | | L_{-} | | ļ ļ | |

| D | Over | Over | Over | Over | Over | TOTAL |
|--|------|------|------|------|------|-------|
| | 1 | 2 | 3 | 4 | . 5 | |
| No orientation cue as to start of approach. | Х | Х | X | Х | Х | 5 |
| Lack of orientation cues generally. | Х | Х | X | х | х | 5 |
| Pathway junctions which are not at 90° angle or which curve. | | | | | | |
| No detectable orientation cue as to start of channelization. | | | | | | |
| Walkway not channelized. | Х | Х | | | | 2 |
| Traffic noise. | Х | | | | | 1 |
| MICRO-CLIMATIC FACTORS | | | | | | |
| High wind gusts present.* | | | | | | |
| Wind generated by traffic.* | | | | | | |
| Inadequate provision for rain-water runoff. | | | | | | |
| Walkways and sidewalks not kept clear of snow, ice and debris. | | Х | | | | 1 |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| E | Under | er | er | Under | er | Under | ľAL |
|------------------------------|-------|-------------|------|---------|------|--------------|--------|
| _ | Ω'n | Over | Over | nn. | Over | Ü n c | TOTAL |
| LOCATION & END CONDITION | 1 | 2 | 3 | 4 | 5 | 6 | |
| Portions of walkway are | | | | | | | |
| hidden from view | ĺ | | ٠, | | | | |
| (crime potential). | | ĺ | | | í | | |
| Overcrossing/undercrossing | | | | | | | lΠ |
| is not close to public | | | | | | | |
| transportation stop. | | | | | | | L_J |
| No sidewalk at | | | | | | | |
| end condition. | | | | | | | |
| Parked cars | | | | | | | |
| restrict approach.* | | | | | | | |
| Parked cars obstruct | | | | | |] | |
| view of approach.* | | | | | | | |
| No accessible | | | | | | | |
| parking.** | | | | | | | |
| No detectable pedestrian | Х | | - | | | | 1 |
| crosswalk to approach. | | | | | | | |
| Driver's view of | | | | | | | |
| pedestrian blocked.* | | | | | | } | |
| WALKWAYS | | | | | | | |
| Pedestrian walkway on | | | | | | | |
| only one side. | | | | | | | |
| Walkway less than | | | | | | х | \Box |
| 48" (too narrow).** | . : | | | | | | |
| Headroom below | | $\neg \neg$ | | | | Х | \Box |
| 6'10".** | | | | | | | |
| Walkway through | | | | X | | | 1 |
| "long" tunnel | | | | | | | |
| (over 40'). | , | | | | | | 1 |
| Structure vibrates | | | | | | | |
| (traffic). | | | | . ! | | | i I |
| Abrasive or perforated | X | | | | | | 1 |
| material on vertical sur- | | | | | | | ŀI |
| face adjacent to walkway. | | | | ٠. | | | |
| Objects project into | | \Box | | | | | -, |
| walkway (signs, trees, etc.) | • | | | | | | |
| SURFACE MATERIALS | | | | | | | |
| Manhole covers and gratings | | | | | | | |
| in walkway. | | | | | | | |
| Highly reflective | | | | | | | |
| surface materials. | | | | | | | |
| Grooves and patterns (cast | | | х | | X | | 2 |
| into walkways or caused by | | | | | | | |
| small paving units). | | | | | | | |
| | | | | <u></u> | | L | |

| E | Under | Over | Over | Under | Over | Under | TOTAL |
|---------------------------|--|--|------|-------|------|--------------|--------|
| | 1 | 2 | 3 | 4 | _5 | 6 | |
| Large, deep | | | | | | | |
| expansion joints. ** | | | | | | <u> </u> | |
| Uneven and irregular | Ì | | х | | х | | 2 |
| surfaces. | <u> </u> | | | | | | |
| Loose and soft surfaces | | | | | | 1 | 1 |
| (gravel, sa d, etc.). | ļ | | | | | | |
| Rough | | x | | | X | | 2 |
| surfaces. | ↓ | | | | | | |
| Discontinuous surface | | | Х | | x | | 2 |
| materials. | | | | | | | |
| MAINTENANCE | | | | | | | |
| Debris from erosion | 1 | | | | | | \neg |
| on walkway. | | | | | | | 1 |
| Disrepair (frost heaves, | | | | | | | |
| potholes, etc.). | 1 | } { | | | | 1 | |
| Disrepair from vandalism | 1 - | | | | | | |
| or accident (handrails, | 1 | | | | | | ļ |
| guardrails, etc.). | | | | | | | |
| STAIRWAYS | | | | | | | |
| Stairway is only means | | | | | | | |
| of access to structure.** | ļ | | | ĺ | | i i | |
| Stairway only on one | 1 - | | | | | - | |
| side of structure. ** | | | | | 1 | | Ì |
| Poorly lighted steps, | | | | | | \Box | |
| stairs, ramps. | | | | | | | |
| Treads less than 11" | | | | | | | |
| (too small). | | | | | | | |
| Projecting | † | | | I | | † - † | |
| nosings. | } | | | | | | |
| Open | | † | | | | | |
| risers. | | | | | | | 1 |
| Risers greater than | | | | | | | |
| 7" (too high).** | | | | | | | |
| Curb greater than | | | - | | | | |
| 6" (too high). | | | | | | | |
| Stap (settlement) between | | | | | | | |
| approach and structure.** | | <u> </u> | | | į | | |
| Dangerous stair | | | | | | | |
| location. | | į į | | | 1 | | |
| <u></u> | J | | | | L | | |

| | L | | | <u>.</u> | | L L | J |
|------------------------------|----------|----------|------|----------|------|--|-------|
| E | Under | Over | Over | Under | Over | Under | TOTAL |
| | 15 | 8 | 3 | Un | δ | <u>.</u> | To |
| RAMPS | 1 | 2 | 3 | 4 | 5 | 6 | · |
| Only ramps | | [| X | | | Ţ | 1 |
| provided. | | | | | | | |
| Only ramps provided on | | | | ٠. | | | |
| one side of structure. | | | | i I | | <u>. </u> | |
| Pathway leading to over- | 1 | | | X | | | 1 |
| undercrossing too | | | | | | | |
| steep and long.** | | | | | | | |
| Ramp too long (exceeds | | | | | | | |
| 30 feet).** | | | | | | | |
| Ramp too steep (slope | Т | | | | | | |
| greater than 1:12).** | | | | | | | |
| Ramp too narrow (less | | | | | | | |
| than 48").** | | | | | | | |
| Cross slope greater than | Τ | | | | | | |
| 1:50 (too steep). | | | | | | | |
| Slope across structure | 1 | | X | | X | | 2 |
| too long and steep.** | | | | | | l | |
| No curb | | | | | | | |
| cuts.** | | <u> </u> | | | | | |
| Helical | T | | | | | | |
| ramp. | | | | | | | |
| Ramp layout | | | | | | | |
| inconvenient. | | | | | | | |
| Abrupt transition to | | | | | | | |
| connecting walkways. | | | | | | | |
| Ramp exits directly into | | | | | | | |
| street or parking area (less | | | | | : | Ì | |
| than 6' clearance at bottom | | | | | | | |
| of ramp). | | ! | | | | | |
| Bollards in the middle | | | | | | | |
| of entrance to the | 1 | | | | | | |
| ramp. | | | | | | | |
| Steps in the middle | | | | | | | |
| of the ramp. | <u> </u> | | | | | | |
| HANDRAILS | | | | | | | |
| Handrails higher than | | | Х | | X | | 2 |
| 36" (too high). | | | Λ | | Α. | | |
| Handrails lower than | \top | | | | | | |
| 32" (too low).** | | | | | | [] | |
| | | | | | | L | |

| E | Under | Over | Over | Under | Over | Under | TOTAL |
|--------------------------------|--------------|----------|--------------|-------|----------|----------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| No | | | | Х | | | 1 |
| handrails. ** | $oxed{oxed}$ | | | | <u>-</u> | | |
| Handrail inadequate for | 1 | | Х | | X | | 2 |
| comfortable grasp. | <u> </u> | | | | | | |
| Handrail material metal | Х | | ' | | | | 1 |
| or aluminum (hot in hot | 1 | ļ | | | | | |
| weather, cold in cold). | ↓ | | | | | | |
| Handrails not | | | | | | - | |
| continuous. | - | | | | | | |
| Handrails don't extend | | | | | X | | 1 |
| far enough (1' at top and | J | | | | | | |
| bottom of stairs and ramps).* | ` | | - | | | | |
| No handrails on | | | | | | | |
| ramps. | <u> </u> | | | | | | |
| GUARDRAILS, BARRICADES, | | | | | | : | |
| PEDESTRIAN/VEHICULAR SEPARATIO |) N | | | | | | i |
| Barricades not detectable | 1 | | | | | | |
| (blind cane). | | İ | | | | | |
| Guardrails not | † | | | | | | |
| continuous. | | | | | | | |
| Guardrails too low | 1 | | | • | | | |
| (less than 42"). | | | | | | | |
| No pedestrian | Ţ | X | | Х | | | 2 |
| guardrails. | 1 | <u> </u> | | | | | |
| Inadequate | | | | | | | |
| guardrails. | | | 1 | | | | |
| Guardrail mesh | 1 | | | | | | |
| hazardous.* | | ļ | | | | | |
| No detectable separation | Х | Х | X | | X | | 4 |
| between bikeway and | 1 | | 1 | | | - | |
| pedestrian way. | | | <u> </u> | | | <u> </u> | |
| No detectable seperation | | | | | | | |
| between roadway and walkway. | 1_ | | | | | ļ | |
| No detectable separation | | | | | | | |
| between walkway and parking | | | | | | | |
| lot. | ļ | | | | | | |
| Unprotected sidewalks | | X | | X | | | 2 |
| (cars, edges, etc.). | | | | | | | |
| ESCALATORS/ELEVATORS | | | | | | | |
| Escalators. | | 1 | | | ļ ——— | | |
| Elevators. | | | | | | | |
| | _ | | L | | | | L |

| <u> </u> | · | <u> </u> | | <u> </u> | | Γ. | |
|------------------------------|----------|----------|------|-------------------------|--|--------------|--------------|
| E | Under | 닕 | ī | Under | H | Under | TOTAL |
| |]nd | Over | Over |) I | Over | ğ | [<u>5</u> |
| REST AREAS/BENCHES | += | 2 | 3 | 4 | 5 | 6 | - |
| Resting places not under | + + | - | | | - | - | |
| cover (wind, rain, sun). | İ | | | | | | 1 |
| Not enough places to | x | | х | <u>x</u> | х | | 4 |
| stop and rest. | ^ | | Α | ^ | ^ | Ì | " |
| No provision for | | | | | | | |
| scenic overlook. | | | | ŀ | | Ì | |
| Benches too high or low, | ļ | | | | | | |
| too deep or shallow, or | | | | | } | | |
| with no armrest. | | | | | Ì | |] ; |
| | - | | | | | \vdash | |
| EMERGENCY PROVISIONS | 1 | | | | 1 | | L |
| No alternative route for | | | | | ŀ | | |
| flood condition structures. | | | | | | | |
| No pedestrian emergency | X | Х | X | X | X | | 5 |
| provisions. | <u>L</u> | | | | | | |
| LIGHTING ILLUMINATION | | | | | | | |
| Significant change of light | - | | | <u> </u> | | | |
| level in tunnel at entrance. | | | | | | | |
| Interior lighting not | + | | | X | | | - <u>-</u> - |
| adjusted to outside | | | | ^ | į | ļ | * |
| light conditions. | | | | | ĺ | | |
| Glare at end | ┼ | | · | × | | | I |
| of tunnel.* | | | | ^ | - | Ì | * 1 |
| Tunnel too | - | | | x | | <u> </u> | <u> </u> |
| dark.* | | | | ^ | | | |
| Glare and flashing | ┿ | | | | | | |
| lights from vehicles.* | | | | | | | 1 1 |
| Poor | ┨ | | | X | - | | 1 |
| illumination.* | | | | 1 | 1 | | * |
| TTT GHILLIGG TOLLY | | | | <u> </u> | | | |
| SIGNAGE/MEDIA CUES | | | | | | | |
| No signage indicating | 1 | | | $\overline{\mathbf{x}}$ | | | 1 |
| location of rest areas. | | | | | J | | |
| Street signs too high, | | | | | | | 1 |
| too low or far. | | | | |] | | |
| No special signage for | X | Х | X | X | Х | | 5 |
| the visually impaired. | | | | | | | |
| Traffic lights with | | | | | | | |
| short green cycle. | | | | 1 | | | |
| Complicated instructions | | | | | 1 | | |
| on signs. | | | | | 1 | | |
| No warning of potential | | | | | | | |
| hazards. | | | | | | | |
| | • | | | | | 1 | <u> </u> |

| E | Under | Over | Over | Under | Over | Under | TOTAL |
|--|-------|------|------|-------|------|-------|-------|
| | 1 | 2 | _3_ | 4 | 5 | 6 | |
| No orientation cue as to start of approach. | Х | | Х | | Х | | 3 |
| Lack of orientation cues generally. | X | X | Х | Х | X | | 5 |
| Pathway junctions which are not at 90° angle or which curve. | | | | | | | |
| No detectable orientation cue as to start of channelization. | | | | | | | |
| Walkway not channelized. | X | Х | Х | X | X | | 5 |
| Traffic noise. | | | | | | | |
| MICRO-CLIMATIC FACTORS | | | | | | | |
| High wind gusts present.* | | | | | | | |
| Wind generated by traffic.* | | | | | | | |
| Inadequate provision for rain-water runoff. | | | | | | | |
| Walkways and sidewalks not kept clear of snow, ice and debris. | X | | | | | | 1 |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| | | | | | - | | | | _ | _ | | - | | | | |
|------------------------|--------------|----------|-----|-----|------|------------------|----------|-----|--------------|--|-----------------------------|----------|----------------|------|-------------|----------|
| F | 7er | rer | rer | rer | ıder | ver | ver | rer | der | Over | Over | Under | Over | Over | Under | TOTAL |
| 7 | δ | 6 | δ, | б | Ü | Ó | 6 | Б | 5 | 5 | ó | ŭ | ဝ် | 6 | Ur | ĭ |
| LOCATION & END | 1 | | | | | | | | | | | 12 | | | | |
| CONDITION | _ | ۷, | | 7 | , | ٥ | ′, | ٥ | 7 | 10 | 11 | 12 | 1.3 | 14 | 12 | |
| Portions of | | | 7 | Н | Х | М | | | х | Х | | | | | X | 4 |
| walkway are hidden | | | | | - | | | | 1 | ^ | | | | | ^ | 4 |
| from view | | | | | | | | | : | | | | | | | |
| (crime potential). | | | | | | | | | : | | | | | | | |
| Overcrossing/ | | \vdash | Н | | | | | | - | | | | _ | | | |
| undercrossing is | | | | | | ' | | | | | | | | | | |
| not close to public | | | | | | | | | | | | | | | | |
| transportation stop. | | | | | | | | | | | | İ | | | | |
| No sidewalk at end | - | - | | _ | Н | | \vdash | - | - | | | <u> </u> | | ├ | | |
| condition. | | | | | | | | | | | | | | | | |
| Parked cars | | | Н | | Н | Т | Н | | | | | | <u> </u> | | | |
| restrict approach.* | | | | | | | | | | | | | | | | |
| Parked cars | - | | H | _ | Н | - | | | \vdash | - | | _ | | | | - |
| obstruct view of | | | | | | | | | | | | | | | | |
| approach.* | | | | | | | | | | | | | | | | |
| No accessible | - | H | Н | H | | | | - | | | | | - | - | - | |
| parking.** | | 1 | | | | | | | | } | | | | | | |
| No detectable | \vdash | H | Н | | | - | Н | H | X | | | | \vdash | ├ | X | 2 |
| pedestrian cross- | | | | | | | | | ^ | | | | Ì | | ^ | |
| walk to approach. | | | | | | | | | | ' | | | | 1 | | |
| Driver's view of | | - | H | - | | | Н | | | | | | | | | - |
| pedestrian blocked.* | | | | | | | | | | | | | | ļ | | |
| pedebettan beschot. | | - | - | - | | | | - | - | | | _ | | | | |
| WALKWAYS | | | | | | | | | | | | | 1 | | | |
| Pedestrian walkway | | Г | Г | | П | | | | _ | | | X | | | | 1 |
| on only one side. | | | | | | | | | | | | , A | | ł | ł | * |
| Walkway less than | | - | | _ | _ | Г | _ | Г | | | _ | | | | | |
| 48" (too narrow).** | | | | | | | | | | | | | | | | |
| Headroom below | | | | | | | | | | | | | | - | | |
| 6'10".** | | | | | | | | | | | | L | | L_ | L | |
| Walkway through | | | | | Х | П | | | Х | | | | | | х | 3 |
| "long"tunnel |] | | | | | | | | ٦ | | | | ļ | | ^` | |
| (over 40'). | | | | | | | | | | | | | | | | |
| Structure vibrates | | | Г | | | | | | | | | | - | | - | |
| (traffic). | _ | | | | | | | | | | $L_{\scriptscriptstyle{-}}$ | L | | | | |
| Abrasive or per- | Х | Х | Х | х | | Х | X | X | | | Х | X | X | Х | T | 11 |
| forated material on | | | | | | | | | | | | | | | | |
| vertical surface | | | | | | | 1 | | | | | | | | | |
| adjacent to walkway. | <u> </u> | | | L | | | | L | <u>L</u> | | | | | L | | i |
| Objects project into | | | | | | | | | | | | | | | | |
| walkway (signs, trees, | | | | | | | | | | | | - | | | | |
| etc.). | | | | | | | | | | | | ł | | | | |
| | | _ | _ | | | | _ | | | | _ | | | | | |

| ### SUFFACE MATERIALS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | E | er | er | er | er | der | e. | er | er | der | er | er | Under | ne Le | 3r | Under | ľAĽ |
|--|------------------------|----|----------|----------|----|-----|----------------|----------|--------------|----------|--------|--------|-------|----------|-------------|--------|---------------------------------------|
| SURFACE MATERIALS | | 6 | õ | 5 | 8 | 'n | S | 8 | ટ | Ωn | ð | Over | Un | Over | Over | Uni | 70. |
| gratings in walkway. Highly reflective surface materials. Grooves and patterns (cast into walkways or caused by small paving units). Large, deep expansion joints.** Uneven and irregular surfaces. Loose and soft surfaces (gravel, sand, etc.). Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism X or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Stairway only on one side of structure.** Stairway only on one side of structure.** Stairway server wands. Treads less than 11" (too small). Projecting nosings. Open risers. Risers greater than X X X X X X X X X X X X X X X X X X X | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 13 | | | |
| Highly reflective surface materials. Crooves and patterns (cast into walkways or caused by small paving units). Large, deep expansion joints.** Uneven and irreg- | | | | | | | | | X | } | | | | | | | 2 |
| Surface materials. Grooves and patterns (cast into walkways or caused by small paying units). Large, deep expan- sion joints.** Uneven and irreg- ular surfaces. Loose and soft surfaces (gravel, sand, etc.). Rough Surfaces. Discontinuous sur- face materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost neaves, potholes, etc.). Disrepair from vandalism or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Stairway only on one side of structure.** Stairway only on one side of structure.** Stairway is only means of access to structure.** Stairway only on one side of structure.** Stairway only on one side of structure.** Treads less than 11" (too small). Projecting nosings. Open risers. Risers greater than X 7 11 X 2 | | | | 丄 | L | L_ | _ | L | | | | | | | l. <u>.</u> | | |
| Crooves and patterns (cast into walkways or caused by small paving units). Large, deep expansion joints.** Uneven and irregular surfaces. Loose and soft surfaces (gravel, sand, etc.). Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, stair, ramps. Treads less than 11" (too small). Projecting nosings. Open risers. Risers greater than X 7" (too high).** Curb greater than X X X X X X X X X X X X X X X X X X X | | | F | | Ì | Ι. | [| Г | | | | | | | | | |
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| (cast into walkways or caused by small paving units). Large, deep expansion joints.** Uneven and irreg- | · - | • | x | x | | | | ļ | | | | | | | İ | | 2 |
| paving units). Large, deep expansion joints.** Uneven and irregular surfaces. Loose and soft surfaces (gravel, sand, etc.). Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Poorly lighted steps, stairway only on one side of structure.** Projecting nosings. Gpen risers. Risers greater than X | | | 1 | - | | | | | | | | | | | | | |
| Large, deep expansion joints.** Uneven and irregular surfaces. X | 1 * | | | | | | | | | | | | | | | | |
| sion joints.** Uneven and irregular surfaces. Loose and soft surfaces (gravel, sand, etc.). Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, stairs, ramps. Treads less than 11" (too small). Projecting nosings. Open risers. Risers greater than 7" (too high).** Curb greater than T (too high).** Curb greater than T (too high).** Curb greater than | | | | 1. | l | | | | | | | | | | | | |
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| surfaces (gravel, sand, etc.). Rough | | | _ | L | | ••• | | Ĺ | | | | | | |] | | , , , , , , , , , , , , , , , , , , , |
| surfaces (gravel, sand, etc.). Rough | Loose and soft | | | | | | | 1 | У | | | | | | | | 1 |
| Sand, etc.). Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism X X X X X X X X X X X X X X X X X X X | surfaces (gravel, | | | | | ļ | | İ | ** | | | | | | | | 1 |
| Rough Surfaces. Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism or accident (handrails, guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, x x x x x x x x x x x x x x x x x x x | | | | | | | | | | | | | | | | | |
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| Discontinuous surface materials. MAINTENANCE Debris from erosion on walkway. Disrepair (frost | Surfaces. | | Į | | 1 | | | | | | | | | Λ | | | 2 |
| MAINTENANCE Debris from erosion on walkway. Disrepair (frost | | | 1 | \vdash | _ | | 1 | <u> </u> | | | | | | | | | |
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| on walkway. Disrepair (frost X X X X X X X X X X X X X X X X X X X | MAINTENANCE | | | | | | | | ! | | | | | | | | |
| on walkway. Disrepair (frost | Debris from erosion | | | Τ, | - | x | | | - | x | | | y. | | | v | |
| Disrepair (frost heaves, potholes, etc.). Disrepair from vandalism X X X X X X X X X X X X X X X X X X X | on walkway. | | l | | [| | | | | •• | | . | 71 | | | Α. | 4 |
| heaves, potholes, etc.). Disrepair from vandalism X X X X X X X X X X X X X X X X X X X | | X | Ι | ╁ | | _ | x | x | Н | <u> </u> | | | | | | | 3 |
| Disrepair from vandalism X X X X X X X X X X X X X X X X X X X | • | ** | | | | | , | , | | | | | | | | | ادا |
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| guardrails, etc.). STAIRWAYS Stairway is only means of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | | | | | | | | • | | | | | | Λ | | | اد |
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| Stairway is only means of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | | | | | - | | - | - | - | | | | | | | | |
| of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | STAIRWAYS | Į | Ì | | | | | | | | | | | | | | |
| of access to structure.** Stairway only on one side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | Stairway is only means | | | х | - | | _ | x | | | | | | x | | | 3 |
| Stairway only on one side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | | | 1 | | | ٠, | | | | | | | | 21 | | | ١ |
| Side of structure.** Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | | | | | | | | | | | | | - | v | | | |
| Poorly lighted steps, X X X X X X X X X X X X X X X X X X X | side of structure.** | | İ | į | | | | | | | | | | Λ | | | 1 |
| stairs, ramps. Treads less than 11" (too small). Projecting | | x | x | x | _ | | | Y | v | 1 | | \neg | v | | | | |
| Treads less than 11" (too small). Projecting | | 1. | | , | | | | r. | r | | | | • | | | | 0 |
| (too small). Projecting X nosings. Open risers. Risers greater than X 7" (too high).** Curb greater than | Treads less than 11" | - | - | | | | | | 1 | | v | | | | \vdash | _ | 1 |
| Projecting X 1 nosings. Open risers. Risers greater than X 1 7" (too high).** | | | | | | | | | | | ^ | | | | ŀ | | 1 |
| nosings. Open risers. Risers greater than X 7" (too high).** Curb greater than | | | | | | - | | | _ | H | | | | v | | | 1 |
| Open risers. Risers greater than X 7" (too high).** | | | | | | | | | | | | | | Α | | | 1 |
| risers. Risers greater than X 1 7" (too high).** | | | \vdash | П | | | | _ | | | | | | | | | |
| Risers greater than X 1 7" (too high).** Curb greater than | - | | | | | | | | | | | | | | | | |
| 7" (too high).** Curb greater than | | у | - | | | | | | - | | \neg | | | | | | 1 |
| Curb greater than | | ^ | | | | | | | | | | | | | | | 1 |
| | | | | | | | H | | | | | | | | | \Box | |
| V \=VV \+A\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 6" (too high). | | | | | | | | | | | | | | | | |

| F | Over | Over | Over | Over | Under | Over | Over | Over | Under | Over | Over | Under | Over | Over | Under | TOTAL |
|--|----------|------|---------|------|----------|------|------|------|-------|------|------|-------|------|------|-------|-------|
| Step (settlement) between approach and structure.** | 1 X | | | | | | 7 | | | | | | 13 | 14 | 15 | 3 |
| Dangerous stair location. | | | | | | | | | | | | | | | | |
| RAMPS | | | <u></u> | | _ | | | | | | | | | | | |
| Only ramps provided. Only ramps provided on one side of | X | X | | | | | | Х | | | | | | X | | 5 |
| structure. Pathway leading to over-undercrossing | | | | | X | | | | X | | | | - | | X | 3 |
| too steep and long.** Ramp too long (ex- | Х | X | | _ | | _ | | X | | Х | X | | | X | | 6 |
| ceeds 30 feet).** Ramp too steep | X | X | | х | _ | | _ | Х | | | х | | | Х | | 6 |
| (slope greater than 1:12).** | | _ | | | | | | | | | | | | | | |
| Ramp too narrow (less than 48').** Cross slope greater | _ | | | | | | | | | | | | | | | |
| than 1:50 (too steep). Slope across structure | <u> </u> | | | _ | | | | | | | Х | | | | | 1 |
| too long and steep.** No curb cuts.** | - | X | _ | _ | ļ | X | | | _ | | | | | | | 2 |
| Helical ramp. Ramp layout | | | _ | | | | | | | | | | - | | | |
| inconvenient. Abrupt transition to | | _ | _ | _ | | X, | | | | | | | | | | 1 |
| connecting walkways. Ramp exits directly | X | - | _ | | | | | L | х | | · | | X | X | X | 5 |
| into street or park- ing area (less than 6' clearance at bottom of ramp). | | | | | | | | | | | | | Α | | Α | J , |
| Bollards in the mid- dle of entrance to the ramp. | | | | | | | | | | | | | | | | |
| Steps in the middle of the ramp. | Х | _ | _ | _ | _ | | | | | _ | | | _ | | | 1 |
| HANDRAILS Handrails higher than | - | x | X | _ | <u> </u> | Х | | | | | | | - | Х | | 4 |
| 36" (too high). Handrails lower than 32" (too low).** | | | | | | | | | | | | | | | | - |

| | | | | | <u> </u> | | | | | | | | | | | |
|--------------------------|----------------|--|-------------|----------|----------|----------|----------|----------|--------------|----------|------|--------------|--|---------------|--------------|--------------|
| F | Over | Over | Over | Over | Under | Over | Over | Over | Under | Over | Over | Under | Over | Over | Under | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 13 | | | |
| No | x | | | Х | | 1 | | | X | - | X | | | - | X | 7 |
| handrails.** | | | | | | | | | | | | •• | | | 21 | ĺ |
| Handrail inadequate for | T - | Х | • | Х | | X | | | | | | | | Х | \Box | 4 |
| comfortable grasp. | | | | | | | . | | | | | | | | | |
| Handrail material metal | | X | Х | X | | | Х | X | | X | | | X | Х | | 8 |
| or aluminum (hot in hot | l | | ľ | | | | | | | | | | | | | |
| weather, cold in cold). | | | | | | | | | i | | | | | | 1 | } |
| Handrails not | | X | X | | | | | X | | X | | | Х | X | | 6 |
| continuous. | l | | | | | | i | | | | | | | | | |
| Handrails don't extend | 1 | X | | | | X | | Х | | | | | | _ <u>x</u> | | 4 |
| far enough (1' at top | İ | | | | | | | | | | | | | | | |
| and bottom of stairs | | | | | | | | | | | | | | | | |
| and ramps).** | | | | | H | | | | | | | i | | | | |
| No handrails on | \vdash | | | X | | _ | | | Х | | | | | | Х | 3 |
| ramps. | 1 | | ' | | i | | | | | | | | | | | |
| | _ | | | | | | | | | | | | H | | | |
| GUARDRAILS, BARRICADES, | l | | | | | | | | | | | | | | | |
| PEDESTRIAN/VEHICULAR | | l | | | | | | | | | | | | | | |
| SEPARATION | | | | | | | | | | | | | ' | | } | |
| Barricades not detect- | ┼╌ | - | x | | Н | \vdash | Н | | <u> </u> | | | | _ | | | 1 |
| able (blind cane). | | | \frac{1}{2} | | | | | | | | | | | 1 | | 1 |
| Guardrails not | \vdash | Н | | | - | | - | _ | | | | \vdash | | | - | |
| continuous. | | | | | | | | | | | | | | | | |
| Guardrails too low | Х | | | | | | Н | | | | | | х | _ | | 2 |
| (less than 42"). | A | | | | | | | | | | | | ^ | | 1 | |
| No pedestrian | | | | - | | X | H | | | | | | | - | | 1 |
| guardrails. | | | | | | •• | | | | | | | | | | 1 |
| Inadequate | - | v | X | - | Н | Н | \vdash | | \vdash | | | | | - | | 2 |
| guardrails. | | ı, | Δ | | | | | | | | | | | | | |
| Guardrail mesh | İ | Y | Y | X | | v | v | х | - | | X | | \vdash | X | 1 | 8 |
| hazardous.* | | ^ | Λ | Λ | | ^ | ^ | ^ | İ | l | , n | | | " | | ٥ |
| No detectabel sep- | ¥ | Х | | Y | х | Y | | Y | Х | | Х | X | | Х | X | 11 |
| aration between bike- | ^ | l" | | A | T. | 1 | | | ^ | | - | * | 1 | 1 | * | 1 1 |
| way and pedestrian way. | | | | | | | | | | li | | | ŀ | | | |
| No detectable sep- | | | - | _ | H | X | - | | | | | | | \vdash | | 1 |
| aration between road- | | | | | | ı | | ; | | | | ļ | | | | * |
| way and walkway. |] |] [| | | | | | | | | | | | l | 1 | |
| No detectable sep- | ⊢ | | | _ | H | | Н | - | <u> </u> | | _ | | ├- | | | |
| aration between | | | | | | | | | | | | | | | | |
| walkway and parking lot. | | | | | | | | | | | | 1 | | | | |
| Unprotected sidewalks | \vdash | H | | | | | H | | - | | | | | X | | 1 |
| (cars, edges, etc.). | 1 | | | | | | | | | | | | | , A | | |
| (cars, euges, etc.). | | | | | | - | | | | - | | | | | 1 | |
| ESCALATORS/ | | | | | | | | | | ; | | | | | | |
| ELEVATORS | | | | | | | | | | | | | | | | |
| Escalators. | \vdash | 1 | - | | \vdash | \vdash | Н | | | | | | 1 | | | |
| Elevators. | - | | - | \vdash | \vdash | | Н | - | | Х | | | | | | 1 |
| Lievacors. | Ļ | L | | L. | | <u> </u> | ٺـــا | | | <u> </u> | | | | | L | اــــــــــا |

| F | Over | wer | ver | ver | nder | ver | ver | ver | Inder | Over | Over | Under | Over | Over | Under | TOTAL |
|--|----------|--------------|---------------|----------|----------|----------|----------|----------|------------|----------------|----------------|--------------|------------|--------------|----------------|---------------|
| REST AREAS/BENCHES | 1 | 2 | <u>о</u> 3 | 기 | 듼 | 2 | 7 | 9 | 1 | 10 | 11 | 12 | | | | |
| Resting places not | 1 | - | - | X | 긕 | H | \dashv | - | - | 10 | 11 | 12 | | 14 | 1) | $\frac{1}{1}$ |
| under cover (wind, | | | | ^ | | | | | | | | | | | | 1 |
| rain, sun). | | | | | | | | | | | | | | | | |
| Not enough places to | <u> </u> | Y | ¥ | X | ¥ | ¥ | ¥ | Ŧ | X | X | X | X | Х | X | X | 15 |
| stop and rest. | ^ | ** | 1 | 1 | - | 1 | ** | ** | ** | | 21 | * | 1 | A | * | 13 |
| No provision for | \vdash | <u> </u> | | - | - | Н | \dashv | H | Н | | | H | | - | | |
| scenic overlook. | i l | | | i | | | | | | | | | | | | |
| Benches too high or | H | <u> </u> | | | _ | ╼┥ | | | - | | | | | | | |
| low, too deep or | | | | | | | | į | | | i ' | ĺ | | | i | |
| shallow, or with | ļ | | | | | | | | } | | | | | | | 1 |
| 1 | | | | | | l | | | | | | | | | | |
| no armrest. | | _ | | - | \vdash | Н | - | | | | | | | | | |
| EMERGENCY PROVISIONS | | | | | | | | | | | | | | | ' | |
| No alternative route | - | | Н | | х | | _ | | X | | | | | | | 2 |
| for flood condition | 1 | ļ | | | | | | | | | | | | | | _ i |
| structures. | | | | | | | | | | | | | | | } | |
| No pedestrian emergency | x | x | X | X | x | x | X | Х | Х | х | X | X | Х | Х | х | 15 |
| provisions. | | | | | | | ! | | | | | | | | | |
| | | | | _ | _ | | | | | - | | | | | | |
| LIGHTING ILLUMINATION | | | | | | | | | | | | | | | | |
| Significant change of | | | | | X | Γ | | | | | | | | | | 1 |
| light level in tunnel | | | | | | | | | | | ļ | · | | } | • | |
| at entrance. | | 1 | | | | | | | | | | | L . | | | |
| Interior lighting not | | | | | Х | | | | | [| | | | ĺ | | 1 |
| adjusted to outside | Ì | | | | | | | | | | | 1 | | | | · [|
| light conditions. | | [| : | | | | | | | | | 1 - | | | | |
| Glare at end of | | | | | X | _ | | | | | | | | | ' | I |
| tunnel.* | | <u> </u> | | | | | | | | l | <u> </u> | | | | | |
| Tunnel too | ì | İ | | | X | | | | j | | | | 2 | | | 1 1 |
| dark.* | | | | | | | | | | | | <u> </u> | | | | |
| Glare and flashing | X | X | Х | | | X | X | X | | İ | X | X | X | X | | 10 |
| lights from vehicles.* | 1 | <u> </u> | | | | | | L | <u>L</u> . | | <u> </u> | | <u>L</u> . | _ | | |
| Poor | Ţ | X | X | | X | | Х | X | Į | | X | X | Х | | | 8 |
| illumination.* | | | | | | | | | Ĺ., | ļ | | | | | | |
| | | Γ | | | | | | | | | | | | Γ. | | |
| SIGNAGE/MEDIA CUES | ļ | _ | _ | _ | | _ | _ | <u> </u> | _ | _ | ļ. <u></u> . | | | | | |
| No signage indicating | X |) X | X | X | X | X | X | X | X | X | X | X | X | X | X | 15 |
| location of rest | | | | | | | | [| ĺ | | | 1 | | | | |
| areas. | | - | - | | - | \vdash | | \vdash | \vdash | | | | - | \vdash | | |
| Street signs too | | | | | | | | 1 | | | | | | | | |
| high, too low or far. No special signage for | v | v | v | v | v | v | v | v | X | X | x | x | X | X | X | 15 |
| | ^ | ^ | ^ | ^ | ^ | Λ | ^ | ^ | ^ | ^ | ^ | ^ | ^ | ^ | _ ^ | 13 |
| the visually impaired. Traffic lights with | \vdash | \vdash | - | - | | | - | | +- | | \vdash | \vdash | | | - | |
| | | | | | ŀ | | | | - | | | | | | | |
| short green cycle. Complicated instruc- | | | +- | \vdash | \vdash | \vdash | \vdash | \vdash | \vdash | - | - | \vdash | \vdash | \vdash | - | |
| tions on sign. | | | | | | - | | | 1 | | | | | | | |
| tions on sign. | 1 | | L | | | | <u> </u> | 1 | _ | | Ц., | 4 | <u> </u> | <u> </u> | Ц. | <u> </u> |

| | | _ | _ | | | - | | | - | | | | , | | | |
|-------------------------|----------|----------|------|------|-------|----------|------|------|-------|----------|------|-------|--|------|----------|-------|
| F | Over | Over | Over | Over | Under | Over | Over | Over | Under | | Over | Under | Over | Over | Under | TOTAL |
| | I_1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| No warning of | | | | Į | Ì | | | | ł | | | | | | | |
| potential hazards. | 1 | | ٠, | | | ļ | | | ĺ | | | | | • | | |
| No orientation cue as | X | X | Х | Х | Х | X | X | Х | х | X | Х | X | X | х | х | 15 |
| to start of approach. | Ь. | _ | | | | L. | L. | | | | | | | | | |
| Lack of orientation | X | x | Х | X | X | X | x | Х | Х | Х | х | Х | X | Х | Х | 15 |
| cues generally | | <u> </u> | | | İ | <u>.</u> | | | | | | | | | | |
| Pathway junctions | | | | | Х | Х | | | Х | | | Х | X | | Х | 6 |
| which are not at 90 | | | | | ļ | 1 | 1 | | | | | | | | ** | |
| degree angle or | | | | | | | | | 1 | | | | [| | | |
| which curve. | | | | | | | | | | | | | ļ | | | |
| No detectable orienta- | 1 | | | | | | | | - | 1 | | | | | | |
| tion cue as to start | | | Ì | | į | | | | | 4 | | | | | | |
| of channelization. | 1 | | ! | | | | | | | | | | | | | |
| Walkway not | X | х | x | X | X | - | - | X | x | | Х | х | | Х | X | 11 |
| channelized. | | | | | | | | | - | 1 i | | 1 | ļ | 1 | ^ | 11 |
| Traffic | 1 | | | | | x | Х | x | | | | Х | Х | X | | 6 |
| noise. | | | | | | | | | İ | | | | | | | Ŭ |
| | | | | | _ | | | | | | | | | | | |
| MICRO-CLIMATIC FACTORS | <u> </u> | | | | | | | | | | | | | | | : |
| High wind gusts | X | Х | Х | | | Γ | Х | X | | | Х | | X | Х | | 8 |
| present.* | | | | | | | | | | | | | | | | |
| Wind generated | , | | | | | | | | | | | | | | | |
| by traffic.* | | ' | | | 1 | ' | | Ì | | | | | | | | |
| Inadequate provision | 1 | | | | X | | | | X | | | X | | | Х | . 4 |
| for rain-water runoff. | | | | | | | | | | | | | 1 | | | |
| Walkways and sidewalks | T - | X | | | Х | Г | Х | | X | | | Х | Х | | х | 7 |
| not kept clear of snow, | | | | | 1 | | | | | | | | | | | |
| ice and debris. | | | | | | | | | | | | | | | | |
| | | | _ | _ | | | | | | \vdash | | | | | \vdash | |

^{*}Response to these problems may not indicate that the problem definately exists, but rather, in the opinion of the probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| G | Under | Over | Under | Over | Over | TOTAL |
|-------------------------------|-------|------|--|----------|-------------|----------|
| LOCATION & END CONDITION | 1 | 2 | 3 | 4 | 5 | |
| Portions of walkway are | | Х | | | | 1 |
| hilden from view | | •- | | | | ^ |
| (crime potential). | • | | | | | |
| Overcrossing/undercrossing | | | | | | |
| is not close to public | | | | | | |
| transportation stop. | |] | | | | |
| No sidewalk at | | | | | | |
| end condition. | | | | | | } |
| Parked cars | | | | i | | |
| restrict approach.* | | | | | | 1 |
| Parked cars obstruct | | | | | | |
| view of approach.* | | | | | | |
| No accessible | | | | | | |
| parking.** | | | 1 | | | |
| No detectable pedestrian | X | X | X | X | X | 5 |
| crosswalk to approach. | | | | | | 1 |
| Driver's view of | | | , | | | |
| pedestrian blocked.* | | | | | | |
| WALKWAYS | | | | | | |
| Pedestrian walkway on | X | | | | | 1 |
| only one side. | | | | | | |
| Walkway less than | | | | ļ | | |
| 48" (too narrow).** | | 1 | ļ | • | | |
| Headroom below | | | | | | |
| 6'10". ** | | | | | | |
| Walkway through | X | | X | | | 2 |
| "long" tunnel | | Ì | | 1 | | |
| (over 40'). | | | | ĺ | | |
| Structure vibrates | | | | | | |
| (traffic). | | Į | | | | |
| Abrasive or perforated | | | | Х | | 1 |
| material on vertical sur- | | | 1 | | ļ | |
| face adjacent to walkway. | | | | | | |
| Objects project into | | | | | | |
| walkway (signs, trees, etc.). | | | İ | | |] |
| SURFACE MATERIALS | | | | | | |
| Manhole covers and gratings | | | | <u> </u> | <u> </u> | \sqcap |
| in walkway. | | ĺ | | 1 | | |
| Highly reflective | | | | | | † |
| surface materials. | | | | | | 1 |
| Grooves and patterns (cast | | | - - | - | - | 1 |
| into walkways or caused by | | | | | |] |
| small paving units). | | | | | | 1 1 |
| 1 | | | ţ | <u> </u> | <u> </u> | L |

| | 1 | | | | | |
|---------------------------|-------|------|-------|------|------|-------|
| G | er | ų. | er | ī | 뉡 | 'AL |
| G | Under | Over | Under | Over | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | |
| Large, deep | | | | | | |
| expansion joints. ** | | | | | | |
| Uneven and irregular | | | | | | |
| surfaces. | | | | | | |
| Loose and soft surfaces | | | | | | |
| (gravel, sand, etc.). |]., | | | i | | |
| Rough | | | , | | | |
| surfaces. | ĺ | | | | | |
| Discontinuous surface | | | | | | |
| materials. | | | | | | |
| | | | | | | |
| MAINTENANCE | | | | | | |
| Debris from erosion | | | | | | |
| on walkway. | | | | | | |
| Disrepair (frost heaves, | | | | | | |
| potholes, etc.). | | | | | | |
| Disrepair from vandalism | | | | | | |
| or accident (handrails, | | | | | | |
| guardrails, etc.). | | | | | | |
| STAIRWAYS | | | | | | |
| Stairway is only means | | | | | | |
| of access to structure.** | | | |] | | |
| Stairway only on one | | | | | | |
| side of structure.** | | | | | | |
| Poorly lighted steps, | | | - | | | |
| stairs, ramps. | | | | | | |
| Treads less than 11" | | | | | | |
| (too small). | | | | | | |
| Projecting | | | | | | |
| nosings. | l | | | | | L |
| Open | | | | - | | |
| risers. | | | | | | |
| Risers greater than | | | | | | |
| 7" (too high).** | | | | | | |
| Curb greater than | | | | | | |
| 6" (too high). | | | | | | |
| Step (settlement) between | | | | | | |
| approach and structure.** | | | | | | |
| Dangerous stair | | | | | | |
| location. | | | | | | |

| | | | | | 3 | |
|---|---------|----------|--|------|--------------|---------------------------------------|
| G | er | 냁 | ler | Ħ | н | AL |
| G | Under | Over | Under | Over | Over | TOTAL |
| RAMPS | 1 | 2 | 3 | 4 | 5 | |
| Only ramps | 1 | X | X | X | 1 | 3 |
| provided. | l ' | ^ | , a | • | | |
| Only ramps provided on | | | | | | _ |
| one side of structure. | ļ | | | | | 1 |
| Pathway leading to over- | 1 | | - | | | |
| undercrossing too | 1 | | | | | ł |
| steep and long.** | | Ì | | | | |
| Ramp too long (exceeds | | х | | | | 1 |
| 30 feet).** | l | | | |] | l |
| Ramp too steep (slope | | Х | | | | 1 |
| greater than 1:12).** | | | | 1 | | |
| Ramp too narrow (less | | | 1 | | | · · · · · · · · · · · · · · · · · · · |
| than 48").** | | | | | 1 | |
| Cross slope greater than | | | | | 1 | |
| 1:50 (too steep). | | 1 | | | | |
| Slope across structure | Г | Х | | Х | | 2 |
| too long and steep. ** | | | ĺ | | | |
| No curb | X | X | Х | Х | Х | 5 |
| cuts. ** | | | <u> </u> | | | |
| Helical | | X | I | | | 1 |
| ramp. | | | | j | | |
| Ramp layout | | | | | 1 | |
| inconvenient. | | | | | | |
| Abrupt transition to | | | Γ | | | |
| connecting walkways. | | | | 1 | | i |
| Ramp exits directly into | | 1 | | T | | |
| street or parking area (less | i | | 1 | | | , |
| than 6' clearance at bottom | | 1 | ł | | | ĺ |
| of ramp). | | | | | | |
| Bollards in the middle | ı | | | | | |
| of entrance to the | l | 1 | l | | | 1 |
| ramp. | | | | | l | |
| Steps in the middle | T | } | | | | |
| of the ramp. | | | | | | |
| *************************************** | | | | | | |
| HANDRAILS | | <u> </u> | <u> </u> | Ļ | ↓ | |
| Handrails higher than | | | 1 | 1 | | |
| 36" (too high). | - | | ļ | ļ | | |
| Handrails lower than | | | | | | |
| 32" (too low).** | <u></u> | | | 1 | l | |

| | | | | | , | |
|---|------------------|-------------|--------------|----------|--------------|-------|
| | ra La | <u>.</u> | er. | | _ ا | ΑΓ |
| G | Under | Over | Under | Over | Over | TOTAL |
| | + | | | | | T |
| No - |] _ | 2 | 3 | 4 | 5 | |
| handrails.** | X | Х | X | X | X | 5 |
| Handrail inadequate for | † | | | | | |
| comfortable grasp. | | | | i | | |
| Handrail material metal | 1 | | | | | |
| or aluminum (hot in hot | | | } | j | 1 | |
| weather, cold in cold). | 1 | | | | | |
| Handrails not | | | | | | |
| continuous. | | | L., | | | |
| Handrails don't extend |] | | | | | |
| far enough (1' at top and | | | | 1 | | |
| bottom of stairs and ramps).** | 1 | | L | | | |
| No handrails on | | X | | X | | 2 |
| ramps. | <u> </u> | | | | | |
| CUARDRATIC RAPRICADES | | | | | | |
| GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION | | | | | | |
| Barricades not detectable | - | | | | | |
| (blind cane). | l | | | | | |
| Guardrails not | + | | | | | |
| continuous. | į į | | | | | |
| Guardrails too low | + | | | | | |
| (less than 42"). | | | | | | |
| No pedestrian | X | | - | | | I |
| guardrails. | | | | | | _ |
| Inadequate | | X | _ | | | 1 |
| guardrails. | | | | | | |
| Guardrail mesh | | | | X | | 1 |
| hazardous.* | | | | | | |
| No detectable separation | X | | X | | X | 3 |
| between bikeway and | | | | | | |
| pedestrian way. | <u> </u> | | [i | | | |
| No detectable seperation | | | | | | |
| between roadway and walkway. | | | | | | |
| No detectable separation | | | | | | |
| between walkway and parking | | | | | | |
| lot. | | V. | <u> </u> | | | |
| Unprotected sidewalks | | X | | | | 1 |
| (cars, edges, etc.). | — | | | | | |
| ESCALATORS/ELEVATORS | | | | | | |
| Escalators. | † | - | | | | |
| Elevators. | | | | | | |
| | | | | | | |

| | | · | 1 | 1 | 1 | |
|-----------------------------------|--|----------|--------------|--------------|----------|---------|
| G | er | H | er | 'n | H | AL |
| G | Under | Over | الم الم | Over | Over | TOTAL |
| REST AREAS/BENCHES | 1 | 2 | 3 | 4 | 5 | |
| Resting places not under | | | | | | |
| cover (wind, rain, sun). | İ | | | | | |
| Not enough places to | X | X | X | Х | X | 5 |
| stop and rest. | | | | | | |
| No provision for | | <u> </u> | | | | |
| scenic overlook. | 1 | | 1 | | | |
| Benches too high or low, | | _ | _ | | | |
| too deep or shallow, or |] | | | | | |
| with no armrest. | | | | l | | |
| | Ì | | | | | |
| EMERGENCY PROVISIONS | | ļ | <u> </u> | L | | |
| No alternative route for | | 1 | | | | |
| flood condition structures. | | | L., | | | |
| No pedestrian emergency | X | Х | X | ł | | 3 |
| provisions. | | | | | | |
| LIGHTING ILLUMINATION | | | | | | |
| Significant change of light | <u> </u> | | Х | | | 1 |
| level in tunnel at entrance. | 1 | | | ł | | |
| Interior lighting not | х | <u> </u> | Х | <u> </u> | | 2 |
| adjusted to outside | | | | | 1 | |
| light conditions. | | ļ | | | | |
| Glare at end | - | | X | | | $-\tau$ |
| | l ' | 1 | | } | | |
| of tunnel.* | | - | X | | | 1 |
| Tunnel too | | | " | | | _ |
| dark.* | | | ├ | | | |
| Glare and flashing | | | | | l i | |
| lights from vehicles.* | Х | <u> </u> | Х | X | X | 5 |
| Poor | ı ^ | ^ | ^ | , a | ^ | , |
| illumination.* | | | - | - | | |
| SIGNAGE/MEDIA CUES | <u> </u> | | | | | |
| No signage indicating | Х | Х | | | | 2 |
| location of rest areas. | | |] | | | |
| Street signs too high, | | <u> </u> | | | | |
| too low or far. | | | | | | |
| No special signage for | X | X | X | X | | 4 |
| the visually impaired. | | | | | | |
| Traffic lights with | | \vdash | | | \vdash | |
| short green cycle. | | | | | | |
| Complicated instructions | _ | | | | | _ |
| | | | | | | |
| on signs. No warning of potential | X | Х | Х | | х | 4 |
| hazards. | - | | | | | |
| natarus. | | | L | | | |

| G | Under | Over | Under | Over | Over | TOTAL |
|-----------------------------|-------|----------|--|----------|--|----------|
| | 1 | 2 | 3 | 4 | 5 | |
| No orientation cue as | Х | Х | X | Х | | 4 |
| to start of approach. | İ | | | | | |
| Lack of orientation | Х | Х | X | Х | | 4 |
| cues generally. | | | | | | |
| Pathway junctions which | | | | | | |
| are not at 900 angle | | 1 | | | | |
| or which curve. | | | | | | |
| No detectable orientation | | | | | | |
| cue as to start of | | ĺ | | ļ | { | |
| channelization. | l | <u> </u> | <u>. </u> | <u> </u> | | |
| Walkway not | X | Х | Х | X | | 4 |
| channelized. | | | | | | |
| Traffic | X | | | | | 1 |
| noise. | | | | | | |
| MICRO-CLIMATIC FACTORS | | | | | | |
| High wind gusts | | Х | | | | 1 |
| present.* | | Ì | | [| | |
| Wind generated | - | | | | - | |
| by traffic.* | | | | ļ | | [|
| Inadequate provision | | | | | | |
| for rain-water runoff. | | | | - | | |
| Walkways and sidewalks | | | | | | |
| not kept clear of snow, | | | | | } | |
| ice and debris. | | | | | | |
| | | | Щ | <u> </u> | | <u> </u> |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| Н | Inder | wer | ver | Inder | ver | ver | ver | Wer | ver | ver | Under | Jnder | ver |)ver | Under | Over | TOTAL |
|---|----------|----------|----------|----------|----------|----------|--------------|----------|----------|----------------|--|----------|------------|-----------------|----------|----------------|---------|
| LOCATION & END | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | - | _ | |
| CONDITION | ļ | _ | | | | Ľ | _ | Н | | | | | | | <u> </u> | | |
| Portions of | X | X | | | | | | | | | | | | X | | X | 4 |
| walkway are hidden | - | ŧ | | | | | | | | 1 | | | | | | | |
| from view | | 1 | | | | | | | | | | : | | | ŀ | | |
| (crime potential). | ļ | ļ | ┡ | L | Щ | <u> </u> | ┝ | H | | <u> </u> | _ | | | <u> </u> | <u> </u> | | ļ |
| Overcrossing/ | | 1 | | | | | | | ļ | | İ | | | | | | |
| undercrossing is | } | | | | | | | ļ | ĺ | | ļ | ; | | | | | |
| not close to public | | |] | | | | | | | | | | | ĺ | ĺ | | |
| transportation stop. No sidewalk at end | 1 | ⊢ | _ | ļ | | - | <u> </u> _ | - | | ļ | | | Ļ | | <u> </u> | | |
| | | | | | | | | İ | | • | | | | | | | |
| condition. | \vdash | _ | ╀ | L | | \vdash | \vdash | \vdash | | | - | _ | | | | - | |
| Parked cars | | | | | | | | | | | | | | | | | |
| restrict approach.* | 17. | 1 | \vdash | \vdash | \vdash | | \vdash | \vdash | | | | | | | | | ļ , |
| Parked cars obstruct view of | X | | | | | | | | | | | | | İ | | | 1 |
| 1 | | | | | | | | | | | | | | | | | |
| approach.* No accessible | ╀ | <u> </u> | ļ | <u> </u> | _ | _ | ļ | ╀ | | _ | ├— | | — | <u> </u> | _ | | |
| | - | | | | | | ļ | | ĺ | | | | | ļ | | | |
| parking.** No detectable | 77 | X | V | v | [_ | X | | ╀ | X | X | X | X | \ | ;; | + + | X | 13 |
| | A | ^ | A | Α. | | ^ | | | Α. | l x | Ι Λ | ^ | X | X | X | , x | 1 13 |
| pedestrian cross- | 1 | ĺ | | | ļ. | | ĺ | | | } | Į | | | | | | |
| walk to approach. Driver's view of | X | ╁ | ┼- | | | X | | ┼ | X | x | ├ ─ | ┝ | | ├— | X | ļ | 5 |
| pedestrian blocked.* | ^ | l | | | ĺ | ^ | l | l | ^ | ^ | 1 | | | | ^ | i | , |
| pedestrian blocked." | <u>Ļ</u> | L | <u> </u> | | L | L | L. | \perp | _ | ļ | | | <u> </u> | | | | |
| WALKWAYS | <u> </u> | | | | | | | | | | | | | | | | İ |
| Pedestrian walkway | | | | | | | | Π | | | | | | | | | |
| on only one side. | <u> </u> | Ĺ | L | L_ | L. | <u></u> | <u> </u> | L | | <u> </u> | <u>L_</u> | | <u>L</u> _ | <u>L</u> | <u></u> | | |
| Walkway less than | | | | | | l | X X | | | | | ŀ | | ļ | 1 | | 1 |
| 48" (too narrow).** | | | | | | l | | | | | | | | | <u> </u> | | |
| Headroom below | | Π | | | | | | | Ī | | | | | 1 | | | |
| 6'10". ** | <u> </u> | L | L | | | L | L | 1 | <u>L</u> | Ĺ | <u> </u> | <u> </u> | | <u> </u> | <u> </u> | <u> </u> | ļ |
| Walkway through | X | | | | X | | } | | ĺ | | X | X | | | X | | 5 |
| "long"tunnel | | | | | 1 | l | | | l | | l |] | | | | | |
| (over 40'). | \perp | | | | | | | | | | <u>L</u> _ | | | | | | |
| Structure vibrates | | | | | | | | | ĺ | | | | | | | | |
| (traffic). | | | | L | | | | | | | | | | | | | <u></u> |
| Abrasive or per- | | | | X | | | [| | | | | Х | | | 1 | Х | 3 |
| forated material on | | | | | | | | | | | | | | | | | |
| vertical surface | | | | | | | | | | | | | | | | | |
| adjacent to walkway. | _ | ┖ | L | | | \perp | | _ | | _ | | | | <u> </u> | ļ | | |
| Objects project into | X | | X | | | | | | | | | | | | | | 2 |
| walkway (signs, trees, | | | | | | | | | | | | | İ | • | | | |
| etc.). | | ĺ | | | | | | | | | 1 | | | | 1 | | 1 |

| H | Under | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Under | Over | Over | Under | Over | TOTAL |
|---------------------------|--|--------------|--|-------|--------------|------|----------|----------|------|--|-------|--------------|------|----------|--------------|--------------|--|
| SURFACE MATERIALS | | į | | | | | | | | | | 12 | 13 | 14 | 15 | 16 | |
| Manhole covers and | | | | | | | X | | _ | | | | | | | | 1 |
| gratings in walkway. | | | | | | ì | | | | | | | | | | | |
| Highly reflective | | - | | | | | 一 | - | | - | | | | | | | |
| surface materials. | | | | | | | | | | | | Į | | | | ĺ | |
| Grooves and patterns | | | | | | | _ | | | | _ | | Х | Х | | | 2 |
| (cast into walkways or | | | | | | | | | | | | | | | | | - |
| caused by small | l | Į | | | | | | | | | i | | | | | | |
| paving units). | | | | | | | | | | | | | | | | | |
| Large, deep expan- | X | \vdash | H | | X | | - | X | | - | | \vdash | | _ | | | 3 |
| sion joints.** | | | : | | - | | ĺ | | | | | i | 1 | | | | |
| Uneven and irreg- | | | - | | - | | | Х | | | | | X | Х | | | 3 |
| ular surfaces. | | | | | | | | | | | | | i | | | | |
| Loose and soft | | | Γ | | | | | Γ | | | | | l | <u> </u> | X | | 1 |
| surfaces (gravel, | | ı | | | | | | | | 1 | 1 | İ | | | | | |
| sand, etc.). | ļ | | | İ | | | 1 | | | | | | | | | 1 | |
| Rough | - | | | | - | 1 | - | x | | - | | | X | | | | 2 |
| Surfaces. | | | | | | | | A | | | | 1 | ^ | | | | - |
| Discontinuous sur- | ├- | - | Н | | | | | ┢ | | | | - | | X | | | 1 |
| face materials. | | | | | ļ | | | | | | | | 1 | ^ | | | 1 |
| Tace materials. | | | - | | | - | - | <u> </u> | | - | | | | | ļ | <u> </u> | |
| MAINTENANCE | | | | | | | | | | | | | | | | ļ | |
| Debris from erosion | | | \vdash | - | | - | \vdash | | | | | | | - | ļ | | |
| on walkway. | | | 1 | | | ĺ | | | | į | | | | | | | 1 |
| Disrepair (frost | | | | | | | 1 | | | | | 1 | | \vdash | | Х | 1 |
| heaves, potholes, etc.). | | | | | | | | | | | | | | | | - | _ |
| Disrepair from vandalism | | Х | | X | _ | | _ | - | | | | 1 | | | | | 2 |
| or accident (handrails, | | | 1 | | | | | | | | | İ | | | | | |
| guardrails, etc.). | | | | | | | | | | | | | | | | i | |
| | | - | ├- | | | - | - | ├- | | - | _ | | ļ | <u> </u> | <u> </u> | - | |
| STAIRWAYS | | | | | ļ | | | | | | | | ļ | | | | |
| Stairway is only means | | Γ | | | | | | | | | | Ţ | | | | | |
| of access to structure ** | | | | | | | | | | | | | ĺ | | | | |
| Stairway only on one | | | | | | | | | | | 1 | | | _ | | | |
| side of structure. ** | | | | | | | | | | | | |] | | İ | | |
| Poorly lighted steps, | | | | | | Π | | | | | | | | | | 1 | |
| stairs, ramps. | 1 | | | | | | | | | İ | | | | | | 1 | |
| Treads less than 11" | | Π | | | _ | Г | Γ | Γ | | | | | | | | | T |
| (too small). | | | | | | | | | | ĺ | 1 | | | | |] | 1 |
| Projecting | | | | | | 1 | | | | i | | Ī | | | | 1 | |
| nosings. | | | 1 | | | | | | | | | | | | | | |
| Open | } | | Π | | | Π | Π | Τ | | 1 | | | 1 | | | | I |
| risers. | | | 1 | | | | | | ļ | { | | | | | } | | 1 |
| Risers greater than | | | Γ | | | | Γ | | | | | | | | | | Τ |
| 7" (too high). ** | 1 | | | | | | | | | | | | 1 | | | | 1 |
| Curb greater than | | Γ | Γ | | Х | | | Г | | | Х | | | | | | 2 |
| 6" (too high). | | ť | t | 1 | ı | į. | i | 1 | ì | 1 | 1 | 1 | ı | 1 | 1 | 1 | 1 |

| | | | _ | | | | _ | _ | | | | | | | | | |
|------------------------------------|----------------|--|----------|----------|----------|----------------|----------------------|----------|----------------|----------------|--------------|--|--------------|----------|--------------|----------------|--|
| Н | Under | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Under | Over | Over | Under | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Step (settlement) | | | Ē | Н | | | | - | | | | - | | | | | |
| between approach | | | | | 1 | | | | | | | | } | | | | |
| and structure.** | | | | | | | | | | | ļ | ĺ | | | | | |
| Dangerous stair | | | | \Box | П | | | Г | | | | | | | | | |
| location. | | | | | | | | | | | | | ļ | Ì | | | |
| | ├─ | - | - | | | - | Н | - | | - - | | | | | - | | |
| RAMPS | <u> </u> | L | للدا | | | | ļ | _ | | | | | <u> </u> | | | ļ | |
| Only ramps | | X | | | Х | | | X | | | | | | X | | Х | 5 |
| provided. | _ | | | | | | | | L., | | | | | | L., | | |
| Only ramps provided | | | | | | | l | | İ | | | İ | | | | | |
| on one side of | | | | | | | İ | | | | | | | | | | |
| structure. | <u> </u> | - | \vdash | - | | X | X | \vdash | X | X | _ | | | | | | 4 |
| Pathway leading to | | | | | | Å | A | | A | , v | | | İ | | | | 4 |
| over-undercrossing | | | | | | | | | | | | | | | | | |
| too steep and long.** | - v | X | | | X | | | X | - | ļ | | _ | | X | | - x | 6 |
| Ramp too long (ex- | ^ | ^ | | | ^ | | | ^ | | | | | | ^ | | _ ^ | " |
| ceeds 30 feet).** | ļ <u></u> | | _ | | | _ | L | | _ | | _ | | ļ | ļ | | | |
| Ramp too steep | X | X | | | X | | | X | İ | | | | | | | X | 5 |
| (slope greater than | | | | | | Ì | | | | | | |) | | | | |
| 1:12).** | ├ | _ | _ | <u> </u> | - | _ | X | Ļ | _ | ļ | | _ | | <u> </u> | - | ļ | 1 |
| Ramp too narrow (less than 48').** | | 1 | | | | | ^ | | | | | | | | | | |
| Cross slope greater | | - | ⊢ | X | | ┝ | | - | | ļ | ├ | | | | - | | 1 |
| than 1:50 (too steep). | | | | Λ | | | ł | | | | | | | | | | 1 - |
| Slope across structure | ₩ | ┞- | _ | | | - | ┝╌ | ├ | - | - | | | 1 | | - | | |
| too long and steep.** | | | ŀ | | | | l | | | | | | | | | | İ |
| No curb cuts.** | - | X | x | X | x | x | ┢╌ | ┢ | X | X | X | | X | X | | | 10 |
| Helical ramp. | - | | 1 | 1 | - | ^ | +- | - | ^ | <u> </u> | | - | | - | - | - | |
| Ramp layout | - | ├ | ╁ | | - | \vdash | | \vdash | | ├─ | \vdash | | | | ┼─ | X | |
| inconvenient. | | | | | | | 1 | ĺ | | | | ĺ | | | | | |
| Abrupt transition to | | | \vdash | | \vdash | Н | | - | _ | | | | | | | | |
| connecting walkways. | 11 | i | | | | | L. | Ì | İ | | | | | | l | | |
| Ramp exits directly | | X | | | X | Γ | Π | X | | | | | | | [- | X | 4 |
| into street or park- | | l | | | | | | | | • | | | 1 | ĺ | İ | | |
| ing area (less than 6' | | | | | | | | | | | 1 | | | | 1 | | |
| clearance at bottom | | ţ | | ļ | | | | | | | İ | | | | | | |
| of ramp). | | | L | | | | | | _ | | | L | L | <u></u> | | <u></u> | <u> </u> |
| Bollards in the mid- | | | Γ | | | | | | | | | | | | | | |
| dle of entrance to | | | | | | | | | | | | | | | | | |
| the ramp. | <u> </u> | | L | <u> </u> | L | _ | | | | L | | | | | | | |
| Steps in the middle | { | | | | - | { | | | _ | | | | | | | | |
| of the ramp. | | | | | | | | | | | <u>L</u> | | L | | | L | |
| HANDRAILS | | | | | | | | Γ | | | | | | | | | |
| Handrails higher than | \vdash | X | + | \vdash | - | X | x | 1 | X | Х | - | - | X | <u> </u> | | | 7 |
| 36" (too high). | | ļ ^ | | | | " | ֓֞֟֞֓֓֓֟֝֟֝ <u>֟</u> | | " | ļ ., | | | |] ~ | | - | |
| Handrails lower than | 1 | 1 | T | 1 | Ĺ | Т | T | 1 | | \vdash | 1 | | <u> </u> | | | | 1 |
| 32" (too low).** | [| | | | | | | 1 | | | | | | | 1 | |] |
| | J | 1_ | _ | Щ. | ٠. | _ | ь. | ١. | · . | ــــ | | | L | L | | | J |

| | T | 1 | _ | L | 1 | | _ | 1 | i — | 1 | L | ы | 1 | 1 | i s | · · · · · | 1 |
|--------------------------|--|--------------|--------------|----|----|----------|----------|----------|-----|--|--------------|--|------------|----------------|--|-----------|--------------|
| H | de | er | er | qe | er | er | er | er | er | Over | Under | Under | Over | Over | Under | Over | TOTAL |
| | űn | 8 | δ | Ωn | ó | õ | B | ô | ô | 8 | Un | Un | ٥ ٠ | 8 | LD_ | 8 | [[|
| | 1 | | 3 | | 5 | | | | | | | | 13 | | | | |
| No | Ť | F | _ | Х | Ξ. | - | ļ - | _ | Ť | - | X | X | | | 1 | 1 | 3 |
| handrails.** | J | | | | | | _ | | | 1 | | | | | ļ | | |
| Handrail inadequate for | Х | | X | | | Х | X | | Х | X | | | Х | Х | | | 8 |
| comfortable grasp. | | | | | | | | | | | | | | | | | - |
| Handrail material metal | X | X | X | | Х | X | Х | X | X | Х | | | | X | | Х | 11 |
| or aluminum (hot in hot | | | | | | ĺ | | | | | | | ļ | ĺ | | | 1 |
| weather, cold in cold). | | | | | | | | ļ | | <u></u> | | | | | | | 1 |
| Handrails not | X | X | | | | | | | | | | | | X | | X | 4 |
| continuous. | | | | | | _ | | | | | | | | <u></u> | | | |
| Handrails don't extend | | | X | | | X | X | | X | X | | | Х | | | X | 7 |
| far enough (1' at top | | | | | | ĺ | | | | | | | | | | | |
| and bottom of stairs | | | | | | | | | | | | | | | | | |
| and ramps).** | | 1 | _ | _ | | _ | _ | _ | | | | <u>L</u> . | L_ | | | | |
| No handrails on | X | Х | | | | X | | | X | X | | | | | | | 5 |
| ramps. | | | | | | | | | | | 1 | | | | | | |
| GUARDRAILS, BARRICADES, | | | | | | | | | | | | | | | | | |
| PEDESTRIAN/VEHICULAR | | - | | | | | | 1 | | | ĺ | | | | | | |
| SEPARATION | İ | ļ | | | | | | ļ | | | |] | | | | | |
| Barricades not detect- | + | ┢╌ | - | - | - | | ۰ | | | - | | | | - | | - | |
| able (blind cane). | | ĺ | | | | | | ļ | | | | İ |] | 1 | | | 1 |
| Guardrails not | | | | | | í | 1 | | | } | ļ | | | | | | |
| continuous. | | | | | | | | | | 1 | | | ļ | 1 | ļ | | į |
| Guardrails too low | † — | H | | - | | - | \vdash | - | | | | | | - | | | 1 |
| (less than 42"). | | | | | | | 1 | | | | | | | i | | | |
| No pedestrian | †- | | Г | X | | | | - | - | | X | | _ | | | | 1 2 |
| guardrails. | | | | | | | | | | | | | İ | | | | |
| Inadequate | † - | | _ | | - | - | | \vdash | | | | | <u> </u> | | - | | 1 |
| guardrails. | | | | | | | | Ì | 1 | | - | | | ! | | İ | 1 |
| Guardrail mesh | | ┢ | X | | Н | - | - | | | | | | | | | | 1 1 |
| hazardous.* | | | | | | | | | ļ | | ļ | | | | - | | |
| No detectabel sep- | X | X | X | Х | X | Х | X | X | Х | X | X | X | | X | X | X | 15 |
| aration between bike- | | | | | | i | | | | 1 | | | l | | | | |
| way and pedestrian way. |) | | | | | | | | 1 | - | | | | | | | ļ |
| No detectable sep- | \vdash | | X | Х | | X | - | | | | | _ | | | X | | 4 |
| aration between road- | | | | | | | į | 1 | ļ | | ŀ | | | 1 | | | |
| way and walkway. | | | | | | | | | | | | | | | | | |
| No detectable sep- | | - | | | | - | - | - | - | ļ | | | - | | | | † |
| aration between | | | | | | | | | | | | | | | | | Ì |
| walkway and parking lot. | | | | | | | | | | | | | | | | | ł |
| Unprotected sidewalks | | | X | X | | X | Х | | X | X | Х | Х | | | X | | 9 |
| (cars, edges, etc.). | | | | | | | | | | | | | | | | | |
| ESCALATORS/ | | | - | | | | | | | | | | | - | | | |
| ELEVATORS | | ļ | | | | | | | | | | | | | | | |
| Escalators. | - | | - | | | - | - | | - | | | | | | | | |
| Elevators. | - | \vdash | _ | - | | | | | | - | | | - | | | - | |
| DICVACUIS. | 1. | <u> </u> | | | | <u> </u> | Ĺ | <u> </u> | 1 | i | | <u> </u> | | | | i | <u> </u> |

| Н | Under | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Under | Over | Over | Under | Over | TOTAL |
|---|----------|------|------|-------|------|------|------|------|------|------|-------|-------|------|------|-------|------|-------|
| REST AREAS/BENCHES | 1 | 2 | | 4 | 5 | | | | | | 11 | | | | | | |
| Resting places not under cover (wind, rain, sun). | | | | | | | | | | | | | X | | | | 1 |
| Not enough places to stop and rest. | Х | X | | X | X | | X | Х | | | Х | Х | | Х | Х | Х | 11 |
| No provision for scenic overlook. | | | | | | | | | | | | | | ĺ | | | |
| Benches too high or low, too deep or shallow, or with no armrest. | | | | | | | | | | | | | | | | | |
| EMERGENCY PROVISIONS No alternative route for flood condition structures. | | х | | Х | | Х | | х | | | | | | | | | 5 |
| No pedestrian emergency provisions. | X | X | X | X | X | X | X | Х | Х | Х | X | X | X | X | X | X | 16 |
| LIGHTING ILLUMINATION | <u> </u> | | | | | | | | | | | | | | | | |
| Significant change of light level in tunnel at entrance. | X | | | X | | | | | | | | | | | | | 2 |
| Interior lighting not adjusted to outside light conditions. | Х | | | Х | | | | | | | | | | | | | 2 |
| Glare at end of tunnel.* | Х | | | X | | | | | | | | | | | | | 2 |
| Tunnel too dark.* | X | | | X | | | | | | | Х | | | | | | 3 |
| Glare and flashing lights from vehicles.* | | Х | X | Х | X | X | X | X | X | X | | | | | - | | 9 |
| Poor illumination.* | Х | | | X | | | Х | | | | Х | | | | Х | | 5 |
| SIGNAGE/MEDIA CUES No signage indicating | x | X | x | X | x | X | X | X | X | X | | X | | | | | 11 |
| location of rest areas. | " | | | • | •• | • | •• | | | | | | : | | | | |
| Street signs too high, too low or far. | | | X | | | | | | | | | | | | | | 1 |
| No special signage for the visually impaired. | Х | X | X | Х | Х | Х | X | X | Х | Х | Х | X | Х | Х | Х | Х | 16 |
| Traffic lights with short green cycle. | | | | | | X | | | Х | X | | | | | | | 3 |
| Complicated instructions on sign. | | | | | | | | | | | | | | | | | |

| Н | Under | Over | Over | Under | Over | Over | Over | Over | Over | Over | Under | Under | Over | Over | Under | Over | TOTAL |
|-------------------------|----------|------|------|-------|----------|--|----------|------|------|----------|-------|----------|----------|----------|----------|----------|-------|
| | 1 | 2 | | | | | | | | | | 12 | 13 | 14 | 15 | 16 | |
| No warning of | | | | | Γ | x | | | X | X | | X | | | | | 4 |
| potential hazards. | <u> </u> | 1 | ., | _ | | <u></u> | <u> </u> | ļ | L_ | | | | L | | | | |
| No orientation cue as | x | Х | х | Х | Х | Х | X | Х | Х | X | X | Х | X | Х | Х | Х | 16 |
| to start of approach. | <u> </u> | | | | | <u>L </u> | | _ | | <u> </u> | | | | <u> </u> | <u> </u> | | |
| Lack of orientation | X | X | x | X | Х | x | | X | | | X | Х | X | X | x | X | 13 |
| cues generally. | | | | L. | | [| [| | L. | | | | | 1 | | | |
| Pathway junctions | Ţ | | | | | | Γ. | | | | | Х | | Х | | Х | 3 |
| which are not at 90 | 1 | | | | ' | | 1 | | | l | , | | l | | | | |
| degree angle or | i | 1 | | Ì | } | | | | | | | | 1 | 1 | l | | 1 |
| which curve. | L | | L | L. | <u> </u> | | <u> </u> | | | | | L | | <u>L</u> | | | |
| No detectable orienta- | | | | | | | | | | | | | | | | | |
| tion cue as to start | | | ĺ | | | | | | | | ţ | | | | | | |
| of channelization. | | | İ | l | | | | | | İ | ĺ | ļ | | | | | |
| Walkway not | Х | X | Х | Х | Х | Х | Х | Х | Х | X | Х | Х | Х | Х | Х | X | 16 |
| channelized. | | | | | | | | | | | | | ł | | | | |
| Traffic | | Γ | х | Х | Х | Х | X | Х | Х | X | Х | Х | | | X | Х | 12 |
| noise. | | | _ | | | | | | | | | | | | | | |
| MICRO-CLIMATIC FACTORS | | | | | | | | | | | | | | | | | |
| High wind gusts | T | X | Х | 1 | X | Х | x | Х | X | X | X | | | | Х | X | 11 |
| present.* | | | | | | İ | | | | | ŀ | | | ì | | | |
| Wind generated | | 1 | Х | | | X | \vdash | - | _ | | | Х | | 1 | | | 3 |
| by traffic.* | 1 | 1 | | ļ | | 1 | | | | | | į | | | ĺ | | |
| Inadequate provision | 1 | | | | 1 | - | - | | | | 1 | | 1 | 1 | - | | 1 |
| for rain-water runoff. | | | | | | | | | | | | | - | - | | | |
| Walkways and sidewalks | T | X | | | | | - | | | | | | | 1 | | | 1 |
| not kept clear of snow, | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| ice and debris. | | | | | | | 1 | | | | | | | | , | | |
| | | | _ | | ۱. | L_ | <u> </u> | L | | | | <u> </u> | <u> </u> | | ì | <u> </u> | |

^{*}Response to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | TOTAL |
|-------------------------------|----------|------|----------|----------|--|------|------|----------|----------|------|---------|------|--------------|
| LOCATION & END CONDITION | 1 | | | | | _ | _ | 8 | _ | | 11 | 12 | |
| Portions of walkway are | v | x | - | | † | | İ | | | | | | 2 |
| hidde: from view | ^ | ^ | | | l | | | | | | | | |
| (crime potential). | | | *4 | | | | | | | | | | |
| Overcrossing/undercrossing | X | X | _ | _ | | - | | Х | | | х | х | 5 |
| is not close to public | | - | | | | | | | | | | | |
| transportation stop. | | | | | l | | | | | | | | |
| No sidewalk at | X | | - | | †- | | _ | | _ | | | | I |
| end condition. | İ | İ | | | | | | | | | | | |
| Parked cars | i | | Γ | | | | | | | | | | |
| restrict approach.* | | | L_ | <u>_</u> | | L | | | | | | | |
| Parked cars obstruct | | | | | | | | | | | | | |
| view of approach.* | L | | | _ | | | | | | | | | $oxed{oxed}$ |
| No accessible | | X | X | X | l | | X | X | | | | X | 6 |
| parking.** | | | L. | L | L., | | | | <u> </u> | | Ĺ | | Ш |
| No detectable pedestrian | X | X | | ĺ | | X | | | X | | | | 4 |
| crosswalk to approach. | _ | | L | L | L | L | | | | | | | |
| Driver's view of | | | | | | | | | | | | | |
| pedestrian blocked.* | | _ | | | | L | | | | | | | |
| WALKWAYS | | | | | | | | | | | | | |
| Pedestrian walkway on | | | Γ_ | | | Г | | | | | | | |
| only one side. | | | ļ | | İ | | | | | | | | |
| Walkway less than | | | | 1 | T- | | | _ | | | | | П |
| 48" (too narrow).** | | 1 | } | 1 | l | | | l | | | | | |
| Headroom below | | | | 1 | <u> </u> | X | | - | Г | | | | 1 |
| 6'10".** | | | | | | | | | | | | | |
| Walkway through | | | Ī | | | | | |]_ | | | | |
| "long" tunnel | | | | | | | | | | | | | |
| (over 40'). | | | L | | 1 | | | | | | | | L_J |
| Structure vibrates | | | Ì | | 1 | | | | | | | | |
| (traffic). | L_ | L | L. | | | | _ | | | | | | |
| Abrasive or perforated | X | X | | i | | | | | | | | X | 3 |
| material on vertical sur- | | | | | ĺ | | | | | | | ! | |
| face adjacent to walkway. | <u> </u> | Ļ. | $oxed{}$ | L | ـــ | Ŀ | | <u> </u> | | | <u></u> | | Ш |
| Objects project into | | Ì | | | ĺ | | ļ | | | | | | |
| walkway (signs, trees, etc.). | <u> </u> | | L | | | _ | | | _ | | | | Щ |
| SURFACE MATERIALS | | | | L | | | | | | | | | |
| Manhole covers and gratings | | | | | | | | | | | | | |
| in walkway. | | | | | | L | | | | | | Ĺ | |
| Highly reflective | | | | | | | | | | | | | |
| surface materials. | | _ | L | | | | _ | | | | | | |
| Grooves and patterns (cast | | | | | | | | | | | | | |
| into walkways or caused by | | | | | | | | | | | | | |
| small paving units). | | | | | | | | _ | | | | | |

| | 1 | | ··- | | , - | _ | 1 | | 1 - | | | | 1 - |
|--------------------------------------|--|------|------|------|----------|------|----------|----------|------|--------------|------|-------------|----------|
| 1 | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | TOTAL |
| | 1 | 2 | | 4 | | | | | | | | 12 | |
| Large, deep | X | _ | Х | | 1 | Ť | - | Ĭ | | - | | | 2 |
| expansion joints.** | | ĺ | | | | | | | ĺ | | | | _ |
| Uneven and irregular | - | ╎ | | _ | | | | | | | | | |
| surfaces. | | | | _ | | | _ | | | | | | |
| Loose and soft surfaces | | | | Γ | Γ | | | | | | | | |
| (gravel, sand, etc.). | | L | | l | | L | L | | | <u> </u> | | | |
| Rough | | | | | | | | | | | | | |
| surfaces. | | | | | | | | _ | | | | | |
| Discontinuous surface | | | | İ | | | | | | | | | |
| materials. | | | | | | | | | | | | | |
| MAINTENANCE | | | | | | | | | | | | | |
| Debris from erosion | \vdash | - | | | - | | - | | | - | | | - |
| on walkway. | | | | | | | | | | | | | • |
| Disrepair (frost heaves, | +- | - | - | | | - | | - | | _ | | | - |
| potholes, etc.). | | | | | | | | | | | | | |
| Disrepair from vandalism | \vdash | - | - | - | | | - | H | | _ | | | |
| or accident (handrails, | | | | • | | | | | | | | | |
| guardrails, etc.). | | | | | | | | | | | | | |
| | - | _ | - | - | \vdash | | _ | Н | - | | | | |
| STAIRWAYS | | | | | | | | | | | | | |
| Stairway is only means | | X | | | Х | | | | | | | | 2 |
| of access to structure.** | | | | | | | | | | | | _ | |
| Stairway only on one | | | | | | | | | | | | | |
| side of structure.** | | | | L | Ĺ., | | | | | | | | |
| Poorly lighted steps, | | X | X | | | | X | | | | Х | X . | 5 |
| stairs, ramps. | | | | | | _ | | | | | | | |
| Treads less than 11" | | | | | i | | | | | | | | |
| (too small). | | | | L | | | | | | | | | |
| Projecting | | | | | | | | | | | | | |
| nosings. | _ | _ ! | _ | | <u> </u> | | | | | | | | |
| Open | | | | | | | | | | | | | |
| risers. | - | | | | | | _ | | | | | | |
| Risers greater than 7" (too high).** | 1 1 | | | | | | | | | | | | |
| Curb greater than | - | - | | | - | | - | | | _ | | | \dashv |
| 6" (too high). | Х | | | | | | | | | | | | 1 |
| Step (settlement) between | | - | X | - | | | | \vdash | | | | | 1 |
| approach and structure.** | | | Λ | 1 | | | | | | | | | 1 |
| Dangerous stair | + | - | - | - | - | - | Н | - | - | | - | | |
| location. | | | | | | | | |] | | | | |
| 2502011 | | | | | ليك | | \Box | | | | | | |

| Only ramps provided. Only ramps provided on one side of structure. Pathway leading to over- undercrossing too steep and long.** Ramp too long (exceeds | | T | _ | т | | | | | | | | | | |
|---|------------------------------|----------|--------------|----------|------|------|----------|------|----------|-------------|----------|-------------|----------|--------|
| RAMPS Only ramps provided. Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided on Only ramps provided Only ramps Provided. X X X X X X X X X X X X X X X X X X X | | Over r | Over | Over | TOTAL |
| provided. Only ramps provided on one side of structure. Pathway leading to over- undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. HANDRAILS Handrails higher than 36" (too high). | RAMPS | _ | | 3 | 4 | 5 | 6 | 7 | | | 10 | 11 | 12 | |
| provided. Only ramps provided on one side of structure. Pathway leading to over- undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. HANDRAILS Handrails higher than 36" (too high). | Only ramps | v | | v | v | ļ | v | v | v | | v | Ţ. | 4 | |
| Only ramps provided on one side of structure. Pathway leading to over- undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical xamp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | , , - | ^ | | ^ | ^ | | ^ | ^ | Λ | | ^ | ^ | Λ | " |
| one side of structure. Pathway leading to over- undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep.** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | Only ramps provided on | +- | ↾ | | ┞ | | | | | | | | | |
| undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** No curb cuts.** Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | one side of structure. | | | | ĺ | | i | | · ' | | | | | |
| undercrossing too steep and long.** Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** No curb cuts.** Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | Pathway leading to over- | 1 | | · | - | | _ | _ | | | | | | |
| Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep.** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | undercrossing too | | ĺ | | | | | | | |] | | | |
| Ramp too long (exceeds 30 feet).** Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep.** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. HANDRAILS Handrails higher than 36" (too high). | steep and long.** | | | | ĺ | | | | | | | | | 1 |
| Ramp too steep (slope greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. HANDRAILS Handrails higher than 36" (too high). | Ramp too long (exceeds | v | | v | v | | v | v | v | v | v | v | v | 10 |
| greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb | 30 feet).** | ^ | | Λ | ^ | | î | ^ | <u> </u> | ^ | ^ | ^ | ^ | 14 |
| greater than 1:12).** Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb | Ramp too steep (slope | v | T | Y | Y | | Y | Y | Y | Y | y . | v | | |
| Ramp too narrow (less than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb | greater than 1:12).** | 1. | | ^ | 1 | | 1 | A. | ^ | ^ | ^ | Α | | |
| than 48").** Cross slope greater than 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | Ramp too narrow (less | | 1 | 1 | T- | | | | | | [| | | |
| 1:50 (too steep). Slope across structure too long and steep. ** No curb cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | than 48").** | Ì | í | | 1 | | ! | | ĺ | | | İ | | |
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| No curb | 1:50 (too steep). | | | 1 | | | | | | | | | | |
| No curb | Slope across structure | x | x | x | x | | - | _ | - | | x | | | 5 |
| Cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | too long and steep. ** | | `` | | | | | | | | | | | |
| cuts.** Helical ramp. Ramp layout inconvenient. Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | No curb | X | x | x | x | | | | x | | | | x | 6 |
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| Abrupt transition to connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | Ramp layout | į | | ĺ | | | Ì | | | | | į | | l l |
| connecting walkways. Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | | | L | L | | | | | | | | L | L | |
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| street or parking area (less than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | connecting walkways. | <u> </u> | L | ļ_ | ļ | ļ., | _ | _ | L | <u>L</u> | <u> </u> | | | Ш |
| than 6' clearance at bottom of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | Ramp exits directly into | | | 1 | X | X | | | | | X | | | 3 |
| of ramp). Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | street or parking area (less | | | | | | ĺ | | | | | Į | | |
| Bollards in the middle of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | | | | | | | ĺ | | |] | ļ | | | |
| of entrance to the ramp. Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | of ramp). | ╁ | ┖ | <u> </u> | L | L | <u> </u> | Ь. | _ | <u> </u> | ļ | <u> </u> | | Щ |
| ramp. Steps in the middle of the ramp. HANDRATLS Handrails higher than 36" (too high). | | | | İ | | | | | i | | | | ļ | |
| Steps in the middle of the ramp. HANDRAILS Handrails higher than 36" (too high). | of entrance to the | | l | ļ | | | | | |] | | l | ļ | |
| of the ramp. HANDRAILS Handrails higher than 36" (too high). | | \bot | - | 1 | - | ļ | ļ | | ļ | <u> </u> | _ | <u> </u> | | |
| HANDRAILS Handrails higher than 36" (too high). | 1 - | | | | | | | | | | | ļ | | |
| Handrails higher than 36" (too high). | of the ramp. | | | ┖ | | | L | | _ | L | | | | |
| Handrails higher than 36" (too high). | HANDRAILS | | | | | | . | | | | | | | |
| 36" (too high). | | \top | T | T | T | | | | Γ | _ | 1 | Τ | | \Box |
| | T | | | | | | | | | | | | | |
| Handralls lower than | Handrails lower than | 7- | T | T | T | 1 | 1 | _ | 1 | | | | | |
| 32" (too low).** | | | | | | | | - | 1 | | | | | [] |

| | | _ | _ | | | | | | _ | | - | | |
|-------------------------------|--------------|------|----------|----------|----------|----------|--|--------------|----------|------|----------------|--|----------------|
| Į | Over | Over | over س | Over | Over | Over | Over | Over | Over | Over | Over | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| No | \Box | | х | | | - | х | | | x | | х | 4 |
| handrails.** | | } | ^ | | | | Δ | | | ^ | | Λ | 4 |
| Handrail inadequate for | \Box | | | х | | | 1 | | | | | | 1 |
| comfortable grasp. | | | ., | ^ | | | | | | | | | 1 |
| Handrail material metal | Х | x | | v | Y | х | | X | х | | x | | 8 |
| or aluminum (hot in hot | ^ | ^ | | Α. | ^ | ^ | | | 1 | i 1 | Λ | | ľ |
| weather, cold in cold). | ĺ | | | l | | | | | <u> </u> | | | | |
| Handrails not | | Γ | | Х | П | X | Γ | x | | | х | | 4 |
| continuous. | L | L | <u> </u> | | <u> </u> | | _ | | _ | | | | |
| Handrails don't extend | | X | | | | | X | X | | | | | 3 |
| far enough (1' at top and | l | • | | | | 1 | - | - | ļ | | | | |
| bottom of stairs and ramps). | ** | L | | | _ | <u> </u> | 1_ | <u> </u> | | | | | |
| No handrails on | | | Х | X | | | X | | | X | | Х | 5 |
| ramps. | ĺ | | | | | | | | | | | | |
| GUARDRAILS, BARRICADES, | 1 | 1 | | | | | | | Γ | | | | |
| PEDESTRIAN/VEHICULAR SEPARATI |] | | ĺ | | | | | | | | | 1 | |
| Barricades not detectable | 1 | + | - | x | | x | 2 | _ | ╁ | H | | \vdash | 3 |
| (blind cane). | l | l | | l^ | | ^ | | 1 | | | | | ا |
| Guardrails not | | + | - | ⊢ | - | \vdash | — | +- | \vdash | ┼ | | | |
| continuous. | | 1 | | | | | | | 1 | i | | | |
| Guardrails too low | +- | ┿ | +- | ┼ | ╁╌ | - | - | \vdash | ╀ | - | - | | |
| (less than 42"). | | | l | ĺ | | | | | | | | | |
| No pedestrian | ┿┈ | + | +- | \vdash | +- | ╁╴ | ╁╌ | - | ┼ | | | | ╁─╌ |
| guardrails. | | | | | l | | | | | | | İ | l |
| Inadequate | ╅─ | ┿ | ╆╌ | ┨ | ╁ | ┼ | | + | +- | | - | | ├─- |
| guardrails. | | | | İ | | | 1 | | | | - | | |
| Guardrail mesh | × | X | - | x | 1- | †- | | X | t | 1 | | X | 5 |
| hazardous.* | 1 | 1 | 1 | ^` | | Ĺ | | r | l | | | 1 | _ |
| No detectable separation | 1 | T | | X | † | | 1 | 1 | ┢ | 1- | | 1- | 1 |
| between bikeway and | 1 | | l | | | | | ĺ | | i | | | l ⁻ |
| pedestrian way. | | | | ļ | | | | | | l | | | |
| No detectable seperation | †- | 1 | †- | † | 1- | | 1 | † | T | † | ļ — | | Т |
| between roadway and walkway. | | | 1 | | | | | | | | | | |
| No detectable separation | | + | 1 | | Х | | | 1 | | X | | | 2 |
| between walkway and parking | | | | | | | | | | - | | | _ |
| lot. | | | | | | | | | | | | | |
| Unprotected sidewalks | 1 | T | 1 | | | T | | \top | | | Γ. | | Π |
| (cars, edges, etc.). | | | | | | | ١ | | | | | | |
| ESCALATORS/ELEVATORS | | 1 | | 1 | | | Τ | T | T | | | | |
| Escalators. | + | + | + | \vdash | + | + | + | 1 | t | +- | †- | + | t^{-} |
| Elevators. | + | +- | †- | +- | + | + | + | + | +- | | <u> </u> | 1 | |
| DICVELUIS. | Д, | Т. | 1 | 1 | 上 | 1_ | <u>i </u> | 1. | 1_ | | | <u> </u> | <u> </u> |

|] | | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | TOTAL |
|--|--|----------|----------|----------|--|--------------|----------|--------------|----------|----------|------|----------|-------|
| REST AREAS/BENCHES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Resting places not under | | | Х | X | Γ | | | | | | | | 2 |
| cover (wind, rain, sun). | | | - | - | - | | <u></u> | | | _ | | - | |
| Not enough places to stop and rest. | X | X | | X | X | Х | X | X | X | | Х | | 9 |
| No provision for | \vdash | | ├ | - | ╂ | ┼╌ | ┝ | | | | | | |
| scenic overlook. | } | | | | ļ | | | | | | | | |
| Benches too high or low, | | | X | ┢ | †- | +- | ╁╴ | | | - | | | 1 |
| too deep or shallow, or | | | ^ | | | | ļ | 1 | İ | | | | |
| with no armrest. | | | | | | | | | | | | | |
| EMERGENCY PROVISIONS | | | | | | | | | | | | | |
| No alternative route for | | | х | | | <u> </u> | | Г | | | | | 1 |
| flood condition structures. | | | - | | | | | | | | | | |
| No pedestrian emergency | Х | X | Г | | X | х | Х | х | х | Х | X | Х | 10 |
| provisions. | | | L | | | | | | | | | | |
| LIGHTING ILLUMINATION | | _ | | | | | | | L | | | | |
| Significant change of light | | | | | | 1 | | | | | | | |
| level in tunnel at entrance. | | | | | <u> </u> | <u> </u> _ | L | | | | | L_ | |
| Interior lighting not | | | | | | 1 | | | | ! | | | |
| adjusted to outside | | | | | | | | | | , | | | |
| light conditions. | ļ | | Ļ. | ļ | ↓ | \vdash | ┡ | ┡ | <u> </u> | <u> </u> | | | |
| Glare at end |] | | | | | } | | | | | | | |
| of tunnel.* | ├- | | <u> </u> | ↓_ | ╄ | ⊢ | 1 | ļ | _ | | - | _ | |
| Tunnel too dark.* | ĺ | | | | | | | | | | [| | |
| Glare and flashing | - - | - | - | \vdash | | - | <u> </u> | | | | | | |
| lights from vehicles.* | X | X | | | - | X | X | X | X | | Х | X | 8 |
| Poor | | 77 | - | ╀ | \vdash | + | - | ⊢ | - | | | 77 | 3 |
| illumination.* | | X | | | | | X | | | | | X | 3 |
| SICNACE /MEDIA CURS | | | | | - | + | T | | - | - | | | |
| SIGNAGE/MEDIA CUES No signage indicating | v | X | \vdash | | - | | x | + | | - | | \vdash | 3 |
| location of rest areas. | ^ | ^ | | | | | ^ | | | | | | |
| Street signs too high, | † | <u> </u> | | 1 | | | | | | 1 | | | |
| too low or far. | ļ | | | | | | | | | | | | |
| No special signage for | Х | X | 1 | X | | Х | Х | х | Х | x | X | X | 10 |
| the visually impaired. | " | | | | | 1 | - | | - | | | - | |
| Traffic lights with | | Г | | 1 | T | | | | | T^{-} | | | |
| short green cycle. | | | | | | | | | | | | | |
| Complicated instructions | | | | | | | Γ | 7 | | | | | |
| on signs. | \perp | | ļ | _ | 1_ | | \perp | 1 | _ | ļ | | _ | |
| No warning of potential | | | } | | | | | | | | | | |
| hazards. | <u></u> | L., | | \perp | \perp | 1 | L | | <u>L</u> | l | | | L |

| | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | TOTAL |
|---------------------------|------|------|------|------|------------|----------|----------|------------|----------|----------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| No orientation cue as | X | X | X | X | Х | Х | Х | X | Х | X | X | Х | 12 |
| to start of approach. | _ | | | L | _ | | _ | _ | <u>L</u> | <u> </u> | ļ | | |
| Lack of orientation | X | Х | Х | Х | X | X | X | Х | Х | X | X | Х | 12 |
| cues generally. | | | | _ | <u> </u> | 1 | _ | <u> </u> | | | | | |
| Pathway junctions which | | | X | 1 | | | | | X | | | X | 3 |
| are not at 90° angle | | | | | | ĺ | | | | | | | . |
| or which curve. | _ | L. | | | _ | _ | L. | <u> </u> _ | | | | | |
| No detectable orientation | | | ٠, | X | l | | | 1 | | | | | i |
| cue as to start of | | | | | | | ļ | | | | | | |
| channelization. | | | | Ļ | <u>Ļ</u> . | <u> </u> | | Ļ_ | _ | | | | |
| Walkway not | i | | | [| | | | 1 | | | | | |
| channelized. | | | | _ | | | ┝ | - | <u> </u> | | ļ | | |
| Traffic | | | | l | | | | | | | | | |
| noise. | | | | L | | | <u> </u> | _ | | | | | |
| MICRO-CLIMATIC FACTORS | | | | | | | | | | | | | |
| High wind gusts | | | | | | v | v | х | v | | | | 4 |
| present.* | | | | | | ^ | 'n | ı, | ı, | | | 1 | 7 |
| Wind generated | | - | | | Г | | _ | Γ | | | | | |
| by traffic.* | | | | | | |] | | | | | | |
| Inadequate provision | | | | | | \Box | | | | | | | |
| for rain-water runoff. | | _, | | | | L. | _ | _ | | | | | |
| Walkways and sidewalks | | | | | | | | | | | | | |
| not kept clear of snow, | | | | | | | 1 | | | | | | |
| ice and debris. | | | L | | | } | | | | | | | |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

| | 1 | | • | | | | _ | | | | | | | | | | | • | |
|-----------------------------|--|---|------|----------|------|-------------|----------|------|----------|------|----------|------------|--------------|----------|--|---------|--------------|----------|-------|
| J | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| LOCATION & END CONDITION | I | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | _ | | 17 | 18 | |
| Portions of | ١., | | | \vdash | - | | _ | - | - | | | | | | | | | -1 | |
| walkway are hidden | X | X | X | | X | X | X | Х | Х | X | X | X | | X | X | X | | i | 14 |
| from view | | ļ | İ | | | | | | | | | | | |] | | | | |
| (crime potential). | | | | | | | | | | | | | | ĺ | | ĺ | | | |
| Overcrossing/ | \vdash | ┝╌ | - | | | \vdash | | | | | <u> </u> | | | <u> </u> | | _ | | - | |
| undercrossing is | 1 | i | | | | | | | | ' | i | | | | | | | | |
| not close to public | | l | | | | | | | | | | | | | ĺ | | | | |
| transportation stop. | | | ' | | | | | | | 1 | | | | | | ĺ | 1 | | |
| No sidewalk at end | | | | | | H | Н | | - | | | | - | | | ├ | | H | |
| condition. | | | | | | | | | | | | | | | | | | | |
| Parked cars | \vdash | - | X | | | | \vdash | | | х | | | | | | | \vdash | | 2 |
| restrict approach.* | | | ^ | | | | | | | A | | · | | | | | | | - |
| Parked cars | † - | X | | | | H | H | | | | | х | | | | _ | | | 2 |
| obstruct view of | | ı . | | | | | | | | | | Λ | | | | | | | |
| approach.* | | | ł | | | | | | | | | | | | | | i : | | ` |
| No accessible | | - | | | | | | | | | | _ | | | | X | | - | 1 |
| parking.** | | | | | | | | | | | | | | ĺ | | 1 1 | İ | | • |
| No detectable | x | Х | | x | Х | x | | X | x | | Х | | Х | X | X | X | | \Box | 12 |
| pedestrian cross- | ** | | | • | - | | | ** | | | ^ | | 1 | 1 | ı " | ^ | | | 12 |
| walk to approach. | | ļ | | | | | | | | | | | | | | | | | |
| Driver's view of | \vdash | Y | X | \vdash | | | | Х | | | | X | | | | _ | | | 4 |
| pedestrian blocked.* | j | 1 | * | | ĺ | | | Λ | | | ! | A | | İ | | l | | | * |
| F | | | - | - | | \dashv | | | - | | _ | | | | _ | - | | | |
| WALKWAYS | | | | | | | | | | | | | | | L | | | | |
| Pedestrian walkway | | | İ | | ŀ | | | | | | | . — | | | | | | | |
| on only one side. | | • | | | | | | | | | | | | i | | 1 | ļ | | |
| Walkway less than | | | | | | | | | | _ | · - | | | | Τ- | | | | |
| 48" (too narrow).** | Ì | | İ | | | _ i | | | | | | | | <u></u> | | ļ | l | <u> </u> | |
| Headroom below | | | | | | | | | | | | | | | | | | | |
| 6'10".** | | | | | | | | | | | | | | | <u></u> | | | | |
| Walkway through | | | | | | | | | | | | | | | | X | | | 1 |
| "long"tunnel | | | | | | | | ' | | | | | | | | | | ļ | |
| (over 40'). | | L | | | | | | | | | | | | | | | | | |
| Structure vibrates | | | | | | | | | | | | | | | | | | | |
| (traffic). | L | | | 1 | | | | | | | | <u>L</u> . | | | <u>L</u> | | | | |
| Abrasive or per- | X | X | X | | X | | X | | | X | X | | | | | _ | | | 7 |
| forated material on | | | | 1 | | | | | | | | | | | } | | | | |
| vertical surface | } | | 1 | | | | | | | | | | | | 1 | | | | |
| adjacent to walkway. | $oxed{oxed}$ | <u>. </u> | | | | | | | | | ļ | <u> </u> | | _ | | <u></u> | _ | Ш | |
| Objects project into | | | | | | | | | | | | | | | ĺ | | ì | | |
| walkway (signs, trees, | | | | | | | | | | | | | | | | 1 | | | |
| etc.). | | $oldsymbol{ol}}}}}}}}}}}}}}}}}$ | | L. | | | | | <u> </u> | | | <u>L</u> . | | | <u>L</u> | | | | |

| | | _ | 1 | _ | - | | - | - | _ | | | - | , | Ţ | 1 | _ | 1 | | |
|--|------|----------|----------------|--------------|----------|----------|----------|----------|----------|----------|--|----------------|--|--|--|--|----------|-------------------|-------------|
| İ | er | er | er | er | er | er | er | er. | ה ה | r. | er. | H | ı, | Ä | يرا | ler | ļ, | ř | TOTAL |
| J | Over | ğ | Š | Š | Š | 5 | Š | 5 | ð | Over | 0 | Over | Over | 3 | Over | Under | Over | Over | roı |
| SURFACE MATERIALS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 13 | | | | 17 | | |
| Manhole covers and | ┼ | F | - | - | - | _ | , | - | Ļ. | | | | | - | - | | | | |
| gratings in walkway. | l | ĺ | - | | | | | ĺ | | | İ |] | | ĺ | | | | | |
| Highly reflective | - | - | ┼- | | ├- | ├─ | | | | - | - - | - | | | 1 | | \vdash | H | |
| surface materials. | | | | | | | | | | | | | | | İ | 1 | | | |
| Grooves and patterns | ╁─ | - | ╁ | | | | \vdash | - | | | | 177 | - | | - | | | \vdash \dashv | |
| (cast into walkways or | | | | l | | | | } | | | X | X | | | | | | | 2 |
| caused by small | | | 1 | | | | | i ' | | l l | ĺ | | | 1 | | l | | | |
| paving units). | | ĺ | | | | | | | | | ļ | | | ļ | | | | | |
| Large, deep expan- | X | | X | | | | ÷- | Х | | Х | - | - | | <u> </u> | ⊢ | | | \vdash | |
| sion joints. ** | ľ | | ^ | ĺ | | | ^ | ^ | | ^ | 1 | ĺ | ĺ | İ | 1 | | İ | | 5 |
| Uneven and irreg- | ┼╼ | - | \vdash | \vdash | - | | | х | <u> </u> | 37 | 3, | | - | <u>!</u> | | | | | |
| ular surfaces. | | 1 | | | | | | Λ. | | X | X | | | | | | | | 3 |
| Loose and soft | - | ┢ | | | - | w | | - | | | \vdash | | - | - | - | <u> </u> | | \vdash | |
| surfaces (gravel, | | | | | | X | | | | | | | | | | X | | | 2 |
| 1 | | 1 | | | | | | | | | l | | | 1 | | | į | | |
| sand, etc.). | - | - | ├- | | ┝ | | | _ | | | - | <u> </u> | <u> </u> | | | ļ.— | | | |
| | | ļ | | ĺ | | | | l | | | ļ | | | ļ | | | | | |
| Surfaces. Discontinuous sur- | ┪ | ┝ | - | | - | \vdash | - | \vdash | - | | - - | | <u> </u> | - | ⊢ | | | | i |
| 1 | | | Ì | | | | | | | ĺ | | 1 | | | ļ | ļ | [| | |
| face materials. | 1 | - | | - | - | - | | - | - | | | 1 | - | | | - | | - | |
| MATNENANCE | | | | | | | | | | | | į | | | | } | | | i |
| MAINTENANCE Debris from erosion | ╁ | ├- | - - | ⊢ | Ļ. | 77 | _ | | | | | | ├ | - | — | | | \vdash | |
| | | | [| | | Х | | | | | | 1 | ļ | | 1 | i | | | 1 |
| on walkway. | ╂ | \vdash | ! | <u> </u> | | | | 77 | H | | | | | | ļ | | | - | |
| Disrepair (frost | | | | | | | | Х | | | | | | 1 | | İ | | | 1 |
| heaves, potholes, etc.). | - | ┝ | ļ | - | X | 77 | <u> </u> | | | _ | 17 | | | | \vdash | | | | |
| Disrepair from vandalism | 1 | | | | Λ | Λ | | | | | Х | | Х | X | | X | Х | Х | 8 |
| or accident (handrails, | ŀ | | į | | | İ | | | | | ł | | | | [| | ĺ | | |
| guardrails, etc.). | ╄ | - | ļ., | | ļ., | - | | _ | | | _ | | | | Ь. | | | | |
| STAIRWAYS | | | | | ļ | | | | - | | | | | | | } | | | |
| Stairway is only means | ╁╾ | - | ┼- | | H | - | | | | \vdash | | \ | | | - | | | | — ,— |
| | | ĺ | | İ | | | | | | | | Х | | | | | | | 1 |
| of access to structure.** Stairway only on one | | ┞ | | \vdash | ⊢ | H | - | | | | | - | | - | | | <u> </u> | | |
| side of structure.** | ı | | | | | | | | | | İ | 1 | | | | 1 | | | |
| Poorly lighted steps, | ┼~ | ┝ | - | _ | | _ | | | | | | ├ | | 17 | | | <u> </u> | | ├ |
| | 1 | | | | | | | | | | | | | X | 1 | | | | 1 |
| stairs, ramps. Treads less than ll" | ╀╌ | 1 | ┢╌ | - | - | - | | | - | | | | ├─- | - | | - | 17 | | -, |
| (too small). | | ١ | | i | | | | | | | |] | | 1 | 1 | 1 | X | | 1 |
| Projecting | ┿ | ⊢ | ⊢ | — | <u> </u> | | - | H | _ | | ├ | X | | | ├ | - | | \vdash | i |
| nosings. | | { | | | | | | | | | | ^ | | | | | | | 1 |
| Open | | \vdash | | | - | | | | _ | | | | | | | - | | | |
| risers. | | | | | | | | | | | | | | | | | | | |
| Risers greater than | ╁ | - | +- | | \vdash | \vdash | _ | | | | | - | | | \vdash | | - | \vdash | - |
| 7" (too high).** | | - | | | | | | | | | | | | | | | | | |
| Curb greater than | + | \vdash | - | | - | Н | _ | \vdash | <u> </u> | | | | | | \vdash | | | | |
| 6" (too high). | | 1 | | | X | | | | | | | | | | | | | | 1 |
| o (LOU HIEH). | | L | | | | | | | | | | L | L | | l | | | | |

| | | | | - | _ | | _ | | | | _ | | | | | | | | |
|--|----------|----------|---------|--------------|------|----------|------|----------|--|----------|-------------|----------|----------|----------|----------|----------------|-------------------|----------|-------|
| J | over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| Step (settlement) | x | | | | | | Х | | | | | | | | | | | | 2 |
| between approach | | | | | | | | | | | | | | | | [| | | _ [|
| and structure.** | | _ | | | Ц | | _ | | | | | Ĺ | | | | | | | |
| Dangerous stair | | | | | | | | | | | | | | | | | | | |
| location. | | _ | Ц | | | | _ | | | | | | | | | | | | |
| RAMPS | | ; | | | | | | | | | | | | | | | | | |
| | <u> </u> | H | Н | - | - | | | \vdash | _ | | | | - | - | | | | | |
| Only ramps | | X | X | X | X | X | X | X | X | X | X | | X | X | X | | | X | 14 |
| provided. | | L | | | | | | | | | | | \vdash | | | <u> </u> | \vdash \dashv | | |
| Only ramps provided | X | ł | . : | | | | | | X | X | | | | | | | X | 1 | 4 |
| on one side of | | | | | | | | | | | | | | | | | | | |
| Pathyay loading to | H | \vdash | H | | | | | | _ | | | | | | | - | | | |
| Pathway leading to | | | | | | | | | | | | | | | | | | | 1 |
| over-undercrossing | | 1 | | | | | | | | | | | | | | | | | |
| too steep and long.** Ramp too long (ex- | - | - | - | - | - | - | _ | H | | | | - | | | | | ⊣ | \dashv | |
| ceeds 30 feet).** | X | X | X | X | X, | X | X | X | | X | X | | X | X | X | | X | X | 15 |
| Ramp too steep | | ,,, | - | | | - | _ | | - | | | | | | | | - | | |
| (slope greater than | X | Х | Х | X | X | X | X | Х | X | | X | | | X | Х | ĺ | X | X | 14 |
| 1:12).** | 1 | | | | | | | | | | | | | | İ | | ' | | |
| Ramp too narrow | ╌ | - | - | | H | | - | | - | | | | | | | | \vdash | | |
| (less than 48').** | l | | | | | i | | | | | | } | | | | | | | |
| Cross slope greater | ┝ | - | | | - | х | | - | | | \vdash | | - | | | | | | |
| than 1:50 (too steep). | | | | | | ^ | | | | | | | | | | 1 | | | 1 |
| Slope across structure | | Y | Y | x | v | ├── | ¥ | x | v | Х | Х | Х | <u> </u> | X | X | ╁─ | | X | 13 |
| too long and steep.** |] | 'n | l ^ | ^ | ı | | Α | Λ | ^ | ı, | ^: | ^ | | ^ | ^ | | | ^ | 13 |
| No curb cuts.** | x | x | x | x | x | x | y | Y | Ÿ | Х | Х | х | X | X | X | х | | | 16 |
| Helical ramp. | X | - | **- | 42 | ^ | <u> </u> | 21 | Δ | ~ | _^ | | | | X | ^ | ^ | x | | 3 |
| Ramp layout | ۴ | | Н | | | - | | \vdash | | \vdash | | _ | | ^ | <u> </u> | | - | - | , |
| inconvenient. | | | | | | ; | | | l | | | | | | | | 1 | | |
| Abrupt transition to | 1 | v | v | х | | | | v | х | | | | | | | ļ | | | 5 |
| connecting walkways. | | A | ^ | l^ | | | | Δ | ļ^ | | | 1 | ĺ | | | l | | | ١ |
| Ramp exits directly | Τ | - | Х | Г | х | Ι | x | x | x | х | X | | | X | х | 1 | \vdash | | 9 |
| into street or park- | | 1 | 1 | | ſ^ | | ^ | | | ^ | ^ | | | ^ | ^ |] | | 1 | 7 4 |
| ing area (less than 6' | 1 | | | | | | | | | | | ļ | | | 1 | | İ | | |
| clearance at bottom | | ļ | | | | | | | ļ | | | } | | 1 | | | ļ | | |
| of ramp). | L. | l | | | _ | | | | | | <u></u> | | | <u> </u> | | <u>L</u> _ | | | |
| Bollards in the mid- | Г | | | | Γ | | X | | | | 1 | | | | | | 1 | | 1 |
| dle of entrance to | | | | | | | | | | | | | | | | | | | |
| the ramp. | | | | | L | | | L | | | L_ | | | | | | L. | | |
| Steps in the middle | | _ | | | | | | _ | | | | | | | | } | | 1 | |
| of the ramp. | L | | | | | | | | | | } | | | | | <u>L.</u> | | | |
| HANDRAILS | | | | | | | | | | | | | | | | | | | |
| Handrails higher than | v | - | | | 1 | Н | | - | | \vdash | t | \vdash | - | | _ | - | _ | X | 2 |
| 36" (too high). | r | | | | | | | | | | | | | | | | | | |
| Handrails lower than | | Γ | Х | | | Г | | | | 1 | | Γ | 1 | | | | | | 1 |
| 32" (too low).** | ŀ | | ļ | | | | | | 1 | | ĺ | | | | | | | } | 1 |
| | <u> </u> | ٠ | <u></u> | _ | ←- | | | _ | 1_ | | | _ | | _ | <u> </u> | ٠ | | | |

| | - | | | | - | - } | | | ; | | 1 | | | · · | | | | 1 | - |
|-------------------------|--------------|------------|----------------|---------------------|----------|--------------|----------|----------------|--------------|--|--|----------------|--|--------------|--|--------------|--------------|----------------|----------------|
| J | Over | Over | Over | 0 ve \mathbf{r} | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| | 1 | 2 | 3 | | | | | | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| No | | х | | Х | | | | | | | | Х | ¥ | Х | х | ļ | | | 6 |
| handrails.** | | 1 | | 11 | | İ | | | | | 1 | 1 | , | 1 1 | | Ė. | ! | | |
| Handrail inadequate for | x | - | | • | | | | | X | | | | | | | Ī | | | 2 |
| comfortable grasp. | | | ì | | | | | | - | | | | | | | | | | ا " ا |
| Handrail material metal | х | _ | X | | X | х | X | х | Х | X | Х | | i | | | | X | | 10 |
| or aluminum (hot in hot | | | | | | | | : | | | | 1 | İ | | • | | | | - 0 |
| weather, cold in cold). | | | | | | | | | | | 1 | | <u> </u> | į | Ì | 1 | 1 | | 1 |
| Handrails not | х | | X | | х | Х | - | | | | | | - | | | | Х | | 5 |
| continuous. |] | | | | | | | | | | ! | | İ | ! ! | ţ į | ļ | | l | |
| Handrails don't extend | - | | Х | | X | Х | | Х | | | X | | | | |] | X | | 6 |
| far enough (1' at top | | | | | | | i | | | | | l | - | ļ | | 1 | | | |
| and bottom of stairs | | | | | | | | | | | | 1 | ! ! | İ | ļ | | | | ! |
| and ramps).** | | | | 5 | | | | | | | ļ | | | į | ! | ŀ | | |] |
| No handrails on | X | | | X | X | ! | | _ | | | | | X | X | | | | | 5 |
| ramps. | | | | | | | | | | | | | | | | | 1 | | |
| CUADDDATIC BARDICADEC | - | | 1 | - | | | | _ | | - | | ļ | | ! | | | | | |
| GUARDRAILS, BARRICADES, | 1 | | 1 | į | • | | | | İ | | | 1 | 1 | 1 | İ | 1 | |] | |
| PEDESTRIAN/VEHICULAR | | | | | | | | - | | İ | | | | | : | - | i I | : | |
| SEPARATION | - | ├ - | - | 1. | ļ | <u> </u> | | | | - | | - | | - | : 1 — | - | <u> </u> | | |
| Barricades not detect- | | | | X | | | | 1 | | | | | Ì | } | | | | | 1 |
| able (blind cane). | <u> </u> | ├_ | ┡ | <u>L.</u> | L. | | ļ | <u> </u> | <u></u> | <u> </u> | _ | | | <u> </u> | <u> </u> | ╙ | | ļ., | |
| Guardrails not | | ŀ | | ! | X | ľ | | | 1 | | | i | | 1 | 1 | ! | | | 1 |
| continuous. | | ↓ - | - | <u> </u> | <u> </u> | - | | <u> </u> | _ | | - - | <u>!</u> | | | ! | ↓ | - | - | |
| Guardrails too low | | | | j | İ | i | | i | ļ | | 1 | 1 | | Ì | ļ | : | | | |
| (less than 42"). | _ | ļ | 1 | 1 | - | <u>!</u> | _ | <u> </u> | _ | <u>. </u> | <u>į </u> | | <u> </u> | ļ | ļ . | 1 | <u> </u> | <u> </u> | - |
| No pedestrian | | | | ļ | ļ | İ | | 1 | | | ì | | ŀ | | | | i | | |
| guardrails. | , | ┼- | ╀ | _ _ | - | ļ | ┡ | <u> </u> | ┝- | | | ∔ | | | <u>!</u> | | - | | - |
| Inadequate | 1 | | | X | | 1 | - | į | 1 | | | | | | | | 1 | | 1 |
| guardrails. | ļ., | ╀ | - | ├- | <u> </u> | | <u> </u> | — | | <u> </u> | - | - | ļ | ļ | ! | | ┼ | - | _ |
| Guardrail mesh | X | 1 | X | 1 | X | X | X | | X | X | i | ļ | į | | | | | Ì | 7 |
| hazardous.* | | | ļ | | ļ | - | | } | | | | — | | 1 | ! | <u> </u> | | _ | 1.0 |
| No detectabel sep- | X | X | X | X | X | ļΧ | įΧ | X | X | X | X | | | X | X | X | X | X | 16 |
| aration between bike- | | - | | | | | | 1 | 1 | ! : | | ļ | 1 | į | İ | | | İ | |
| way and pedestrian way. | ↓_ | | | | - | ╄ | - | ┺ | ╁ | ļ | <u> </u> | ∔ | | | ļ | - | | | ļ |
| No detectable sep- | 1 | 1 | 1 | į | | | | į | 1 | } I | ļ | ŀ | ١ | i | 1 | | 1 | | İ |
| aration between road- | | | | | | | | | | 1 | | 1 | } | | Į | 1 | : | | |
| way and walkway. | ļ | - | - | - | L | 1 | L | Ļ | ↓- | <u> </u> | <u> </u> | ļ | | ļ | | Ļ | 1 | | ऻ—- |
| No detectable sep- | | | | | į | | | | 1 | - | | | | | | | | į | |
| aration between | | 1 | | | | | | | | | | | | | | | | | |
| walkway and parking lot | · | 1 | - | <u> </u> | 1 | + | - | <u> </u> | - | | + | - | ; | - | ļ | - | ļ | - | |
| Unprotected sidewalks | | | | | | ļ | | | | | | | | | 1 | • | | | |
| (cars, edges, etc.). | _ | - | L | 1 | | _ | ļ | _ | | | 1 | <u> </u> | <u> </u> | | ļ | | ļ | - | |
| ESCALATORS/ | | | | | | | | | | | | | | | | i | | | |
| ELEVATORS | | | İ | | | | j | | | | | | | | | 1 | | | |
| Escalators. | T | | | | Τ | | | | | | | | | | ì | İ | | | |
| Elevators. | T | 1 | 1 | + | \top | T | 1 | | | 1 | | 1 | i | 1 | | T | | | 1 |

| J | Over | Over | ver | Over | Ver | ver | Over | Ver | Ver | Over | over | Over | Over | Over | Over | Under | ver | Over | TOTAL |
|-------------------------------------|----------|------|-----|----------|----------|-----|------|-----|----------|----------|-------------|--|----------|----------|------|--------------|------------|----------|----------------------|
| REST AREAS/BENCHES | 1 | | | | | | | | | 10 | | | | | | 16 | | 18 | |
| Resting places not | X | _ | | <u> </u> | _ | | | X | | | | | <u> </u> | | | - | | | 2 |
| under cover (wind, | | | | | | | | | | | | | | | | | | | ~ |
| rain, sun). | | | | | | | | | | | | | | | | | | | |
| Not enough places to | | x | X | x | X | Х | X | _ | x | X | X | Х | X | X | x | X | x | X | 16 |
| stop and rest. | | | | | | | | | | ; | | | | | | | | | - " |
| No provision for | | _ | _ | | | | | | | | | | | | | | i - | | |
| scenic overlook. | | | | | | | | | | | ļ | | | İ | ! | | | | |
| Benches too high or | Х | | | | | | | | | | | _ | | - | | | | | 1 |
| low, too deep or | | | | | | | | | | | | | | | | | | | |
| shallow, or with | |] | | | | | | | | | İ | ĺ | . ' | 1 | | ! | | | |
| no armrest. | | | | | | | | | | | | | | | | | | | |
| PAGENCY PROUTCEONS | | | - | - | \vdash | | | | - | | | | | | | <u> </u> | - | | |
| No alternative route | <u> </u> | | - | _ | - | | - | | | | | | | <u> </u> | | | ļ <u>.</u> | - | $\vdash\vdash\vdash$ |
| | | 1 | | | | | | | | ĺ | | | | | | | | i | |
| for flood condition | l | | | | | | | | | | Í | | | | | | | | |
| structures. No pedestrian emergency | 77 | v | - | v | V | v | v | v | v | <u> </u> | x | X | X | x | 57 | X | X | X | 18 |
| provisions. | i ^ | ^ | ^ | Λ | Λ | Λ | Λ | Λ | ^ | ^ | Α. | A | Λ | A | Х | * | X | X | 18 |
| provisions. | ! | i | | | | | | | | | | <u>. </u> | | | | <u> </u> | | | |
| LIGHTING ILLUMINATION | | | | | | | | | | | | | | | | ì | | | |
| Significant change of | | | | | | | _ | - | | | | 1 | | | ! | X | | | 1 |
| light level in tunnel | [| 1 | | | | | | | | | | | | | | | | | |
| at entrance. | | | | | | | | | | Ĺ | | | | | | | l | | |
| Interior lighting not | Γ | | | | | | | | | | | | | | | Х | | | 1 |
| adjusted to outside | ĺ | ĺ | | | | | | | | | | | | | | Ì | 1 | 1 | ! { |
| light conditions. | _ | _ | | | | | | | | | <u> </u> | <u> </u> | | L | L | | | | |
| Glare at end of | | | | | | | | | | | | | | İ | | X | | ' | 1 |
| tunnel.* | | | | | | | | | | | | | | <u> </u> | | | | | |
| Tunnel too | | 1 | | | | | | | | | | | | | | X | | | 1 |
| dark.* | | ļ | | | | | | | | | | | | <u> </u> | | <u></u> | L. | ļ | |
| Glare and flashing | X | X | | | | | | X | Х | | х | | | 1 | | | X | X | 7 |
| lights from vehicles.* | | L. | | | | Ш | | L | | | | | | <u> </u> | | <u> </u> | | <u> </u> | |
| Poor | | X | X | | | | | | X | | | X | | X | X | X | Х | X | 9 |
| illumination.* | | | | | | | | | | | | | | <u> </u> | | | | _ | |
| SIGNAGE/MEDIA CUES | | | | | | | | | | | | | | | | | | | |
| No signage indicating | х | | | Х | | Y | y | y | х | | | | X | <u> </u> | Х | X | X | | 10 |
| location of rest | ^ | | | Α | | u | u | 'n | A | | | | • | | ^ | ^ | ^ | ! | 10 |
| areas. | | Ì | | | | | | | | | | ļ | | | | | ì | İ | |
| Street signs too | | | | | П | | | _ | | | | <u> </u> | | | | | | | |
| high, too low or far. | | | | | | | | | | | | • | | | | | | | |
| No special signage for | X | X | Х | X | х | X | Х | х | Х | X | X | Х | Х | X | X | X | X | Х | 18 |
| the visually impaired. | | _ | | | | | | | Ĺ | | | | | <u> </u> | | | | | لتبا |
| Traffic lights with | | } | | | | | | | | | | | | | | | | | |
| short green cycle. | | _ | _ | | L. | | | | | | | ļ | | | | | | | |
| Complicated instruc- | | | | | | | | | | | | | | | | | | | |
| tions on sign. | L | | | Ĺ | | | | L, | <u> </u> | | ļ | | | | Ĺ | | | | L |

| | _ | | | | | | | | | <u> </u> | | | | | | н | | | н |
|---|------|------|------|------|------|------|------|------|------|----------|------|------|------|------|------|-------|------|------|-------|
| J | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Over | Under | Over | Over | TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 14 | 15 | 16 | | 18 | |
| No warning of potential hazards. | X | | | | | X | Х | X | X | X | | Х | | | | | | | 7 |
| No orientation cue as to start of approach. | X | - | X | Х | X | X | X | X | X | Х | X | Х | Х | Х | Х | Х | х | Х | 17 |
| Lack of orientation cues generally | X | | X | X | Х | X | X | X | X | х | Х | X | X | X | Х | Х | Х | X | 17 |
| Pathway junctions which are not at 90 degree angle or | Х | | | х | X | X | | | | | | Х | | | Х | | X | | 7 |
| which curve. No detectable orienta- tion cue as to start of channelization. | | | | | | | | | | | | | - | | | | | | |
| Walkway not channelized. | Х | Х | Х | X | Х | X | Х | X | Х | Х | Х | Х | Х | X | Х | Х | X | X | 18 |
| Traffic noise. | X | X | X | | X | Х | X | X | X | X | Х | | | | X | | Х | Х | 13 |
| MICRO-CLIMATIC FACTORS | | | | | | | | | | | | | | | | | | | |
| High wind gusts present.* | Х | X | Х | X | Х | X | X | X | X | Х | X | | | X | X | - | | Х | 14 |
| Wind generated by traffic.* | | | | | | | | | | | | | | | | | | | |
| Inadequate provision for rain-water runoff. | | | | | | | | | | | | | | | | | | | |
| Walkways and sidewalks not kept clear of snow, ice and debris. | | | | | | Х | X | | | | | | | | | X | | | 3 |

^{*}Response to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

CUMULATIVE MATRIX: OVERCROSSINGS



| | Area A (7 Structures) | Area B (18 Structures) | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | TOTAL (103 Structures) | % of Total |
|--|--------------------------|------------------------|--|--|--|--|--------------------------|--|---------------------------|---------------------------|---------------------------|------------|
| LOCATION & END CONDITION Portions of walkway are | | | | | - | ļ | | | - | | | - |
| hidden from view (crime potential). | 3 | 5 | 5 | 1 | | 1 | 1 | 3 | 2 | 13 | 34 | 33.0 |
| Overcrossing is not close to public trans- portation stop. | 1 | | 1 | | | | | | 5 | | 7 | 6.8 |
| No sidewalk at end condition. | 3 | | | 3 | ĺ | | | 2 | 1 | | 9 | 8.7 |
| Parked cars restrict | | | | | | | | | | | | |
| approach.* Parked cars obstruct view | - | - | - | | _ | | | | - | 3 | 2 | 1.9 |
| of approach.* | | | | | | | | | | _2 | 2 | 1.9 |
| No accessible | | | | | | | | | | | _ | |
| parking.** | 1 | 1 | 2 | <u> </u> | | ļ <u>.</u> | ļ | <u> </u> | 6 | | 10 | 9.7 |
| No detectable pedestrian crosswalk to approach. | 5 | 6 | 2 | 1 | | | 4 | 8 | 4 | 11 | 41 | 39.9 |
| Driver's view of | Ť | | | | | - | <u> </u> | | | | | |
| pedestrian blocked.* | | | 2 | <u> </u> | ļ | <u></u> | | 3 | | 4 | 9_ | 8.7 |
| WALKWAYS | | | <u></u> | | | | | | | | | |
| Pedestrian walkway on | | , | | | | | | | | | , | |
| only one side. Walkway less than 48" | - | 1 | ┼ | | | - | | | - | | 1 | 1.0 |
| (too narrow).** | | 1 | | | | | | 1 | | | 2 | 1.9 |
| Headroom below | ├ | | | | | | 1 | | 1 | | | |
| 6'10".** | <u> </u> | <u> </u> | ļ | _ | <u> </u> | ļ | <u> </u> | | 1 | | 1 | 1.0 |
| Structure vibrates | | 1 | , | | | | | | | | 2 | 1.9 |
| (traffic). Abrasive or perforated | | ┼ | 1 | | | | † | | | | _ | 1.7 |
| material on vertical sur- | 1 | 4 | 5 | 1 |] | 10 | 1 | 1 | 3 | 7 | 33 | 32.0 |
| face adjacent to walkway. | | _ | | | | <u> </u> | | | ļ | ļ | | |
| Objects project into | | 3 | 1 | | | | | 1 | | | 5 | 4.9 |
| walkway-signs, trees, etc. | ļ | | 1 | | | | | | ļ | - | | |
| SURFACE MATERIALS | | | | | | | | | | | | |
| Manhole covers and gratings in walkway. | 2 | 8 | 1 | | | 1 | | 1 | | | 13 | 12.7 |

| · | Area A (7 Structures) | Area B (18 Structures) | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | (103 Structures) | % of Total |
|--|--------------------------|---------------------------|--|--|--------------------------|---------------------------|--------------------------|--|---------------------------|---------------------------|------------------|------------|
| Highly reflective | | | | | | | | | | | | |
| surface materials | | 1 | | ļ <u> —</u> | <u> </u> | | } | | ļ | ļ <u>. </u> | 1_ | 1.0 |
| Grooves and patterns (cast into walkways or caused by small paving units). | | 2 | 5 | 1 | 2 | 2 | | . 2 | | 2 | 16 | 15.5 |
| Large, deep expansion | _ | | | | | | | | | _ | | |
| joints.** | 5 | 11 | 4 | 2 | | 7 | | 2 | 2 | 5 | 38 | 36.9 |
| Uneven and irregular surfaces. | 3 | 4 | 5 | 2 | 2 | 5 | | 3 | | 3 | 27 | 26.2 |
| Loose and soft surfaces | | - 4 | 2 | | |) | | 3 | | د ا | 21 | 20.2 |
| (gravel, sand, etc.) | 3 | 5 | 1 | ĺ | | 1 | | | | 1 | 11 | 10.7 |
| Rough | | - | | | | | | | | | | |
| Surfaces. | 1 | 1 | 4 | 2 | 2 | 2 | | 2 | | | 14 | 13.6 |
| Discontinuous surface | | | | | | _ | | | 1 | | | |
| materials. | 1 | | 1 | 2 | 2 | | <u></u> | 1 | | | 7 | 6.8 |
| MAINTENANCE | | | | | | | | | | | | |
| Debris from erosion on walkway. | | 3 | 3 | | | | | | j | 1 | 7 | 6.8 |
| Disrepair (frost heaves, | | - | | | | | - | | ├ | <u> </u> | | 0.0 |
| potholes, etc.). | 1 | 4 | 2 | 1 | | 3 | | 1 |] | 1 | 13 | 12.6 |
| Disrepair from vandalism | | | \vdash | | | | | | | | | |
| or accident (handrails, | 1 | 6 | 6 | 2 | | 5 | | 1 | | 7 | 28 | 27.2 |
| guardrails, etc.). | | | | | | | l | | | ļ | | |
| | | | | | | | | | | | | |
| STAIRWAYS | | ļ | <u> </u> | | ļ. — | | | | | _ | | |
| Stairway is only means | 2 | 2 | 3 | 2 | | 3 | | | 2 | 1 | 15 | 14.6 |
| of access to structure.** Stairway only on one | | _ | -3 | 1 2 | | 3 | | | - | 1 | 15 | 14.0 |
| side of structure. | | 1 | 1 | | | 1 | | | | | 3 | 2.9 |
| Poorly lighted steps, | | | | | | <u> </u> | | - | | | | |
| stairs, ramps. | 3 | 9 | 5 | 1 | | 5 | | • | 5 | 1 | 29 | 28.2 |
| Treads less than 11" | | | | | | | | | | | | |
| (too small). | | 1 | 3 | 2 | | 1 | <u> </u> | <u> </u> | <u>L</u> | 1 | 8 | 7.8 |
| Projecting | | | | | | | | | | | | |
| nosings. | | 4 | 2 | 1 | | 1 | 1- | | | 1 | 9 | 8.7 |
| Open Risers. | | | 4 | 2 | | | | | | | 6 | 5.8 |
| | <u> </u> | | | | | <u>L</u> . | <u> </u> | | | | | |

| | Area A (7 Structures) | Area B | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | (103 Structures) | % of Total |
|---|--|--------|------------------------|--------------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|---------------------------|------------------|------------|
| Risers greater than 7" (too high). ** | | | 4 | 1 | | 1 | | | | | 6 | 5.8 |
| Curb greater than 6" | | | 1 | | | | | _ | _ | | | |
| (too high). | ļ | ↓ | 1 | | ├─ | ┼ | | 1 | 1 | 1 | 4 | 3.9 |
| Step (settlement) between | Ι, | | , 2 | | | 3 | | | 1 | , | 1, | 15 5 |
| approach and structure.** Dangerous stair | 1 | | 2 | | ╂ | ╀╌ | ! | | | 2 | 16 | 15.5 |
| location. | | 1 | 1 | | | 1 | i | | | | 1 | 1.0 |
| Tocalion: | ļ | + | + - | + | ┿╌┈ | + | | | | | | 1.0 |
| RAMPS | ŀ | | | | - | | | | | | | |
| Only ramps | | | | | | | | | | | | |
| provided. | 1 | 1 4 | 3 4 | 1 | 1 | 5 | 2 | 5 | 9 | 14 | 50 | 48.5 |
| Only ramps provided on | | | | | | | | Ţ | | | | |
| one side of structure. | 1 | | 2 | 1 | | | <u> </u> | | | 4 | 8 | 7.8 |
| Pathway leading to overcrossing too steep and long.** | 3 | | 1 | | | | | 4 | | | 8 | 7.8 |
| Ramp too long (exceeds 30').** | 1 | 1 | 1 10 | 2 | | 6 | 1 | 5 | 10 | 15 | 61 | 59.2 |
| Ramp too steep (slope | ├ | ┿ | 1 10 | \ \ - | ┿┈╌ | ╁ | + - | <u>۔ ۔ ۔ ا</u> | 10 | 11- | 0.1 | 7.6 |
| greater than 1:12).** | 1 | 1 | 6 | 2 | | 6 | 1 | 4 | 9 | 14 | 53 | 51.5 |
| Ramp too narrow (less than 48").** | | | | | | | | 1 | | | 1 | 1.0 |
| Cross slope greater than 1:50 (too steep). | 2 | | 2 | | | | | | 1 | 1 | 6 | 5.8 |
| Slope across structure | | \top | | 1 | 1 | 1 | | | | <u> </u> | | |
| too long and steep.** No curb | 1 | - | 5 | _ | 2 | 2 1 | 2 | - | 5 | 13 | 29 | 28.2 |
| cuts.** | 4 | | 6 3 | 2 | | 2 | 3 | 8 | 6 | 15 | 49 | 47.6 |
| Helical | | | | | | | | | | | | |
| ramp. | ــــــ | ļ | 1 | 1 | | <u> </u> | 1 | ļ | 5 | 3 | 11 | 10.7 |
| Ramp layout | | | . | | 1 | | | ١, | | | | , , |
| inconvenient. | 1 | ╂— | 1 | + | +- | + | + | 1 | | - | 2 | 1.9 |
| Abrupt transition to connecting walkways. | | 1 | , | | | 1 | | | | 5 | 7 | 6.8 |
| Ramp exits directly into | + | + | + | - | + | | + | \vdash | | + - | + - | |
| street or parking area (less than 6'clearance at bottom of ramp). | | | 5 | , | | 3 | 3 | 4 | 3 | 9 | 31 | 30.1 |

| | Area A (7 Structures) | Area B (18 Structures) | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | TOTAL (103 Structures) | % of Total |
|--|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|------------------------|--------------------------|------------------------|---------------------------|---------------------------|---------------------------|------------|
| Bollards in the middle of the entrance to the ramp. | | 4 | | | | | | | | 1 | 5 | 4.9 |
| Steps in the middle of the ramp. | | <u> </u> | 1_ | | | 1 | | | | | 2 | 1.9 |
| HANDRAILS | | | | | | | | | | | | |
| Handrails higher than 36" (too high). Handrails lower than | | 5 | 11 | 2 | 2 | 4 | | 7 | | 2 | 33 | 32.0 |
| 32" (too low).** | 1 | | | | | | | <u>.</u> | | 1 | _2 | 1.9 |
| No handrails.** | 4 | 12 | 4 | 2 | | 3 | 3 | | 4 | 6 | 38 | 36.9 |
| Handrail inadequate for comfortable grasp. | 1 | | 1 | | 2 | 4 | | 7 | 1 | 2 | 18 | 17.5 |
| Handrail material metal or aluminum (hot in hot weather, cold in cold). | 3 | 6 | 12 | 2 | | 8 | | 10 | 8 | 10 | 59 | 57.3 |
| Handrails not continuous. | 2 | 3 | 9 | 2 | | 6 | | 3 | 4 | 5 | 34 | 33.0 |
| Handrails don't extend far enough (1' at top and bottom of stairs and ramps).** | 1 | | 6 | 1 | 1 | 4 | | 7 | 3 | 6 | 29 | 28.2 |
| No handrails on ramps. | 1 | 6 | 1 | | | 1 | 2 | 4 | 5 | 5 | 25 | 24.3 |
| GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION | | | | | | | | | | | | |
| Barricades not detectable (blind cane) | 1 | 2 | 1 | | | 1 | | | 3 | 1 | 9 | 8.7 |
| Guardrails not continuous. | 1 | 1 | 2 | | | | | | | 1 | 5 | 4.9 |
| Guardrails too low (less than 42"). | 2 | | | 3 | | 2 | | | | | 10 | 9.7 |
| No pedestrian | 1 | | | | | | | | - | | | |
| guardrails. | | | | | 1 | 1 | | | | | 3 | 2.9 |

| | Area A (7 Structures) | Area B (18 Structures) | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | TOTAL (103 Structures) | % of Total |
|--|--|--|--|--|--------------------------|--|--|--|--|---------------------------|---------------------------|------------|
| Inadequate | į . | | | | | 2 | 1 | | | | 3 | 2.9 |
| guardrails. Guardrail mesh | 1 | | | | | | , <u>, </u> | | _ | | - | 2.9 |
| hazardous.* | 1 | 7 | 6 | 1 | | 8 | 1 | 1 | 5 | 7 | 37 | 36.0 |
| No detectable separation | - | - | <u> </u> | | - | | <u> </u> | | | <u> </u> | 7. | 30.0 |
| between bikeway and | 4 | 14 | 1 | 2 | 3 | 7 | 1 | 10 | 1 | 15 | 58 | 56.3 |
| pedestrian way. | ` | | _ | _ [| | | _ | | _ | | | |
| No detectable separation | | | | | | | | | | | | —— |
| between roadway and | 1 | 1 | 10 | | | 1 | | 2 | | ļ | 15 | 14.6 |
| walkway. | ł | | | | | | | | | | | |
| No detectable separation | | _ | | | | _ | | | | | | |
| between walkway and | 1 | | | | | | | | 2 | | 2 | 1.9 |
| parking lot. | | | 1 | | | | | İ | | | | |
| Unprotected sidewalks (cars | | | | | | | | | | | | |
| edges, etc.). | 2 | 1 | <u>. </u> | | 1 | 1 | 1 | 5 | | | 11 | 10.7 |
| | | | | | | | | | | _ | | |
| ESCALATORS/ELEVATORS | <u> </u> | | | | | | | | | | | |
| Escalators. | | 1 | | | <u> </u> | | ↓ | | L_ | <u> </u> | 1 | 1.0 |
| Elevators. | ↓ | 2 | | | | 1 | | | | ļ. <u> </u> | 3 | 2.9 |
| DECT ADDAC/DENOUS | 1 | | | | | | | ĺ | • | | | Ī |
| REST AREAS/BENCHES Resting places not under | | | ├ | | | | ├- | - | - | ├- | | |
| cover (wind, rain, sun). | 1 | 8 | 6 | - | | 1 | i | 1 | 2 | 2 | 21 | 20.4 |
| Not enough places to stop | - | | | ┝ | ├ | - | | | <u> </u> | - - | | 1000 |
| and rest. | 4 | 8 | 11 | 5 | 2 | 11 | 3 | 6 | 9 | 15 | 74 | 71.8 |
| No provision for | | <u> </u> | - | - - | _ | | _ | | | _ | - | |
| scenic overlook. | | ĺ | 2 | 1 | | | İ | | | | 2 | 1.9 |
| Benches too high or low, | | | | | | | | | | | | |
| too deep or shallow, or | 1 | 3 | 1 | i | 1 | | | i | 1 | 1 | 7 | 6.8 |
| with no armrest. | <u>L</u> | | | | | | | | | | <u> </u> | |
| | | | | | | | | | | | | |
| EMERGENCY PROVISIONS | <u>'</u> | | | | ļ., | ļ | <u> </u> | | | | | <u> </u> |
| No alternative route for | | | | | | | | _ | , | | | , , |
| flood condition structures | | | 1 | <u> </u> | ļ — | _ | ↓ | 3 | 1 | - | 5 | 4.9 |
| No pedestrian emergency | , | 1.0 | 1,- | - | , | 1, | , | ,, | 10 | 17 | 98 | 05 1 |
| provisions. | 7 | 18 | 15 | 5 | 3 | 11 | 1 | 11 | 10 | 1/ | 90 | 95.1 |
| LICUTING TILIMINATION | | ĺ | | | | | | | | | | |
| LIGHTING, ILLUMINATION Glare and flashing lights | - - | | - | | - | | | + | | 1- | | |
| from vehicles. | 1 | 10 | 111 | 1 | | 9 | | 8 | 8 | 7 | 57 | 55.3 |
| | <u></u> _ | ــــــــــــــــــــــــــــــــــــــ | | <u></u> | | | | | L | | | <u></u> |

| | Area A (7 Structures) | Area B (18 Structures) | Area C (16 Structures) | Area D (5 Structures) | Area E (3 Structures) | Area F (11 Structures) | Area G (3 Structures) | Area H (11 Structures) | Area I (12 Structures) | Area J (17 Structures) | TOTAL (103 Structures) | % of Total |
|---|-----------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------------|
| Poor illumination.* | 5 | 8 | 6 | 4 | | 6 | 3 | 1 | 3 | 8 | 44 | 42.7 |
| SIGNAGE/MEDIA CUES No signage indicating location of rest areas. | 3 | 18 | 14 | 2 | | 11 | 1 | 8 | 3 | 9 | 69 | 67.0 |
| Street signs too high, too low, or too far. | | | | | | | | 1 | | | 1 | 1.0 |
| No special signage for the visually impaired. Complicated instructions | 7 | 18 | 16 | 5_ | 3 | 11 | 2 | 11 | 10 | 17 | 100 | 97.1 |
| on signs. No warning of | 1 | <u> </u> | ļ | | | _ | | | | | 1 | 1.0 |
| potential hazards. No orientation cue as | 3 | | 1 | 3 | | - | 2 | 3 | | 7 | 19 | 18.4 |
| to start of approach. Lack of orientation | 6 | 18 | 16 | 5 | 2 | 11 | 2 | 11 | 12 | 16 | 99 | 96.1 |
| cues generally. Pathway junctions which are | 6 | 18 | 16 | 5 | 3 | 11 | 2 | 8 | 12 | 16 | 97 | 94.2 |
| not at 90 degree angle or which curve. | 2 | 5 | 7 | | | 2 | | 2 | 3 | 7 | 28 | 27.2 |
| No detectable orientation cue as to start of channelization. | | | | _ | | | <u> </u> | | 1 | | 1 | 1.0 |
| Walkway not channelized. Traffic | 6 | 15 | 13 | 2 | 3 | 7 | 2 | -11 | ļ | 17 | 76 | 73.8 |
| noise. | 6 | 2 | 6 | 1 | | 5 | | 8 | <u> </u> | 13 | 41 | 39.9 |
| MICRO-CLIMATIC FACTORS | | | | | ļ | | | - | | | | |
| High wind gusts present.* | 3 | 14 | 14 | | | 8 | 1 | 9 | 4 | 14 | 67 | 65.0 |
| Wind generated by traffic.* | 1 | 1 | <u> </u> | | <u>_</u> . | | | 2 | | | 4 | 3.9 |
| Inadequate provision for rain-water runoff. | | | 2 | | | <u> </u> | | | | | 2 | 1.9 |
| Walkways and sidewalks not kept clear of snow, ice and debris. | I | 10 | 5 | 1 | | 3 | | 1 | | 2 | 23 | 22.3 |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

CUMULATIVE MATRIX: UNDERCROSSINGS



| | Area A (2 Structures) | Area B | Area C | (3 Structures) | Area D | (o or accures) | Area E (3 Structures) | Area F | (4 Structures) | Area G | (2 Structures) | Area H | () Structures) | Area I (0 Structures) | Area J | (1 Structure) | TOTAL (21 Structures) | % of Total |
|--|--------------------------|----------|--------|----------------|--|----------------|--------------------------|----------------|----------------|----------------|----------------|--------|----------------|--------------------------|--------|---------------|--------------------------|------------|
| LOCATION & END CONDITION | | _ | 1_ | | | 4 | | | _ | | 4 | | 1 | | L. | | | |
| Portions of walkway are hidden from view (crime potential). | 1 | : | .[| 1 | | | | | 3 | - | |] | ۱ | | | 1 | 8 | 38.1 |
| Undercrossing not close to public transportation stop. | | | | 1 | | | | | | | | • | | | | | 1 | 4.8 |
| No sidewalk at end | | | + | | - | + | | - | | | 7 | | 7 | | Г | _ | | |
| condition. | . 1 | <u> </u> | ↓ | | | _ | | L | | | _ | | 4 | | L | | 1 | 4.8 |
| Parked cars obstruct view of approach.* | | | | | | | | | | | ļ | | וו | | | | 1 | 4.8 |
| No accessible | | | + | _ | | 寸 | | \vdash | | _ | 1 | | 7 | | | | | |
| parking. ** | | | ↓_ | | | 4 | | | | | _ | | | | L | 1 | 1 | 4.8 |
| No detectable pedestrian | ١, | Į | | 1 | | - | 1 | | 2 | | , | | _ | | l | , | 10 | £7.1 |
| crosswalk to approach. Driver's view of pedes- | 1 | _ | ╀ | 1 | <u> </u> | 4 | 1 | ╄ | | - | 1 | | 5 | | ⊢ | 1 | 12 | 57.1 |
| trian blocked.* | | | 1 | | | | | | | | | : | 2 | | | | 2 | 9.5 |
| | | | \top | | _ | 7 | | 1 | | | | - | ┪ | | Г | | | |
| WALKWAYS | | | ļ | | | 4 | | | | | _ | | 4 | | ╄ | | | |
| Pedestrian walkway on only one side. | | | 1 | | | | | 1 | 1 | | 1 | | | | | | 2 | 9.5 |
| Walkway less than 48" | | | + | _ | | , | | ✝ | _ | - | ┪ | | ┪ | | ╁ | | | |
| (too narrow).** | <u> </u> | | | | L_ | | 1 | | | <u> </u> | | | | | L | | 1 | 4.8 |
| Headroom below 6'10".** | | | | | | | 1 | | | | | | | <u>-</u> | L | | 1 | 4.8 |
| Walkway through "long" tunnel (over 40'). | 1 | | L | 2 | | | 1 | | 3 | | 2 | : | 5 | | | 1 | 15 | 71.4 |
| Abrasive or perforated material on vertical surface adjacent to walkway. | | | | | | |] | | 1 | | | | 2 | | | | 4 | 19.0 |
| Objects project into walk- way (signs, trees, etc.) | | | | | | | | | | | | | 1 | | | | 1 | 4.8 |
| SURFACE MATERIALS | | | | | | | | | | | | | | | | | | |
| Manhole covers and | | T | \top | | | | | 1 | | Τ | _ | | | | T | | | |
| gratings in walkway. | | | | | <u> </u> | | | 1 | 1 | | | L. | | | | | 1 | 4.8 |
| Large, deep expansion | | | | | | | | | | | | | 1 | | | | 1 | 4.8 |
| joints.** Uneven and irregular | | | + | | - | - | | + | | - | | | | | + | | 1 | 1 4.0 |
| surfaces. | ĺ | | | | | | | | 1 | | | | | | | | 1 | 4.8 |

| | Area A (2 Structures) | Area B | (1 Structure) | Area C | (3 Structures) | Area D (0 Structures) | Aron D | (3 Structures) | Area F | (4 Structures) | Area G | (2 Structures) | Area H | (5 Structures) | Area I | ות פרניתר בצי | Area J | (1 Structure) | TOTAL (21 Structures) | % of Total |
|--|-----------------------|--------|---------------|--------|----------------|--------------------------|--------|----------------|--------|----------------|--------|----------------|--------|----------------|--------|---------------|----------|---------------|--------------------------|------------|
| Loose and soft surfaces (gravel, sand, etc.). |] | 1 | | | | | | | | | • | | | 1 | | | | L | 3 | 14.3 |
| Discontinuous surface materials. |] | | | | - | | | | | | | | | | | | | | 1 | 4.8 |
| MAINTENANCE | | | | | | | T | | | | | | | | | | | | | |
| Debris from erosion on walkway. | | | | | | | | | | 4 | | | | | | | | | 4 | 19.0 |
| Disrepair (frost heaves, potholes). | | | | | 1 | | | | | | | | | | | | | | 1 | 4.8 |
| Disrepair from vandalism or accident (handrails, guardrails, etc.). | | | | | | | | | | | | | | 1 | | | : | 1 | 2 | 9.5 |
| STAIRWAYS | | | | | | | | | | | | | | | | | | | | |
| Stairway is only means of access to structure.** | | | | | | | | | | | | | | | | | | | 1 | 4.8 |
| Poorly lighted steps, stairs, ramps. | | | | | | | | | | 1 | | | | | | | | | 1 | 4.8 |
| Open risers. | | | | | | | | | | | | | | 1 | | | | | 1 | 4.8 |
| Curb greater than 6" (too high). | | | | | - | _ | | | | | | | | ì | | ╛ | | | 1 | 4.8 |
| RAMPS | | | | | | | 1 | | | | | | | | | | | | | |
| Only ramp provided. | | | | | | | | | | | | 1 | | | | | | | 1 | 4.8 |
| Pathway leading to structure too long and steep.** | | L | | | | | | 1 | | 3 | | | | | | | | | 5 | 23.8 |
| Ramp too long (exceeds 30').** | | | | | | | | | | | | | | 1 | | | <u> </u> | | 1 | 4.8 |
| Ramp too steep (slope greater than 1:12).** | | | | | | | - | | | | | | | 1 | | _ | | | 1 | 4.8 |
| Cross slope greater than 1:50 (too steep). | | l l | | | | | | | | | | | | 1 | | | | | 2 | 9.5 |
| No curb | | 1 | | | | | | | | | | 2 | | 2 | | | | 1 | 6 | 28.6 |
| Ramp exits directly into street or parking area (less than 6'clearance at bottom of ramp). | | | | | | | | | | 2 | | | | | | | | | 2 | 9.5 |

| | | _ | _ | | | | _ | _ | | | | | | | | |
|---|--------------------------|--------|---------------|--------|----------------|--------------------------|--------------|----------------|--------------------------|--------------------------|--|------------------|----------------|-------------------------|--------------------------|------------|
| | Area A (2 Structures) | Area B | (1 Structure) | Area C | (3 Structures) | Area D (O Structures) | Area E | (3 Structures) | Area F (4 Structures) | Area G (2 Structures) | Area H | Area I | (0 structures) | Area J (1 Structure) | IOTAL (21 Structures) | % of Total |
| HANDRAILS | _ | 尸 | | 7 | | 7 | 1 | | - | - | | | 7 | | | |
| Handrails higher than 36" (too high). | 1 | | | _ | | | | | | | | | | _ | 1 | 4.8 |
| No | | | | | | | Γ | | | _ | | 1 | Ī | | | |
| handrails.** | 1 | 1 | _ 1 | | 2 | | | 1 | 4 | 2 | 3 | - - | | | 14 | 66.7 |
| Handrails inadequate for comfortable grasp. | | | | | | | | | | | 1 | | | | 1 | 4.8 |
| Handrail material metal or aluminum (hot in hot weather, cold in cold). | 1 | | | | | | | 1 | | [| 1 | | | | 3 | 14.3 |
| Handrail not continuous. | | | | _ | _ | | | | | | 1 | | | | 1 | 4.8 |
| Handrails don't extend far enough (1' at top and bottom of ramps).** | 1 | | | | | | | | | | | | | | 1 | 4.8 |
| No handrails on ramps. | | | | | | | | | 2 | | 1 | | | | 3 | 14.3 |
| GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION | | | | | | | | | | | | | | | | |
| Guardrails less than 42" (too low). | | | | | 1 | _ | | | | Ĺ | | | | | 1 | 4.8 |
| No pedestrian guardrails. | _1 | | | | | | | 1 | | 1 | 2 | | | | 5 | 23.8 |
| No detectable separation between bikeway and pedestrian way. | | | 1 | | | | | 1 | 4 | 2 | 5 | | | 1 | 14 | 66.7 |
| No detectable separation between roadway and walkwa | y. | | | | 2 | | | | | | 2 | : | ļ | | 4 | 19.0 |
| No detectable separation between walkway and parking lot. | | | | | 1 | | | | | | | | | | 1 | 4.8 |
| Unprotected sidewalks (car edges, etc.). | s, | | 1 | | | | | 1 | | | | | | | 7 | 33.3 |
| REST AREAS/BENCHES | | | | | | | | | | | | | | | | |
| Not enough places to stop and rest. |] | | 1 | | 3 | | | 2 | 4 | 2 | | 5 | | 1 | 19 | 90.5 |

| | | | _ | | | _ | | _ | | | | | | | | | |
|--|--------------------------|----------|---------|----------------|--------|----------------|--------|----------------|--------------------------|--------|----------------|--------------------------|--------|--------|---------------|--------------------------|------------|
| | Area A (2 Structures) | Area B | Area C | (3 Structures) | Area D | (0 Structures) | Area E | (3 Structures) | Area F (4 Structures) | Area G | (2 Structures) | Area H (5 Structures) | Area I | Area J | (1 Structure) | TOTAL (21 Structures) | % of Total |
| EMERGENCY PROVISIONS | 1 | 1 | | | ĺ | | | | | | | | } | | | | |
| No alternative route for flood condition structures. | | | | 1 | | | | | 2 | | | 2 | | | | 5 | 23.8 |
| No pedestrian emergency provisions. | 2 | | 1 | 3 | | | | 2 | 4 | | 2 | 5 | | | 1 | 20 | 95.2 |
| LIGHTING, ILLUMINATION Significant change of | | | 1 | | | | | | | | | | | | | | |
| light level in tunnel at entrance. | 1 | | | 1 | | | | | 1 | | 1 | 2 | | | 1 | 7 | 33.3 |
| Interior lighting not adjusted to outside light conditions. | 2 | | | 1 | | | | 1 | 1 | | 2 | 2 | | | 1 | 10 | 47.6 |
| Glare at end of tunnel.* | 1 | | | | | | | 1 | _ 1 | | 1 | 2 | | | 1 | 7 | 33.3 |
| Tunnel too dark.* | 1 | | \perp | 1 | | | | 1 | 1 | | 1 | 3 | | | 1 | 9 | 42.9 |
| Glare and flashing lights from vehicles. | 1 | | 1 | 2 | | | | | 1 | | | 1 | | İ | | 6 | 28.1 |
| Poor illumination.* | 1 | | 1 | 2 | | | | 1 | 2 | | 2 | 4 | | | 1 | 14 | 66.7 |
| SIGNAGE/MEDIA CUES | | <u> </u> | _ | | | | | | | | _ | | | | | | |
| No signage indicating location of rest areas. | 2 | | 1 | 2 | | | | 1 | 4 | | 1 | 3 | | | 1 | 15 | 71.4 |
| No special signage for the visually impaired. | 2 | | 1 | 3 | | | | 2 | 4 | | 2 | 5 | | | 1 | 20 | 95.2 |
| Traffic lights with short green cycle. | | | | | | | | | | | | 3 | | | | 3 | 14.3 |
| No warning of potential hazards. | | | | | | | | | | | 2 | 1 | | | | 3 | 14.3 |
| No orientation cue as to start of approach. | 1 | | 1 | 3 | | | | 1 | 4 | | 2 | 5 | | | 1 | 18 | 85.7 |
| Lack of orientation cues generally. | 1 | | 1 | 3 | | | | 2 | 4 | | 2 | 5 | | | 1 | 19 | 90.5 |
| Pathway junctions which are not at 90 degree angle or which curve. | | | | | | | | | 4 | | | 1 | | | | 5 | 23.8 |

| | Area A (2 Structures) | Area B (1 Structure) | Area C (3 Structures) | Area D (0 Structures) | Area E (3 Structures) | Area F (4 Structures) | Area G (2 Structures) | Area H (5 Structures) | Area I (0 Structures) | Area J (1 Structure) | TOTAL (21 Structures) | % of Total |
|--|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|--------------------------|------------|
| No detectable orientation cue as to start of channelization. | 1 | | | | | | | | | | 1 | 4.8 |
| Walkway not channelized. | 1 | 1 | 2 | | 2 | 4 | 2 | 5 | | 1 | 18 | 85.7 |
| Traffic noise. | 1 | | 2 | | | 1 | 1 | 4 | | | 9 | 42.9 |
| MICRO-CLIMATIC FACTORS | | | | | | | | | | | | |
| High wind gusts present.* | | | | | | | | 2 | | | 2 | 9.5 |
| Wind generated by traffic.* | | | 1 | | | | | 1 | | | 2 | 9.5 |
| Inadequate provision for rain-water runoff. | | | 1 | | | 4 | | | | | 5 | 23.8 |
| Walkways and sidewalks not kept clear of snow, ice and debris. | 1 | |] | | 1 | 4 | | | |] | 8 | 38.1 |

^{*}Responses to these problems may not indicate that the problem definately exists, but rather, in the opinion of the observor, that the problem probably exists quite frequently.

^{**}Based on the 1961 ANSI Standards.

BARRIERS SOLUTIONS



This appendix correlated environmental barriers with groups of people with various handicapping conditions. Environmental barriers are listed across the top of each sheet while the handicapping conditions are enumerated along the left hand column of the matrix. The list of handicapping conditions is four pages long; on the fifth page of the matrix it begins again, linking the list with the next group of environmental barriers.

For example, the effect of different environmental barriers on people with the handicapping condition, "Difficulty with environmental orientation" is found in matrix sections A1, B1, C1, etc. However, the different effects of the environmental barrier entitled, "Driver's view of pedestrian blocked" on all groups of people can be found in the matrix sections A1, A2, A3, and A4 (matrix section numbers are found in the top right hand corner of each page).

| | | | · | | | | | |
|--|---|--------------------------------------|-------------------------------------|-----------------------|--|-------------------------------|--|---|
| <pre>KEY X = No Problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walk-way (signs, trees, etc.). |
| Difficulty with environ- mental orientation. | х | • | х | х | • | х | х | х |
| Understanding deficit. | x | • | X | × | • | • | x | x |
| Limited attention span. | x | • | x | x | x | x | x | s |
| Memory deficit. | х | s | X | x | x | x | x | х |
| Decreased ability to sequence, judge time, direction, distance, size. | s | S | s | x | • | x | x | s |
| Impaired night vision. | s | s | s | x | X | x | S | s |
| Impaired cutaneous sensation detection. | х | X | х | X | x | x | S | x |
| Chronic stooped posture. | x | X | x | X | . x | X | x | x |
| Difficulty in main- taining equilibrium. | S | x | Š | x | x | S | s | s |
| Moves at slow speed. | s | X | х | X | X | X | Х | х |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | s | x | S | x | х | S | S | s |
| Frequent need to rest during exercise. | х | х | X | x | S | x | X | X |

| | | | | | | | | 134 |
|---|---|--------------------------------------|--|-----------------------|---|-------------------------------|--|---|
| <pre>X = No Problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40°). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walk-way (signs, trees, etc.). |
| Reduced tolerance to brisk exercise (need to move slowly). | х | х | х | х | S _. | Х | Х | Х |
| limited ability to stand for long periods. | х | X | х | x | s | х | X | X |
| Impaired bladder control. | х | X | X | X | Х | X | X | x |
| Extreme of size (dwarfism, siantism, obesity, etc.). | S | Х | S | S | Х | Х | X | X |
| Cardiac Pacemaker affected | Х | X | X | X | X | Х | X | х |
| Uses powered or manual wheelchair. | S | S | s | х | х | X | S | s |
| Uses walker, crutches, orthopedic cane. | S | S | s | Х | s | X | S | s |
| Prosthesis (including braces) for lower | s | x | S | х | S | Х | S | S |
| Secreased ability to tole- cate smoke, dust, chemicals, | Х | X | Х | x | X | X | х | x |
| Minited ability to grasp, malease or manipulate with apper extremities (arms, wrist, hands). | X | X | Σ | х | X | X | x | X |
| imited reach. | х | X | Х | Х | X | Х | X | Х |

| <pre>KEY X = No Problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walk- way (signs, trees, etc.). |
|--|---|---|--|-----------------------|--|-------------------------------|--|---|
| Limited manual dexterity. | X | X | X | X | X | X | X | X |
| Inability to turn head. | s | S | X | X | X | X | X | х |
| Decreased ability to stoop. | x | x | x | X | х | Х | X | х |
| Difficulty standing from sitting position, or in sitting down. | X | x | x | x | x | х | х | х |
| Limited vertical motion with legs and feet. | s | х | x | X | x | x | X | х |
| Limited horizontal motion with legs and feet. | s | x | x | x | s | x | X | х |
| Decreased ability to tolerate heat and cold. | x | x | х | x | x | х | X | х |
| Speech disorder. | х | x | X | X | Х | Х | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | S | X | x | X | x | X | Х | S |
| Fear of crime. | х | X | x | х | • | х | X | x |
| Fear of heights (vertigo). | x | X | Х | X | Х | X | x | x |
| Agoraphobia. | x | X | X | X | x | x | x | х |
| Claustrophobia. | x | X | S | x | • | X | x | x |
| Fear of loud noises. | х | X | х | X | Х | Х | х | х |

| <pre>X = No Problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Driver's view of pedestrian blocked. | Pedestrian walkway on only one side. | Walkway less than 48" (too narrow). | Headroom below 6'10". | Walkway through "long" tunnel (over 40'). | Structure vibrates (traffic). | Abrasive or perforated material on vertical surface adjacent to walkway. | Objects project into walk-way (signs, trees, etc.). |
|---|--------------------------------------|--------------------------------------|-------------------------------------|-----------------------|---|-------------------------------|--|---|
| Uses white cane for guidance (visually impaired). Uses guide dog. Limited ability to acquire or process visual stimuli. Limited ability to perceive or process auditory stimuli. | s | • | s | • | x | x | s | s |
| | s | • | s | • | x | x | x | s |
| | x | • | s | • | • | x | s | s |

| <pre>X = No Problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | Portions of walkway are hidden from view (crime potential). | Overcrossing/under- crossing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach, | Crossing approach and entrance not easy to find (hidden from view). |
|---|---|--|-------------------------------|--------------------------------|--|------------------------|---|---|
| Difficulty with environ- | | | | | | | | |
| mental orientation. | • | S | S | X | S | X | S | • |
| Understanding deficit. | х | S | S | s | S | X | s | • |
| Limited attention span. | • | S | S | s | S | X | S | • |
| Memory deficit. | x | S | S | s | s | x | S | • |
| Decreased ability to sequence, judge time, direction, distance, size. | x | х | S | S | s | x | S | х |
| Impaired night vision. | x | S | s | s | S | x | s | • |
| Impaired cutaneous sensation detection. | x | S | X | s | s | X | x | х |
| Chronic stooped posture. | x | s | S | s | , S | x | х | x |
| Difficulty in main- taining equilibrium. | x | S | s | s | S | s | S | x |
| Moves at slow speed. | х | s | S | S | S | S | s | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | х | S | S | S | S | s | S | x |
| Frequent need to rest during exercise. | Х | S | S | s | S | s | S | х |

| <pre>X = No Problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Portions of walkway are hidden from view (crime potential). | Overcrossing/under- crossing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. | Crossing approach and entrance not easy to find (hidden from view). |
|---|---|--|-------------------------------|--------------------------------|--|------------------------|---|---|
| Reduced tolerance to brisk exercise (need to move slowly). | х | Х | S | X | Х | Х | Х | х |
| Limited ability to stand for long periods. | х | s | S | x | x | S | S | x |
| Impaired bladder control. | х | Х | X | X | x | s | х | X |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | х | s | S | x | X | x | х |
| Cardiac Pacemaker affected by electrical interference. | х | X | Х | х | х | x | Х | x |
| Uses powered or manual wheelchair. | х | S | S | S | S | S | S | х |
| Uses walker, crutches, orthopedic cane. | x | s | S | S | s | s | s | x |
| Prosthesis (including braces) for lower extremities. | Х | S | S | s | S | s | S | х |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | x | Х | Х | X | X | x | X | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | x | х | S | X | х | X | Х | х |
| Limited reach. | Х | Х | S | Х | X | Х | X | Х |

| | | ė | | | | | | |
|---|---|--|-------------------------------|-----------------------------------|---|------------------------|---|---|
| <pre>X = No Problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Portions of walkway are hidden from view (crime potential). | Overcrossing/under- crossing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. | Crossing approach and entrance not easy to find (hidden from view). |
| Limited manual dexterity. | X | X | X | X | X | X | X | х |
| Inability to turn head. | х | X | X | S | S | X | х | х |
| Decreased ability to stoop. | x | х | X | X | x | x | x | х |
| Difficulty standing from sitting position, or in sitting down. | х | x | х | x | x | x | Х | x |
| Limited vertical motion with legs and feet. | х | S | S | S | s | S | s | x |
| Limited horizontal motion with legs and feet. | X | S | S | s | S | S | S | x |
| Decreased ability to tolerate heat and cold. | х | S | X | х | x | S | x | x |
| Speech disorder. | х | X | x | Х | х | х | X | x |
| Loss of normal speed in motor coordination/slowed reflexes. | X | S | S | s | s | S | S | x |
| Fear of crime. | • | S | X | s | S | X | X | • |
| Fear of heights (vertigo). | х | X | X | х | X | X | x | X |
| Agoraphobia. | x | х | X | x | Х | X | x | X |
| Claustrophobia. | x | x | X | x | X | X | х | X |
| Fear of loud noises. | Х | Х | x | х | х | х | X | X |

| <pre>X = No Problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Portions of walkway are hidden from view (crime potential). | Overcrossing/under- crossing is not close to public transportation stop. | No sidewalk at end condition. | Parked cars restrict approach. | Parked cars obstruct view of approach. | No accessible parking. | No detectable pedes- trian crosswalk to approach. | Crossing approach and entrance not easy to find (hidden from view), |
|---|---|--|-------------------------------|--------------------------------|--|------------------------|---|---|
| | | | | | | | | |
| Uses white came for guidance (visually impaired). | x | S | S | s | s | x | s | • |
| Uses guide dog. | Х | S | S | S | S | X | X | • |
| Limited ability to acquire or process visual stimuli. | х | S | S | S | s | x | S | • |
| Limited ability to per- ceive or process auditory stimuli. | Х | x | х | х | x | х | х | х |

| | | | | | | | | C1 |
|---|-----------------|------------------------------------|-------------------------------------|---|------------------------------|-------------------------|---|--|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Difficulty with environ- mental orientation. | х | Х | Х | х | Х | х | х | х |
| Understanding deficit. | х | X | X | X | • | x | х | х |
| Limited attention span. | х | х | х | x | • | x | х | s |
| Memory deficit. | х | x | x | х | • | x | s | S |
| Decreased ability to sequence, judge time, direction, distance, size. | х | х | x | x | • | x | s | s |
| Impaired night vision. | Х | Х | X | X | • | Х | s | s |
| Impaired cutaneous sensation detection. | s | S | S | s | х | X | X | x |
| Chronic stooped posture. | х | X | X | Х | S | Х | S | • |
| Difficulty in main- taining equilibrium. | s | s | s | s | s | s | s | • |
| Moves at slow speed. | х | X | X | Х | Х | X | S | • |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | S | s | s | s | s | x . | х | • |
| Frequent need to rest during exercise. | х | S | X | x | s | X | Х | • |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
|--|-----------------|------------------------------------|----------------------------------|---|------------------------------|----------------------|---|--|
| Reduced tolerance to brisk exercise (need to move slowly). | х | S | X | Х | S | х | S | • |
| Limited ability to stand for long periods. | X | X | Х | X | s | X | S | • |
| Impaired bladder control. | x | Х | X | X | X | X | X | • |
| Extreme of size (dwarfism, giantism, obesity, etc.). | S | S | S | S | Х | Х | X | • |
| Cardiac Pacemaker affected by electrical interference. | X | X | X | X | X | X | X | • |
| Uses powered or manual wheelchair. | S | S | S | s | S | Х | S | • |
| Uses walker, crutches, orthopedic cane. | s | S | S | S | S | s | S | • |
| Prosthesis (including braces) for lower extremities. | S | S | s | s | s | S | S | • |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | Х | Х | Х | Х | x | х | X | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | Х | X | x | S | Х | Х | х |
| Limited reach. | х | X | Х | X | s | X | Х | х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known</pre> | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Only ramps provided. | Only ramps provided on one side of structure, | Pathway leading to over/ undercrossing too steep and long. |
|--|-----------------|------------------------------------|-------------------------------------|---|------------------------------|-------------------------|---|--|
| Limited manual dexterity. | X | Х | х | х | S | х | Х | X |
| Inability to turn head. | Х | X | х | X | s | х | x | х |
| Decreased ability to stoop. | x | х | X | x | X | x | Х | x |
| Difficulty standing from sitting position, or in sitting down. | х | х | х | x | х | x | х | X |
| Limited vertical motion with legs and feet. | х | s | S | x | S | Х | S | • |
| Limited horizontal motion with legs and feet. | s | S | s | S | S | x | s | • |
| Decreased ability to tolerate heat and cold. | х | x | x | х | x | Х | х | х |
| Speech disorder. | х | X | X | x | x | x | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | х | x | x | x | S | x | x | х |
| Fear of crime. | х | X | X | x | X | X | х | х |
| Fear of heights (vertigo). | • | • | x | X | X | X | х | x |
| Agoraphobia. | • | х | X | х | x | X | x | х |
| Claustrophobia. | X | x | x | x | X | x | x | х |
| Fear of loud noises. | x | X | X | x | x | x | Х | х |

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| ι. | 4 |

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|---|-----------------|---------------------------------------|----------------------------------|---|------------------------------|-------------------------|---|--|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Open risers. | Risers greater than 7" (too high). | Curb greater than 6" (too high). | Step (settlement) between approach and structure. | Dangerous stair location. | Only ramps provided. | Only ramps provided on one side of structure. | Pathway leading to over/ undercrossing too steep and long. |
| Uses white came for guidance (visually impaired). | х | х | х | х | • | х | s | х |
| Uses guide dog. | х | Х | Х | X | • | X | s | х |
| Limited ability to acquire or process visual stimuli. | х | X | Х | х | • | х | S | х |
| Limited ability to per- ceive or process auditory stimuli. | х | Х | Х | Х | х | х | Х | х |

| | | | | | | | | D1 |
|--|------------------------------------|---|---|--|---|--------------------------------------|-----------------------------------|------------------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handralls, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
| Difficulty with environ- mental orientation. | Х | х | Х | х | х | S | х | x |
| Understanding deficit. | х | х | X | X | X | X | x | х |
| Limited attention span. | х | X | Х | х | x | x | x | Х |
| Memory deficit. | X | x | X | х | s | x | Х | x |
| Decreased ability to sequence, judge time, direction, distance, size. | S | x | x | Х | s | s | S | S |
| Impaired night vision. | s | S | S | • | S | S | S | S |
| Impaired cutaneous sensation detection. | S | s | S | x | X | S | S | S |
| Chronic stooped posture. | х | X | Х | X | S | х | X | x |
| Difficulty in main- taining equilibrium. | S | s | S | S | s | s | s | S |
| Moves at slow speed. | х | x | X | s | X | S | x | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | S | s | S | S | x | s | s | S |
| Frequent need to rest during exercise. | х | Х | Х | s | х | х | х | х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
|---|------------------------------------|---|---|--|---|--------------------------------------|-----------------------------------|------------------------|
| Reduced tolerance to brisk exercise (need to move slowly). | х | Х | X | S | S | X | х | х |
| Limited ability to stand for long periods. | х | x | X | s | x | х | x | х |
| Impaired bladder control. | х | X | Х | X | X . | X | X | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | Х | X | S | X | X | S | х |
| Cardiac Pacemaker affected by electrical interference. | х | X | Х | X | Х | x | X | x |
| Uses powered or manual wheelchair. | s | S | s | S | S | s | S | s |
| Uses walker, crutches, orthopedic cane. | s | s | S | s | S | S | S | s |
| Prosthesis (including braces) for lower extremities. | s | S | S | S | S | S | S | s |
| Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds. | x | х | Х | X | Х | Х | х | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | х | х | х | x | х | x | Х |
| Limited reach. | х | Х | X | Х | X | Х | Х | X |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
|---|------------------------------------|---|---|--|---|--------------------------------------|-----------------------------------|------------------------|
| Limited manual dexterity. | X | X | X | Х | X | Х | X | Х |
| Inability to turn head. | х | X | X | X | X . | S | X | x |
| Decreased ability to stoop. | x | X | x | X | x | X | x | x |
| Difficulty standing from sitting position, or in sitting down. | x | x | X | х | x | х | x | х |
| Limited vertical motion with legs and feet. | s | S | S | S | s | S | s | s |
| Limited horizontal motion with legs and feet. | s | S | S | s | X | S | s | s |
| Decreased ability to tolerate heat and cold. | Х | x | Х | x | x | x | x | х |
| Speech disorder. | x | X | X | X | x | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | s | S | S | S | х | S | S | s |
| Fear of crime. | х | x | X | X | X | • | X | x |
| Fear of heights (vertigo). | х | X | S | x | x | S | X | х |
| Agoraphobia. | Х | Х | Х | x | x | x | x | х |
| Claustrophobia. | Х | х | X | x | х | х | х | х |
| Fear of loud noises. | х | х | X | х | X | Х | Х | х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Debris from erosion on walkway. | Disrepair (frost heaves, potholes, etc.). | Disrepair from vandalism or accident (handrails, guardrails, etc.). | Stairway is only means of access to structure. | Stairway only on one side of structure. | Poorly lighted steps, stairs, ramps. | Treads less than 11" (too small). | Projecting nosings. |
|---|------------------------------------|---|---|--|---|--------------------------------------|-----------------------------------|------------------------|
| Uses white cane for guidance (visually impaired). | S | s | s | • | s | x | s | х |
| Uses guide dog. | S | S | s | S | s | x | S | х |
| Limited ability to acquire or process visual stimuli. | S | S | S | • | S | S | s | х |
| Limited ability to per- ceive or process auditory stimuli. | х | x | х | Х | X | X | X | х |

| | | | | | . <u> </u> | | | E |
|--|--|---|---|----------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Difficulty with environ- mental orientation. | х | Х | х | X | х | х | Х | х |
| Understanding deficit. | х | x | X | S | х | х | x | x |
| Limited attention span. | s | S | x | s | s | x | x | x |
| Memory deficit. | х | x | x · | x | х | X | X | x |
| Decreased ability to sequence, judge time, direction, distance, size. | S | x | Х | S | x | х | • | S |
| Impaired night vision. | S | S | s | S | S | 0 | • | S |
| Impaired cutaneous sensation detection. | х | Х | x | х | X | 0 | • | S |
| Chronic stooped posture. | х | X | х | S | x | x | X | x |
| Difficulty in main- taining equilibrium. | S | x | х | S | s | • | • | s |
| Moves at slow speed. | x | Х | х | S | х | x | x | X |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | S | X | x | S | S | • | • | S |
| Frequent need to rest during exercise. | х | X | х | S | х | Х | Х | х |

| | | | | | | | | E2 |
|---|---|---|---|-------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
| Reduced tolerance to brisk exercise (need to move slowly). | Х | X | Х | S | Х | Х | х | Х |
| Limited ability to stand for long periods. | х | x | х | х | x | х | х | x |
| Impaired bladder control. | х | Х | Х | Х | X | х | X | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | X | Х | \$ | х | Х | Х | Х |
| Cardiac Pacemaker affected by electrical interference. | х | x | X | x | x | х | x | х |
| Uses powered or manual wheelchair. | s | Х | S | S | s | • | • | s |
| Uses walker, crutches, orthopedic cane. | S | x | S | s | S | • | • | s |
| Prosthesis (including braces) for lower extremities. | s | x | S | s | s | • | • | S |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | х | х | Х | X | х | x | x | x |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | х | х | s | х | Х | х | х |
| Limited reach. | х | х | X | S | х | х | х | X |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known</pre> | | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
|--|---|---|---|----------------------------------|--------------------------------|---|--------------------|-------------------------------------|
| Limited manual dexterity. | Х | X | Х | S | X | Х | X | х |
| Inability to turn head. | S | Х | X | S | X | X | X | x |
| Decreased ability to stoop. | x | х | X | Х | X | X | X | x |
| Difficulty standing from sitting position, or in sitting down. | х | х | X | x | х | x | X | Х |
| Limited vertical motion with legs and feet. | S | х | х | s | s | • | • | s |
| Limited horizontal motion with legs and feet. | S | x | x | S | s | • | • | s |
| Decreased ability to tolerate heat and cold. | х | x | Х | x | Х | X | . X | х |
| Speech disorder. | Х | Х | Х | X | X | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | s | Х | x | S | S | • | • | s |
| Fear of crime. | х | X | X | X | Х | X | x | х |
| Fear of heights (vertigo). | х | X | X | X | Х | x | X | x |
| Agoraphobia. | х | Х | X | x | x | x | X | х |
| Claustrophobia. | х | x | X | x | х | X | X | х |
| Fear of loud noises. | Х | Х | Х | х | Х | Х | Х | х |

| | | | | | | | | |
|---|----------------------------------|--|-------------------------------------|---|---|------------------|------------------|------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Soultion for this problem is not known.</pre> | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout inconvenient. |
| Difficulty with environ- mental orientation. | Х | х | х | х | х | х | • | х |
| Understanding deficit. | х | x | x | X | x | X | x | x |
| Limited attention span. | х | х | x | Х | x | x | x | х |
| Memory deficit. | x | х | X | x | х | x | х | x |
| Decreased ability to sequence, judge time, direction, distance, size. | х | x | x | x | • | X | х | X |
| Impaired night vision. | х | X | X | x | x | X | X | х |
| Impaired cutaneous sensation detection. | X | • | x | • | х | х | x | X |
| Chronic stooped posture. | х | x | х | Х | • | х | x | х |
| Difficulty in main- taining equilibrium. | • | • | х | • | • | x | s | s |
| Moves at slow speed. | х | x | x | x | 0 | X | X | х |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | • | • | X | • | • | X | s | x |
| Frequent need to rest during exercise. | • | • | X | • | • | X | s | s |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Manhole covers and gratings in walkway. | Highly reflective surface materials. | Grooves and patterns (cast into walkways or caused by small paving units). | Large, deep expansion joints. | Uneven and irregular surfaces. | Loose and soft surfaces (gravel, sand, etc.). | Rough surfaces. | Discontinuous surface materials. |
|---|--|---|---|----------------------------------|-----------------------------------|---|--------------------|-------------------------------------|
| Uses white cane for guidance (visually impaired). | S | х | s | s | S | • | • | s |
| Uses guide dog. | S | S | s | s | S. | • . | • | s |
| Limited ability to acquire or process visual stimuli. | S | S | s | S | s | • | • | s |
| Limited ability to per- ceive or process auditory stimuli. | х | X | X | x | X | x | X | x |

| | | | | | | | | |
|---|----------------------------------|---|----------------------------------|---|---|------------------|------------------|------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout inconvenient. |
| Reduced tolerance to brisk exercise (need to move slowly). | • | • | х | • | • | х | s | S |
| Limited ability to stand for long periods. | • | x | х | x | • | x | s | S |
| Impaired bladder control. | Х | X | X | X | • | x | X | X |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | • | s | • | • | x | x | х |
| Cardiac Pacemaker affected by electrical interference. | х | X | Х | x | • | х | X | X |
| Uses powered or manual wheelchair. | • | • | S | • | • | s | • | S |
| Uses walker, crutches, orthopedic cane. | • | • | X | • | • | S | • | S |
| Prosthesis (including braces) for lower extremities. | • | • | х | • | • | х | • | s |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | х | X | X | х | х | X | x | X |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | Х | x | х | X | х | x | x |
| limited reach. | Х | X | Х | Х | Х | Х | х | х |

| | | | ··· | | | | | |
|--|----------------------------------|--|----------------------------------|---|---|------------------|------------------|------------------------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout Inconvenient. |
| Limited manual dexterity. | X | <u>α</u> ου Χ | X | X | X | X | <u>ж н</u> Х | X |
| Inability to turn head. | X | x | х | x | X. | X | x | x |
| Decreased ability to stoop. | х | X | x | x | x | X | x | x |
| Difficulty standing from sitting position, or in sitting down. | х | x | x | х | X | x | x | x |
| Limited vertical motion with legs and feet. | • | • | х | • | • | s | • | s |
| Limited horizontal motion with legs and feet. | х | • | x | • | • | S | • | s |
| Decreased ability to tolerate heat and cold. | х. | x | x | х | x | x | x | x |
| Speech disorder. | х | X | X | X | X | X | X | X |
| Loss of normal speed in motor coordination/slowed reflexes. | Х | X | x | x | x | x | x | x |
| Fear of crime. | х | X | X | X | X | X | X | Х |
| Fear of heights (vertigo). | х | Х | X | X | X | x | • | X |
| Agoraphobia. | Х | X | x | X | x | Х | X | X |
| Claustrophobia. | х | x | • | x | X | X | x | x |
| Fear of loud noises. | Х | Х | Х | Х | X | X | <u> </u> | Х |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | Ramp too long (exceeds 30 feet). | Ramp too steep (slope greater than 1:12). | Ramp too narrow (less than 48"). | Cross slope greater than 1:50 (too steep). | Slope across structure too long and steep. | No curb cuts. | Helical ramp. | Ramp layout inconvenient. |
|--|----------------------------------|---|----------------------------------|---|---|------------------|------------------|------------------------------|
| Uses white cane for guidance (visually impaired). | Х | Х | х | • | х | X | x | • |
| Uses guide dog. | х | X | Х | • | X | x | x | • |
| Limited ability to acquire or process visual stimuli. | х | x | x | • | x | х | x | • |
| Limited ability to per- ceive or process auditory stimuli. | х | Х | X | X | Х | x | X | Х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardralls. |
|---|---|---------------------------|---|---------------------------|---|----------------------------|-------------------------------------|------------------------------|
| Difficulty with environ- mental orientation. | Х | X | Х | х | s | X | x | х |
| Understanding deficit. | х | x | X | х | · s | x | x | х |
| Limited attention span. | х | x | x | х | x | X | x | x |
| Memory deficit. | х | X | X | x | x | X | x | x |
| Decreased ability to sequence, judge time, direction, distance, size. | х | х | х | X | s | s | x | s |
| Impaired night vision. | х | X | X | X | s | \$ | S | s |
| Impaired cutaneous sensation detection. | s | X | x | X | S | x | x | х |
| Chronic stooped posture. | x | X | Х | х | Х | x | X | х |
| Difficulty in main- taining equilibrium. | s | s | s | • | x | s | s | s |
| Moves at slow speed. | х | S | X | X | X | X | X | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | X | s | S | • | s | x | x | x |
| Frequent need to rest during exercise. | х | Х | S | • | Х | Х | x | x |

| | | | | | | | | GZ. |
|---|--|---------------------------|--|---------------------------|---|----------------------------|-------------------------------------|------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold. | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and remaps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Reduced tolerance to brisk exercise (need to move slowly). | х | Х | S | • . | Х | х | Х | Х |
| Limited ability to stand for long periods. | S | S | S | • | x | х | х | x |
| Impaired bladder control. | х | X | X | X | X | X | x | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | S | Х | Х | • | X | X | Х | х |
| Cardiac Pacemaker affected by electrical interference. | х | Х | X | Х | X | х | x | х |
| Uses powered or manual wheelchair. | s | S | X | X | x | s | S | s |
| Uses walker, crutches, orthopedic cane. | S | S | s | • | Х | x | x | x |
| Prosthesis (including braces) for lower extremities. | S | s | s | • | x | х | x | x |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | Х | x | X | х | x | x | x | X |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | s | S | S | • | X | х | X | X |
| Limited reach. | х | s | S | X | Х | х | X | Х |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
|--|---|---------------------------|---|------------------------|---|----------------------------|-------------------------------------|------------------------------|
| Limited manual dexterity. | S | S | S | • | x | X | x | х |
| Inability to turn head. | х | X | X | X | X . | X | X | х |
| Decreased ability to stoop. | х | X | X | x | X | Х | X | x |
| Difficulty standing from sitting position, or in sitting down. | x | х | х | x | х | x | x | x |
| Limited vertical motion with legs and feet. | s | S | X | • | x | x | x | х |
| Limited horizontal motion with legs and feet. | х | X | s | • | X | x | X | х |
| Decreased ability to tolerate heat and cold. | х | x | x | x | , X | X | Х | Х |
| Speech disorder. | Х | X | X | X | X | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | S | s | s | • | х | s | S | S |
| Fear of crime. | х | X | x | X | X | X | X | X |
| Fear of heights (vertigo). | х | X | X | • | X | Х | X | • |
| Agoraphobía. | х | X | X | X | X | X | X | X |
| Claustrophobia. | х | X | x | X | X | X | X | X |
| Fear of loud noises. | х | Х | Х | Х | Х | Х | X | х |

| | | | | | | | | G- |
|---|---|------------------------------|---|---------------------------|---|----------------------------|-------------------------------------|------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Handrail material metal or aluminum (hot in hot weather, cold in cold). | Handrails not continuous. | Handrails don't extend far enough (1' at top and bottom of stairs and ramps). | No handrails on ramps. | Barricades not detectable (blind cane). | Guardrails not continuous. | Guardrails too low (less than 42"). | No pedestrian guardrails. |
| Uses white cane for guidance (visually impaired). | s | 5 | s | • | s | s | х | s |
| Uses guide dog. | s | S | x | X | x | x | Х | s |
| Limited ability to acquire or process visual stimuli. | s | x | S | • | s | S | S | S |
| Limited ability to per- ceive or process auditory stimuli. | х | х | Х | х | x | x | X | Х |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrials higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrall inadequate for comfortable grasp. |
|--|---|---|---|----------------------------------|---------------------------------------|-------------------------------------|------------------|--|
| Difficulty with environ- mental orientation. | х | • | x | S | x | x | x | х |
| Understanding deficit. | х | X | S | S | x | X | X | x |
| Limited attention span. | х | X | X | S | X | X | x | х |
| Memory deficit. | х | X | X . | X | x | X | x | х |
| Decreased ability to sequence, judge time, direction, distance, size. | х | х | X | S | х | X | X | X. |
| Impaired night vision. | s | • | S | S | X | x | X | x |
| Impaired cutaneous sensation detection. | х | x | x | х | х | Х | X . | х |
| Chronic stooped posture. | х | х | X | X | X | x | X | x |
| Difficulty in main- taining equilibrium. | S | S | x | s | • | • | • | s |
| Moves at slow speed. | х | Х | X | x | x | x | • | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | х | х | X | x | X | x | • | X |
| Frequent need to rest during exercise. | х | х | х | X | х | X | Х | X |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
|---|---|---|---|----------------------------------|--|-------------------------------------|------------------|--|
| Reduced tolerance to brisk exercise (need to move slowly). | х | Х | х | Х | Х | Х | Х | х |
| Limited ability to stand for long periods. | S | х | x | x | • | • | • | s |
| Impaired bladder control. | х | X | x | X | X | X | x | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | х | Х | X | • | • | • | s |
| Cardiac Pacemaker affected by electrical interference. | x | х | х | X | X | X | Х | х |
| Uses powered or manual wheelchair. | S | s | х | s | 0 | 0 | 0 | S |
| Uses walker, crutches, orthopedic cane. | s | X | Х | s | • | • | • | s |
| Prosthesis (including braces) for lower extremities. | S | X | X | х | • | • | • | S |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | х | Х | х | х | х | Х | x | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | Х | x | S | • | • | ٠ | s |
| Limited reach. | х | х | Х | S | • | • | Х | X |

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|---|---|---|---|----------------------------------|--|-------------------------------------|------------------|--|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
| Limited manual dexterity. | X | X | X | X | • | • | • | s |
| Inability to turn head. | х | X | х | х | X | x | x | x |
| Decreased ability to stoop. | x | X | x | х | x | x | x | x |
| Difficulty standing from sitting position, or in sitting down. | х | х | X | X | X | X | X | х |
| Limited vertical motion with legs and feet. | s | s | x | s | 0 | o | o | s |
| Limited horizontal motion with legs and feet. | S | s | x | s | x | x | x | x |
| Decreased ability to tolerate heat and cold. | x | x | x | x | х | x | x | x |
| Speech disorder. | х | X | Х | X | X | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | s | s | x | S | • | • | • | s |
| Fear of crime. | х | x | X | X | х | x | x | х |
| Fear of heights (vertigo). | х | X | Х | X | X | X | X | x |
| Agoraphobia. | х | X | X | X | X | X | X | х |
| Claustrophobia. | х | X | X | X | X | X | x | х |
| Fear of loud noises. | X | X | X | X | X | х | Х | х } |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Abrupt transition to connecting walkways. | Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp). | Bollards in the middle of entrance to the ramp. | Steps in the middle of the ramp. | Handrails higher than 36" (too high). | Handrails lower than 32" (too low). | No handrails. | Handrail inadequate for comfortable grasp. |
|---|---|--|---|----------------------------------|--|-------------------------------------|------------------|--|
| Uses white cane for guidance (visually impaired). | • | • | S | S | х | Х | х | х |
| Uses guide dog. | • | • | S | s | X | X | Х | Х |
| Limited ability to acquire or process visual stimuli. | • | • | S | S | Х | х | х | X |
| Limited ability to per- ceive or process auditory stimuli. | х | х | х | х | Х | х | Х | х |

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|---|------------------------|------------------------------|--|--|---|--|-------------|------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. |
| Difficulty with environ- | | | | | | | | |
| mental orientation. | S | Х | • | S | • | S | X | Х |
| Understanding deficit. | S | X | X | X | X | S | • | х |
| Limited attention span. | s | x | X | х | X | s | x | х |
| Memory deficit. | s | X | х | X | x | s | x | х |
| Decreased ability to sequence, judge time, direction, distance, size. | S | X | • | S | • | s | S | х |
| Impaired night vision. | s | • | • | S | • | s | x | х |
| Impaired cutaneous sensation detection. | x | • | X | X | X | S | x | x |
| Chronic stooped posture. | s | X | Х | X | X | S | x | x |
| Difficulty in main- taining equilibrium. | s | • | • | s | s | s | x | x |
| Moves at slow speed. | х | X | X | X | X | s | s | s |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | s | X | • | S | S | S | S | x |
| Frequent need to rest during exercise. | х | Х | X | Х | x | X | x | х |

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|---|------------------------|------------------------------|--|---|---|--|-------------|------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known.</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. |
| Reduced tolerance to brisk exercise (need to move slowly). | х | х | х | х | х | S | S | х |
| Limited ability to stand for long periods. | х | Х | х | x | x | s | s | х |
| Impaired bladder control. | Х | x | X | х | X | X | X | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | X | х . | Х | X | : X | s | s |
| Cardiac Pacemaker affected by electrical interference. | х | x | X | x | X | X | X | х |
| Uses powered or manual wheelchair. | s | • | • | S | S | S | S | s |
| Uses walker, crutches, orthopedic cane. | S | Х | • | S | S | S | s | x |
| Prosthesis (including braces) for lower extremities. | s | Х | х | x | x | S | s | х |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | х | X | Х | X | X | Х | X | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | S | x | х | X | х | x | s | S |
| Limited reach. | s | Х | Х | Х | Х | Х | S | s |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | Unprotected sidewalks (cars, edges, etc.). | Escalators. | Elevators. |
|---|------------------------|------------------------------|--|--|---|--|-------------|------------|
| Limited manual dexterity. | S | X | X | X | Х | X | S | s |
| Inability to turn head. | S | X | • | S | S | S | X | x |
| Decreased ability to stoop. | Х | x | x | X | x | X | x | х |
| Difficulty standing from sitting position, or in sitting down. | х | x | х | Х | X | х | x | х |
| Limited vertical motion with legs and feet. | х | X | x | х | x | S | s | х |
| Limited horizontal motion with legs and feet. | x | x | x | X | x | s | s | s |
| Decreased ability to tolerate heat and cold. | x | X | х | х | х | x | X | х |
| Speech disorder. | X | X | X | X | X | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | x | • | x | х | x | S | S | s |
| Fear of crime. | x | X | x | X | X | X | X | • |
| Fear of heights (vertigo). | s | • | Х | X | X | S | S | • |
| Agoraphobia. | х | X | Х | • | • | S | X | х. |
| Claustrophobia. | х | X | X | X | X | X | X | S |
| Fear of loud noises. | x | X | Х | • | • | • | Х | х |

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|--|------------------------|------------------------------|--|---|---|--|-------------|------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Inadequate guardrails. | Guardrail mesh hazardous. | No detectable separation between bikeway and pedestrian way. | No detectable separation between roadway and walkway. | No detectable separation between walkway and parking lot. | <pre>Unprotected sidwalks (cars, edges, etc.).</pre> | Escalators. | Elevators. |
| Uses white cane for guidance (visually impaired). | s | • | • | s | • | s | S | Х |
| Uses guide dog. | s | • | • | S | • | S | S | х |
| Limited ability to acquire or process visual stimuli. | S | • | • | S | • | S | s | x |
| Limited ability to per- ceive or process auditory stimuli. | х | Х | • | S | S | S | X | X |

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|---|---|--|-----------------------------------|---|--|------------------------------------|--|---|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency prvisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Difficulty with environ- mental orientation. | х | х | s | Х | s | х | s | s |
| Understanding deficit. | х | x | x | x | S | х | s | x |
| Limited attention span. | х | x | x | x | s | X | x | x |
| Memory deficit. | х | x | x | х | s | • | s | x |
| Decreased ability to sequence, judge time, direction, distance, size. | x | S | x | х | s | • | S | s |
| Impaired night vision. | x | X | x | x | s | x | S | s |
| Impaired cutaneous sensation detection. | S | Х | X | Х | X | X | X | х |
| Chronic stooped posture. | x | S | X | S | s | Х | s | х |
| Difficulty in main- taining equilibrium. | x | s | x | s | s | • | s | s |
| Moves at slow speed. | х | S | X | S | s | • | X | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | х | s | x | S | s | X | s | s |
| Frequent need to rest during exercise. | s | S | Х | S | s | • | Х | X |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provisions for scenic overlook, | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
|---|---|--|------------------------------------|---|--|-------------------------------------|--|---|
| Reduced tolerance to brisk exercise (need to move slowly). | s | S | X | S | S | Х | Х | Х |
| Limited ability to stand for long periods. | s | s | х | s | S | • | x | x |
| Impaired bladder control. | S | s | X | х | X | • | x | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | х | S | X | S | Х | Х | X | x |
| Cardiac Pacemaker affected by electrical interference. | s | s | X | S | Х | • | x | x |
| Uses powered or manual wheelchair. | s | S | x | X | S | • | х | х |
| Uses walker, crutches, orthopedic cane. | S | S | Х | S | s | • | х | x |
| Prosthesis (including braces) for lower extremities. | s | S | х | s | s | • | x | x |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | 5 | S | х | X | х | • | х | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | x | X | х | х | Х | Х | х | х |
| Limited reach. | Х | Х | Х | Х | X | X | Х | Х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest. | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
|---|---|--|-----------------------------------|---|--|-------------------------------------|--|---|
| Limited manual dexterity. | Х | X | X | X | Х | X | X | X |
| Inability to turn head. | х | X | X | x | X . | x | X | х |
| Decreased ability to stoop. | x | X | x | s | х | x | x | х |
| Difficulty standing from sitting position, or in sitting down. | S | S | x | S | x | х | X | x |
| Limited vertical motion with legs and feet. | x | s | x | S | X | Х | X | x |
| Limited horizontal motion with legs and feet. | x | S | x | X | S | X | X | х |
| Decreased ability to tolerate heat and cold. | s | s | х | x | x | • | х | х |
| Speech disorder. | Х | X | X | X | X | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | x | x | x | S | S | • | s | s |
| Fear of crime. | х | X | X | X | Х | X | • | • |
| Fear of heights (vertigo). | Х | X | X | Х | X | X | X | х |
| Agoraphobia. | Х | X | X | Х | X | X | X | x |
| Claustrophobia. | х | X | X | X | X | X | • | • |
| Fear of loud noises. | х | X | X | X | X | X | Х | X |

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| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Resting places not under cover (wind, rain, sun). | Not enough places to stop and rest, | No provision for scenic overlook. | Benches too high or low, too deep or shallow, or with no armrest. | No alternative route for flood condition structures. | No pedestrian emergency provisions. | Significant change of light level in tunnel at entrance. | Interior lighting not adjusted to outside light conditions. |
| Uses white came for guidance (visually impaired). | х | X | X | S | S | • | Х | X |
| Uses guide dog. | x | X | X | s | S | X | X | X |
| Limited ability to acquire or process visual stimuli. | х | x | X | S | S | X | S | s |
| Limited ability to per- ceive or process auditory stimuli. | х | X | X | X | X | X | X | Х |

| | | | | | | | | | <u>K1</u> |
|--|-------------------------|---------------------|---|-----------------------|--|---|--|--|------------------------------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehicles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Difficulty with environ- mental orientation. | s | s | • | s | • | s | х | • | • |
| Understanding deficit. | х | S | • | X | • | S | x | X | • |
| Limited attention span. | x | S | • | S | • | S | x | X | • |
| Memory deficit. | x | S | • | s | • | s | x | X | • |
| Decreased ability to sequence, judge time, direction, distance, size. | S | S | • | S | s | S | x | • | • |
| Impaired night vision. | s | S | • | S | s | • | • | • | • |
| Impaired cutaneous sensation detection. | x | s | x | S | Х | X | x | X | x |
| Chronic stooped posture. | x | S | X | S | s | S | x | • | s |
| Difficulty in main- taining equilibrium. | S | s | • | S | x | x | x | • | s |
| Moves at slow speed. | х | X | X | X | s | S | X | • | s |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | s | S | • | S | S | S | X | • | s |
| Frequent need to rest during exercise. | х | S | x | S | s · | S | x | • | s |

| | | | | | | | | | K2 |
|---|-------------------------|---------------------|---|-----------------------|--|---|--|--|------------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehlcles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Reduced tolerance to brisk exercise (need to move slowly). | х | S | Х | S | S | S | Х | • | S |
| Limited ability to stand for long periods. | S | s | x | s | s | S | x | • | s |
| Impaired bladder control. | х | x | X | x | S | S | X. | x | х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | x | S | х | S | x | S | X | • | х |
| Cardiac Pacemaker affected by electrical interference. | x | s | • | s | S | S | x | • | х |
| Uses powered or manual wheelchair. | х | s | • | S | S | S | x | • | s |
| Uses walker, crutches, orthopedic cane. | X | S | • | S | s | S | X | • | s |
| Prosthesis (including braces) for lower extremities. | x | s | • | S | s | s | x | • | s |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | х | х | х | Х | s | s | х | x | x |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | х | S | X | S | х | x | X | x | x |
| Limited reach. | х | · S | х | s | Х | х | X | X | Х |

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|---|-------------------------|---------------------|---|-----------------------|--|---|---|--|------------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehicles. | Poor illumination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Limited manual dexterity. | X | S | X | S | X | Х | X | X | х |
| Inability to turn head. | х | S | • | s | x | S | Х | • | s |
| Decreased ability to stoop. | х | s | • | s | s | х | x | x | x |
| Difficulty standing from sitting position, or in sitting down. | x | х | X | х | Х | x | X | x | х |
| Limited vertical motion with legs and feet. | х | s | • | s | s | s | x | • | s |
| Limited horizontal motion with legs and feet. | s | s | • | S | s | x | x | • | s |
| Decreased ability to tolerate heat and cold. | x | x | x | x | s | x | x | x | х |
| Speech disorder. | Х | X | X | X | x | x | X | x | • |
| Loss of normal speed in motor coordination/slowed reflexes. | S | s | • | S | s | S | x | • | S |
| Fear of crime. | • | • | • | • | x | X | x | x | s |
| Fear of heights (vertigo). | х | x | X | X | X | X | X | Х | • |
| Agoraphobia. | х | X | X | X | X | X | X | X | • |
| Claustrophobia. | x | • | X | • | X | x | x | x | • |
| Fear of loud noises. | х | X | х | Х | Х | Х | х | х | х |

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|---|-------------------------|---------------------|---|-----------------------|---|---|---|--|------------------------------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | Glare at end of tunnel. | Tunnel too dark. | Glare and flashing lights from vehicles. | Poor 111umination. | No signage indicating location of rest areas. | Street signs too high, too low or far. | No special signage for the visually impaired. | Traffic lights with short green cycle. | Complicated instructions on signs. |
| Uses white cane for guidance (visually impaired). | x | . X | • | s | • | • | • | • | • |
| Uses guide dog. | x | X | • | s | • | • | • | • | • |
| Limited ability to acquire or process visual stimuli. | s | S | • | S | • | • | • | • | • |
| Limited ability to per- ceive or process auditory stimuli. | х | \$ | • | s | s | • | х | х | S |

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|--|----------------------------------|---|-------------------------------------|--|--|-----------------------------|-------------------|
| <pre>KEY X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
| Difficulty with environ- mental orientation. | • | • | • | • | • | • | • |
| Understanding deficit. | • | • | • | • | • | • | • |
| Limited attention span. | • | • | • | Х | X | • | • |
| Memory deficit. | • | • | • | • | • | • | Х |
| Decreased ability to sequence, judge time, direction, distance, size. | • | • | • | s | • | S | х |
| Impaired night vision. | • | • | • | Х | • | • | х |
| Impaired cutaneous sensation detection. | x | x | X | Х | X | X | х |
| Chronic stooped posture. | • | S | S | S | S | s | х |
| Difficulty in main- taining equilibrium. | S | S | S | x | х | X | x |
| Moves at slow speed. | s | S | S | X | S | S | x |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | s | S | S | X | S | S | x |
| Frequent need to rest during exercise. | s | S | s | х | s | x | Х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
|---|----------------------------------|---|-------------------------------------|--|--|-----------------------------|-------------------|
| Reduced tolerance to brisk exercise (need to move slowly). | s | S | S | х . | s | s | х |
| Limited ability to stand for long periods. | S | s | s | x | s | x | x |
| Impaired bladder control. | X | X | S | x | S | x | Х |
| Extreme of size (dwarfism, giantism, obesity, etc.). | S | X | X | x | x | x | x |
| Cardiac Pacemaker affected by electrical interference. | s | X | S | X | X | x | x |
| Uses powered or manual wheelchair. | S | S | S | s | S | X | х |
| Uses walker, crutches, orthopedic cane. | S | S | S | Х | S | x | x |
| Prosthesis (including braces) for lower extremities. | S | s | s | X | S | х | Х |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | X | x | S | х | X | х | х |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | s | х | S | х | x | х | X |
| Limited reach. | S | X | S | Х | Х | Х | Х |

| | | | | | | · | L3 |
|---|----------------------------------|---|-------------------------------------|--|--|-----------------------------|----------------|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
| Limited manual dexterity. | S | X | S | Х | X | Х | Х |
| Inability to turn head. | s | s | S | х | X | x | • |
| Decreased ability to stoop. | s | x | s | x | х | x | х |
| Difficulty standing from sitting position, or in sitting down. | S | x | s | x | x | х | х |
| Limited vertical motion with legs and feet. | s | S | S | х | s | x | x |
| Limited horizontal motion with legs and feet. | s | s | s | x | S | X | х |
| Decreased ability to tolerate heat and cold. | x | x | X | X | x | x | X |
| Speech disorder. | х | S | S | X | x | X | x |
| Loss of normal speed in motor coordination/slowed reflexes. | s | s | s | x | S | Х | x |
| Fear of crime. | s | • | • | X | S | X | X |
| Fear of heights (vertigo). | s | • | S | Х | x | x | X |
| Agoraphobia. | s | • | S | X | X | X | X |
| Claustrophobia. | s | • | S | X | X | X | X |
| Fear of loud noises. | s | s | • | * | X | Х | • |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | No warning of potential hazards. | No orientation cue as to start of approach. | Lack of orientation cues generally. | Pathway junctions which are not at 90 degree angle or which curve. | No detectable orientation cue as to start of channelization. | Walkway not channelized. | Traffic noise. |
|---|----------------------------------|---|-------------------------------------|--|--|-----------------------------|----------------|
| Uses white cane for guidance (visually impaired). | • | • | • | • | • | • | • |
| Uses guide dog. | • | • | • | • | • | • | • |
| Limited ability to acquire or process visual stimuli. | • | • | • | • | • | • | • |
| Limited ability to per- ceive or process auditory stimuli. | S | s | s | x | S | х | • |

| <pre>KEY X = No problem for this group. S = Solution for this problem is known. = Solution for this problem is not known.</pre> | High wind gusts present. | Wind generated by traffic. | Inadequate provision for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
|--|-----------------------------|----------------------------|--|--|
| Difficulty with environ- mental orientation. | • | • | S | s |
| Understanding deficit. | • | • | S | s |
| Limited attention span. | • | • | S | s |
| Memory deficit. | х | X | S | s |
| Decreased ability to sequence, judge time, direction, distance, size. | • | • | S | s |
| Impaired night vision. | • | • | S | s |
| Impaired cutaneous sensation detection. | х | x | S | s |
| Chronic stooped posture. | • | • | s | s |
| Difficulty in main- taining equilibrium. | • | • | s | s |
| Moves at slow speed. | • | • | s | s |
| Swaying, shuffling, uneven, eratic or stag- gering gait. | • | • | s | S |
| Frequent need to rest during exercise. | • | • | S | s |

| | | | | - |
|---|-----------------------------|----------------------------|--|--|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | High wind gusts present. | Wind generated by traffic. | Inadequate provisions for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
| Reduced tolerance to brisk exercise (need to move slowly). | • | • | s | S |
| Limited ability to stand for long periods. | • | • | s | s |
| Impaired bladder control. | х | X | X | S |
| Extreme of size (dwarfism, giantism, obesity, etc.). | • | • | s | s |
| Cardiac Pacemaker affected by electrical interference. | x | Х | х | s |
| Uses powered or manual wheelchair. | • | • | s | s |
| Uses walker, crutches, orthopedic cane. | • | • | s | s |
| Prosthesis (including braces) for lower extremities. | • | • | S | S |
| Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds. | • | • | x | X |
| Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands). | x | X | S | s |
| Limited reach. | х | X | S | S |

| | T | | | |
|---|-----------------------------|----------------------------|--|--|
| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | High wind gusts present, | Wind generated by traffic. | Inadequate provision for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
| Limited manual dexterity. | Х | х | S | S |
| Inability to turn head. | • | • | S | s |
| Decreased ability to stoop. | X | Х | X | s |
| Difficulty standing from sitting position, or in sitting down. | X | x | s | s |
| Limited vertical motion with legs and feet. | • | • | s | s |
| Limited horizontal motion with legs and feet. | • | • | s | s |
| Decreased ability to tolerate heat and cold. | • | • | x | s |
| Speech disorder. | х | X | X | х |
| Loss of normal speed in motor coordination/slowed reflexes. | • | • | s | s |
| Fear of crime. | x | X | X | х |
| Fear of heights (vertigo). | х | X | X | Х |
| Agoraphobia. | x | X | Х | х |
| Claustrophobia. | х | X | X | Х |
| Fear of loud noises. | х | X | Х | х |

| <pre>X = No problem for this group. S = Solution for this problem is known. • = Solution for this problem is not known.</pre> | High wind gusts present. | Wind generated by traffic. | Inadequate provisions for rain-water runoff. | Walkways and sidewalks not kept clear of snow, ice and debris. |
|---|-----------------------------|----------------------------|--|--|
| Uses white cane for guidance (visually impaired). | • | • | s | s |
| Uses guide dog. | • | • | S | s |
| Limited ability to acquire or process visual stimuli. | • | • | s | s |
| Limited ability to per- ceive or process auditory stimuli. | • | х | х | x |

COST ESTIMATES



IMPEDIMENTS TO REACHING END CONDITION

1

Alternative 1-Install signing, striping and curb cuts

COST ESTIMATE

| <u>Item</u> | Quantity | Unit Price | Total | | |
|--|---------------|---------------|----------------|--|--|
| Painted X-walk stripes | 40 1.f. | \$.09/l.f. | \$ 4 | | |
| Curb cuts | 2 ea. | 700.00/ea. | 1,400 | | |
| Sidewalk | .6 c.y. | 200.00/c.y. | 120 | | |
| Traffic sign and post | 1 ea. | 100.00/ea. | 100 | | |
| | Contingencies | | \$1,624 476 | | |
| | Total 1979 co | ost | \$2,100 | | |
| l.f. = lineal feet c.y. = cubic yards. | | | | | |

Alternative 2 - Install Traffic Signal

COST ESTIMATE

The cost for a pedestrian actuated signal installation controlling a one-lane off ramp is \$10,000 assuming power is readily available. An isolated pedestrian actuated signal controlling a midblock crosswalk of a 4-lane roadway would cost approximately \$15,000. Fully actuated signalization of an intersection of a four lane and a two-lane road would amount to \$64,000.

Alternative 3 - Construct Ramp Undercrossing

| | 1 | <u></u> | - | |
|--|----------------|---------------|-------------------|--|
| <u>Item</u> | Quantity | Unit Price | <u>Total</u> | |
| Mobilization | Lump sum | | \$ 9,000 | |
| Clearing | 4,000 s.f. | \$.25/s.f. | 1,000 | |
| Traffic Control | Lump sum | | 1,000 | |
| Shoring | 1,200 s.f. | 5.00/s.f. | 6,000 | |
| Excavation | 1,040 c.y. | 9.00/c.y. | 9,360 | |
| Backfill | 432 c.y. | 15.00/e.y. | 6,480 | |
| Concrete | 325 c.y. | 275.00/c.y. | 89,375 | |
| Reinforcing | 65,000 lbs. | .40/lb. | 26,000 | |
| Finishes | 5,4000 s.f. | .50/s.f. | 2,700 | |
| Sidewalks | 2,400 s.f. | 1.30/s.f. | 3,120 | |
| Paving (AC) | 500 s.f. | 1.00/s.f. | 500 | |
| Lighting/Electrical | 10 fixtures | 400.00/ea. | 4,000 | |
| Landscaping/Drainage | 2,000 s.f. | .50/s.f. | 1,000 | |
| | | 4 | \$159,53 5 | |
| | Contingencies | | 40,465 | |
| | Total 1979 cos | t | \$200,000 | |
| s.f. = square feet l.f. = lineal feet c.y. = cubic yards | | | | |

PATHWAY LEADING TO OVERCROSSING IS TOO STEEP AND/OR TOO LONG

\$17,100

Alternative 1-Construct new ramp with rest areas

s.f. = square feet

| COST ESTIMATE | | | |
|--|---------------|----------------------|-------------------|
| <u>Item</u> | Quantity | Unit <u>Price</u> | Total |
| Construct off-path rest areas | 2 | \$500 ea | \$1,000 |
| Remove existing 12.5% grade ramp | 920 s.f. | 1/s.f. | 920 |
| Construct new ramp | 1,530 | 2/s.f | 3,060 |
| Grading and compacting | Lump sum | 500 | 500 |
| Handrail along new ramp | 360 l.f. | 15.50/l.f. | 5,580 |
| Handrail along existing 8.33% grade ramp | 170 l.f. | 15.50/l.f. | 2,635 |
| | Contingencies | | \$13,695 3,405 |

TOTAL

1.f. = lineal feet

Alternative 2 - Overlay and extend ramp with rest areas

| | | | |
|--|---------------|----------------------|-------------------|
| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> |
| Construct off-path rest areas | 2 ea. | \$500 ea | \$ 1,000 |
| Overlay and extend existing ramp | 1,530 s.f. | 2/s.f. | 3,060 |
| New embankment | 340 c.y. | 5/e.y. | 1,700 |
| Handrail along new ramp | 360 l.f. | 15.50/l.f. | 5,580 |
| Handrail along existing 8.33% grade ramp | 170 l.f. | 15.50/l.f. | 2,635 |
| | Contingencies | 4 | \$13,975 3,425 |
| TOTAL 1979 cost \$17, s.f. = square feet l.f. = lineal feet c.y. = cubic yards | | | |

Alternative 3 - Install an elevator

| COST ESTIMATE | | | | |
|---|---------------|-------------------------|--------------|--|
| Item | Quantity | Unit <u>Price</u> | <u>Total</u> | |
| Mobiliztion | Lump sum | | \$ 2,500 | |
| Drilling | 20 l.f. | \$ 15.00/l.f. | 300 | |
| Excavation | 27 c.y. | 8.00/c.y. | 216 | |
| Backfill | 16 c.y. | 12.00/c.y. | 192 | |
| Concrete | 3 c.y. | 400.00/c.y. | 1,200 | |
| Reinforcing | 500 lbs. | .50/lb. | 250 | |
| Structural steel | 9,000 lbs. | 1.50/lb | 13,500 | |
| Enclosure (wire) | 1,000 s.f. | 5.00/s.f. | 5,000 | |
| Elevator (complete) | 1 ea. | 15,000 ea. | 15,000 | |
| Equipment enclosure | lump sum | | 2,000 | |
| Power hook-up | lump sum | | 500 | |
| | | | \$40,658 | |
| | Contingencies | Contingencies | | |
| | Total 1979 Co | Total 1979 Cost . \$51, | | |
| 1.f. = lineal feet c.y. = cubic yards s.f square feet | | | | |

STAIRS ONLY ON APPROACH TO OVERCROSSING: STRAIGHT FLIGHT SPACE FOR RAMP ON BOTH SIDES

3

Alternative 1 - Construct ramp to supplement stairs

COST ESTIMATE

Assume one ramp at 8 runs.

| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> | |
|--|----------------|----------------------|--------------|--|
| Mobilization | Lump sum | | \$ 4,500 | |
| Cleaning | 1,500 s.f. | .50/s.f. | 750 | |
| Excavation | 50 c.y. | 12.00/c.y. | 600 | |
| Backfill | 32 c.y. | 12.00/c.y. | 384 | |
| Concrete | 180 c.y. | 300.00/c.y. | 54,000 | |
| Reinforcing | 54,000 lbs | .40/lb | 21,600 | |
| Finishes | 4,000 s.f. | .30/s.f. | 1,200 | |
| Railings | 500 1.f. | 15.00/l.f. | 7,500 | |
| Sidewalk | 400 s.f. | 1.20/s.f. | 480 | |
| Landscaping/drainage | 1,500 s.f. | .50/s.f. | 750 | |
| | | | \$ 91,764 | |
| | Contingencies | | 19,736 | |
| | Total 1979 Cos | t | \$111,500 | |
| l.f. = lineal feet c.y. = cubic yards s.f. = square feet | | | | |

Alternative 2 - Install elevators to supplement stairs

| Item | Quantity | Unit <u>Price</u> | Total | |
|--|-----------------|----------------------|----------|--|
| Mobilization | Lump sum | | \$ 5,000 | |
| Drillling | 40 l.f. | \$ 15.00/l.f. | 600 | |
| Excavation | 54 c.y. | 8.00/c.y. | 432 | |
| Backfill | 32 с.у. | 12.00/c.y. | 384 | |
| Concrete | 6 с.у. | 400.00/c.y. | 2,400 | |
| Reinforcing | 1,000 lb | .50/lb | 500 | |
| Structural steel | 18,000 lb | 1.50/lb | 27,000 | |
| Enclosure (wire) | 2,000 s,f. | 5.00s.f. | 10,000 | |
| Elevator (complete) | 2 ea. | 15,000.00 ea | 30,000 | |
| Equipment enclosure | Lump sum | | 4,000 | |
| Power hook-up | Lump sum | | 1,000 | |
| | Contingencies | 81,316 19,684 | | |
| | Total 1979 Cost | | | |
| l.f. = lineal feet s.f. = square feet c.y. = cubic yards | | | | |

STAIRS ONLY ON APPROACH TO OVERCROSSING: STRAIGHT FLIGHT SPACE FOR RAMP ON BOTH SIDES ONLY



Alternative 1 - Construct ramp to supplement stairs

| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> |
|----------------------------------|---------------|----------------------|-------------------|
| Curb removal | 60 l. f. | \$ 3/1.f. | \$ 180 |
| Sidewalk (remove/replace) | 150 s.f. | 2.50/l.f. | 380 |
| Ramp construction | 605s.f. | 2/s.f. | 1,200 |
| Railings | 200 1.f. | 15.50/l.f. | 3,100 |
| Retaining walls (Reinf. Conc.) | 138 1.f. | 116/l.f. | 16,000 |
| | Contingencies | | \$20,860 5,240 |
| | TOTAL 1979 | \$26,100 | |
| l.f. = lineal feet s.f. = square | feet | | |

STAIRS ONLY ON APPROACH TO OVERCROSSING: STRAIGHT FLIGHT SPACE FOR RAMP ON ONE END AND ONE SIDE



Alternative 1 - Construct ramp to supplement stairs

COST ESTIMATE

The cost estimate assumes ramp construction to serve one side of the structure.

| Item | Quantity | Unit Price | Total |
|--|---------------|---------------|--------------------|
| Mobilization | Lump sum | | \$ 3,000 |
| Clearing | 1,500 | .50/s.f. | 750 |
| Excavation | 50 c.y. | 12.00/c.y. | 600 |
| Backfill | 32 c.y. | 12,00/c.y. | 384 |
| Concrete | 100 c.y. | 300.00/c.y. | 30,000 |
| Reinforcing | 32,000 lb | .40/lb | 12,800 |
| Finishes | 3,000 s.f. | .30/s.f. | 900 |
| Railings | 180 l.f. | 15.00/l.f. | 2,700 |
| Sidewalks | 400 s.f. | 1.20/s.f. | 480 |
| Landscaping/Drainage | 1,500 s.f. | .50/s.f. | 750 |
| | Contingencies | | \$52,364 12,636 |
| TOTAL 1979 Cost | | | \$65,000 |
| s.f. = square feet l.f. = lineal feet c.y. = cubic yards | | | |

Alternative 2 - Install elevator to supplement stairs

| Item | Quantity | Unit <u>Price</u> | Total | |
|---|----------------|----------------------|----------|--|
| Mobilization | Lump sum | | \$ 2,500 | |
| Drilling | 20 l.f. | \$ 15.00/1.f. | 300 | |
| Excavation | 27 c.y. | 8.00/c.y. | 216 | |
| Backfill | 16 c.y. | 12.00/c.y. | 192 | |
| Concrete | 3 c.y. | 400.00/c.y | 1,200 | |
| Reinforcing | 500 lbs. | .50/lb. | 250 | |
| Structural steel | 9,000 lbs. | 1.50/lb. | 13,500 | |
| Enclosure (wire) | 1,000 s.f. | 5.00/s.f. | 5,000 | |
| Elevator (complete) | 1 ea. | 15,000.00/ea | 15,000 | |
| Equipment enclosure | Lump sum | | 2,000 | |
| Power hook-up | Lump sum | | 500 | |
| | | | \$40,658 | |
| | Contingencies | | 10,342 | |
| | Total 1979 cos | t | \$51,000 | |
| l.f. = lineal feet c.y. = cubic yard s.f. = square feet | | | | |

RAMP ON APPROACH TOO LONG AND/OR TOO STEEP: STRAIGHT RAMP: SPACE AT END AND AT LEAST ONE SIDE



Alternative 1 - Overlay and extend ramp with rest areas

COST ESTIMATE

| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> |
|---------------------------------------|---------------|----------------------|--------------|
| Embankment | 860 | \$ 5/e.y. | \$ 4,300 |
| Paving | 2,480 | 1/s.f. | 2,900 |
| Railing | 720 | 15.50/l.f. | 11,200 |
| | | ··· | \$18,400 |
| | Contingencies | | 4,600 |
| | TOTAL 1979 c | ost | \$23,000 |
| s.f. = square feet c.y. = cubic yards | | | |

Alternative 2 - Overlay and extend ramp with off-ramp rest areas

| <u>Item</u> | Quantity | Unit Price | <u>Total</u> |
|--------------------------------|---------------|---------------|-------------------|
| Embankment | 750 c.y. | \$ 5/c.y. | \$ 3,750 |
| Paving | 2,560 s.f. | 1/s.f. | 2,560 |
| Rest Areas | 9 | 500/ea | 4,500 |
| Railing | 730 l.f. | 15.50/l.f. | 8,395 |
| | Contingencies | | \$19,205 4,795 |
| | TOTAL 1979 c | ost | \$24,000 |
| s.f. = square feet l.f. = line | eal feet c.y. | = cubic yards | |

Alternative 3 - Construct new ramp with rest areas

| <u>Item</u> | Quantity | Unit Price | Total |
|-----------------------------------|--------------|---------------|--------------------|
| Same costs as Problem 6 (Alt. 1) | | | \$18,400 |
| Wooden 2" x 6" Headers | 370 l.f. | \$2/1.f. | 1,800 |
| Deduct most of embankment | | | \$20,200 -3,800 |
| | Contingencie | es | \$16,400 4,100 |
| | TOTAL 197 | l cost | \$20,500 |
| 1.f. = lineal feet | | | |

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: STRAIGHT RAMPS; SPACE ON ONE SIDE ONLY



Alternative 1 - Construct new ramp V Pattern

COST ESTIMATE

| <u>Item</u> | Quantity | Unit Price | Total |
|------------------------|-----------------|---------------|-------------------|
| Grading Allowance | | Lump sum | \$ 500 |
| Wooden 2" x 6" headers | 460 l.f. | \$ 2.50/s.f. | 1,150 |
| Paving | 1,840 s.f. | 1.00/l.f. | 1,800 |
| Railing | 480 l.f. | 15.50/l.f. | 7,400 |
| | Contingencies | | \$10,850 2,750 |
| | TOTAL 1979 | cost | \$13,600 |
| 1.f. = lineal feet s.f | . = square feet | | |

Alternative 2 - Construct new ramp M Pattern

| Item Same cost as Problem 7 (Alt. 1) | Quantity | Unit Price | <u>Total</u> \$10,850 |
|--------------------------------------|-----------------|---------------|--------------------------|
| Additional Length | 20 ft. | \$13.00/ft. | 260 |
| | Contingencie | s | \$11,110 2,790 |
| | TOTAL 1979 cost | | \$13,900 |

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: STRAIGHT RAMP; SPACE AT END ONLY



Alternative 1 - Construct new ramp over existing ramp

| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> | |
|--------------------------------------|----------------|----------------------|--------------|--|
| Remove Existing Railing | 80 l.f. | \$ 5/1.f. | \$ 400 | |
| New Railing | 140 l.f. | 15.50/l.f. | 2,200 | |
| Concrete Overlay | 7 c.y. | 300/c.y. | 2,100 | |
| Ramp Extention | 5 c.y. | 200/c.y. | 1,000 | |
| Grading Allowance | | Lump sum | 500 | |
| | | l | \$6,200 | |
| | Contingencies | | 1,100 | |
| | Total 1979 cos | t | \$7,300 | |
| l.f. = lineal feet c.y. = cubic feet | | | | |

Alternative 2 - Demolish existing ramp and construct new ramp

| <u>Item</u> | Quantity | Unit Price | Total | |
|--------------------------------------|---------------|---------------|-------------------|--|
| Demolish Existing Ramp | | Lump sum | \$ 500 | |
| Construct Sidewall | 90 1.f. | \$115/l.f. | 5,800 | |
| Paving | 910 s.f. | 2/s.f. | 1,200 | |
| Railing | 140 l.f. | 15.50/l.f. | 2,200 | |
| Grading Allowance | | Lump sum | 800 | |
| | Contingencies | | \$10,500 2,600 | |
| | TOTAL 1979 | cost | \$13,100 | |
| l.f. = lineal feet s. f. square feet | | | | |

Alternative 1 - Construct off-ramp rest areas

COST ESTIMATE

| Item Rest Areas | Quantity 5 ea | Unit Price | Total \$2,500 |
|--------------------|----------------------------|------------|------------------|
| Railing | 264/1.f. | 15.50/l.f. | \$6,600 |
| | Contingencies TOTAL 1979 c | ost | \$8,200 |
| 1.f. = lineal feet | | | |

Alternative 2 - Overlay existing ramp to create rest areas

| <u>Item</u> | Quantity | Unit <u>Price</u> | Total |
|--------------------|---------------|----------------------|---------|
| Rest Areas | 5 ea | \$150/ea | \$ 750 |
| Railing | 318/l.f. | . 15.50/l.f. | 4,929 |
| | | · | \$5,679 |
| | Contingencies | | 1,421 |
| | TOTAL 1979 c | eost | \$7,100 |
| 1.f. = lineal feet | | | |

Alternative 3 - Construct on-ramp rest areas (Partial width)

| Item Rest Areas Railings | Quantity 5 ea. 293/1.f. | Unit <u>Price</u> \$300/ea. 15.50/l.f. | Total \$1,500 4,542 |
|--------------------------|----------------------------|---|-----------------------------|
| | Contingencies TOTAL 1979 c | ost | \$6,042 1,458 \$7,500 |
| 1.f. = lineal feet | <u> </u> | | |

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: DOGLEG RAMP: SPACE AT ENDS ONLY



Alternative 1 - Demolish and construct new ramp at one end

| <u>Item</u> | Quantity | Unit Price | <u>Total</u> | |
|--|-----------------|---------------------------------------|--------------|--|
| Mobilization | Lump Sum | | \$ 9,000 | |
| Demolition | 200 c.y. | \$ 70.00/c.y. | 14,000 | |
| Excavation | 260 c.y. | 10.00/c.y. | 2,600 | |
| Backfill | 170 c.y. | 12.00/c.y. | 2,040 | |
| Fill | 10 c.y. | 25.00/c.y. | 250 | |
| Reinforcing | 74,000 lbs. | .40/lb. | 29,600 | |
| Concrete | 300 c.y. | 300.00/c.y. | 90,000 | |
| Finishes | 7,000 s.f. | .30/s.f. | 2,100 | |
| Railings | 270 s.f. | 15.00/l.f. | 4,050 | |
| Sidewalk | 400 s.f. | 1.20/s.f. | 480 | |
| Landscape/drainage | 2,000 s.f. | .50/s.f. | 1,000 | |
| | | · · · · · · · · · · · · · · · · · · · | \$155,120 | |
| | Contingencies | 38,880 | | |
| | TOTAL 1979 Cost | | \$194,000 | |
| c.y. = cubic yards s.f. = square feet l.f. = lineal feet | | | | |

Alternative 2-Rebuild existing ramp

COST ESTIMATE

Reconstruction would include constructing additional columns and walls to support the raised ramp. Estimated total cost would be 50 percent of demolishing the existing ramp and rebuilding a new one or approximately \$100,000.

Alternative 3 - Install an elevator

COST ESTIMATE

Basic equipment cost remain the same as those developed for Problem 5 - Alternative 2 which equals \$51,000.

RAMPS ON APPROACH TOO LONG AND /OR TOO STEEP: DOGLEG RAMP: SPACE AT ONE END ONLY AND ONE SIDE

Alternative 1-Jack End of Existing Ramp

| COSI ESIIMAIE | · · · · · · · · · · · · · · · · · · · | | | |
|--|---------------------------------------|----------------------|----------|--|
| <u>Item</u> | Quantity | Unit <u>Price</u> | Total | |
| Mobilization | Lump sum | | \$ 4,000 | |
| Demolition | 50 c.y. | \$100.00/c.y. | 5,000 | |
| Shoring | 2,000 s.f. | 3.00/s.f. | 6,000 | |
| Excavation | 100 c.y. | 15.00/c.y. | 1,650 | |
| Backfill | 80 c.y. | 20.00/c.y. | 1,600 | |
| Fill | 240 с.у. | 20.00/c.y. | 4,800 | |
| Jacking | Lump sum | | 4,000 | |
| Concrete | 62 c.y. | 400.00/c.y. | 24,800 | |
| Reinforcing | 22,000 lbs. | .50/lb. | 11,000 | |
| Finishes | 600 s.f. | 1.00/s.f. | 600 | |
| Railings | 200 1.f. | 15.00/l.f. | 3,000 | |
| Sidewalk | 800 s.f. | 1.20/s.f. | 960 | |
| Landscaping/drainage | 3,000 s.f. | .50/s.f. | 1,500 | |
| | | | \$68,910 | |
| | Contingencies | Contingencies | | |
| TOTAL 1979 Cost | | | \$86,000 | |
| c.y. = cubic yards s.f. = square feet l.f. = lineal feet | | | | |

Alternative 2 - Demolish and rebuild ramps

COST ESTIMATE

The work requirements and construction quantities are essentially identical to those detailed for prototypical Problem 10 - Alternative 1. Therefore, the cost can be assumed to be the same or \$194,000.

Alternative 3 - Install an elevator

COST ESTIMATE

The work requirements and construction quantities are essentially identical to those detailed for prototypical Problem 5 - Alternative 2. Therefore, the cost can be assumed to be the same or \$51,000.

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: MULTILEVEL DOGLEG RAMP; SPACE AT BOTH ENDS

12

Alternative 1 - Demolish and rebuild ramps

COST ESTIMATE

Review of the major items of work shows that basic quantities almost double quantities developed for a similar situation detailed in Problem 10 - Alternative 1. Therefore, the cost estimated is 1.8 times \$194,000 (Problem 10 - Alternative 1) or \$349,200.

Alternative 2 - Install an elevator

COST ESTIMATE

Basic equipment costs remain the same as those developed from Problem 5 - Alternative 2; however, the structure portrayed in Problem 12 is higher. Estimated increase in cost can be found by multiplying elevator cost detailed in Problem 5 by a factor of $1.15 \times 51,000 = 59,000$.

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: DOGLEG RAMPS WITH HELICAL ENDS INSTEAD OF LANDINGS

Alternative 1 - Demolish and rebuild

| Item | Quantity | Unit Price | <u>Total</u> |
|--|-------------------------------|---------------|--------------|
| Mobilization | Lump sum | | \$ 9,000 |
| Demolition | 200 c.y. | \$ 70.00/c.y. | 14,000 |
| Excavation | 260 c.y. | 10.00/c.y. | 2,600 |
| Backfill | 170 c.y. | 12.00/c.y. | 2,040 |
| Fill | 10 c.y. | 25.00/c.y. | 250 |
| Reinforcing | 74,000 lbs. | .40/lb. | 29,600 |
| Concrete | 300 с.у. | 300.00/c.y. | 90,000 |
| Finishes | 7,000 s.f. | .30/s.f. | 2,100 |
| Railings | 270 l.f. | 15.00/l.f. | 4,050 |
| Sidewalk | 400 s.f. | 1.20/s.f. | 480 |
| Landscape/drainage | 2,000 s.f. | .50/s.f. | 1,000 |
| | | | \$155,120 |
| | Contingencies Total 1979 cost | | 38,880 |
| | | | \$194,000 |
| l.f. = lineal feet s.f. = square feet c.y. = cubic yards | | | |

Alternative 2 - Install an elevator

| COSI ESIIMATE | , | | | |
|---|--------------------------------|----------------------|----------|--|
| <u>Item</u> | Quantity | Unit <u>Price</u> | Total | |
| Mobilization | Lump sum | | \$ 2,500 | |
| Drilling | 20 l.f. | \$ 15.00/l.f. | 300 | |
| Excavation | 27 c.y. | 8.00/c.y. | 216 | |
| Backfill | 16 c.y. | 12.00/c.y. | 192 | |
| Concrete | 3 c.y. | 400.00/c.y. | 1,200 | |
| Reinforcing | 500 lbs. | .50/lb. | 250 | |
| Structural steel | 9,000 lbs. | 1.50/lb. | 13,500 | |
| Enclosure (wire) | 1,000 s.f. | 5.00/s.f. | 5,000 | |
| Elevator (complete) | 1 ea. | 15,000.00/ea. | 15,000 | |
| Equipment enclosure | Lump sum | | 2,000 | |
| Power hook-up | Lump sum | | 500 | |
| | | | \$40,658 | |
| | Contingencies Total 1979 cost | | 10,342 | |
| | | | \$51,000 | |
| 1.f. = lineal feet s.f. = square feet c.y. = cubic yards. | | | | |

RAMPS ON APPROACH TOO LONG AND/OR TOO STEEP: RANDOM RAMP CONFIGURATION SOMETIMES FOLLOWS GROUND CONTOUR



Alternative 1 - Overlay portion of existing ramp and construct new ramp extension

COST ESTIMATE

| Item | Quantity | Unit Price | Total |
|------------------------------------|-----------------|---------------|-------------------|
| Demolition | Lump sum | | \$ 1,000 |
| Grading allowance | Lump sum | | 1,000 |
| Concrete overlay | 11 c.y. | \$300.00/c.y. | 3,300 |
| Ramp extension | 19 c.y. | 200.00/c.y. | 3,800 |
| Railing | 360 l.f. | 15.50/l.f. | 5,600 |
| | Contingencies | | \$14,700 3,700 |
| | Total 1979 cost | | \$18,400 |
| l.f. = lineal feet c.y. = cubic ya | rds. | | |

Alternative 2 - Install an elevator

COST ESTIMATE

Basic equipment costs remain the same as those developed from Problem 5 - Alternative 2 which equals \$51,000

Alternative 1 - Demolish and rebuild helical ramp

| | | | |
|---------------------------|---------------------|---------------|--------------|
| <u>Item</u> | Quantity | Unit Price | <u>Total</u> |
| Mobilization | Lump sum | | \$ 10,000 |
| Demolition | 200 с.у. | \$ 60.00/c.y. | 12,000 |
| Site preparation | 2,500 s.f. | 1.00/s.f. | 2,500 |
| Excavation | 150 c.y. | 10.00/c.y. | 1,500 |
| Backfill | 100 с.у. | 15.00/c.y. | 1,500 |
| Concrete | 300 с.у. | 300.00/c.y. | 96,000 |
| Reinforcing | 94,000 lbs. | .40/lb. | 37,600 |
| Finishes | 4,800 s.f. | .30/s.f. | 1,440 |
| Railing | 800 l.f. | 15.00/l.f. | 12,000 |
| Sidewalk | 800 s.f. | 1.20/s.f. | 960 |
| Landscaping/drainage | 2,500 s.f. | .50/s.f. | 1,250 |
| | | | \$176,750 |
| | Contingencies | • | 44,250 |
| | TOTAL 1979 Cost \$2 | | |
| s.f. = square feet l.f. = | lineal feet c.y. | = cubic yards | |

Alternative 2 - Install elevator

COST ESTIMATE

Basic equipment costs remain the same as those developed from Problem 5 - Alternative 2; however, the structure portrayed in Problem 15 is higher. Estimated increase in cost can be found by multiplying elevator cost detailed in Problem 5 by a factor of $1.15 \times 51,000 = 59,000$.

Alternative 3 - Construut new ramp to supplement existing helical ramp

COST ESTIMATE

Quantities and costs are similar though slightly less than those listed for Alternative 1. The major portion of the cost savings accrue by not demolishing the existing helical ramp. The cost estimate for a new box ramp structure amounts to \$200,000 as compared to \$220,000 required to demolish and rebuild the helical ramp.

STEEP CROSS SLOPE ON RAMP

(16)

Alternative 1 - Overlay existing ramp

COST ESTIMATE

Material cost to construct an overlay of the type shown in the sketch amounts to approximately \$300.00 per 100 lineal feet of an eight-foot wide ramp. Cost of installation could vary widely depending upon whether the overlay is built by local forces or a contractor and whether the project is only for the individual site or is an element of a larger or on-going contract where the contractor is already working in the area and therefore would not need to charge a relatively high price for mobilization.

Alternative 1 - Construct new ramp to supplement stairs

| <u>Item</u> | Quantity | Unit <u>Price</u> | Total |
|-------------------------------|--------------|----------------------|---------|
| Grading allowance | Lump sum | | \$ 200 |
| Demolition | . Lump sum | | 500 |
| Concrete (side ramp) | 4.5 c.y. | \$200.00/e.y. | 900 |
| Concrete (overlay) | 5.5 c.y. | 200.00/c.y. | 1,100 |
| Railing | 50.0 l.f. | 15.50/l.f. | 775 |
| | <u> </u> | | \$3,475 |
| | Contingencie | s | 825 |
| | Total 1979 c | eost | \$4,300 |
| l.f. = lineal feet c.y. = cub | ic yards | | |

STAIRS ONLY ON APPROACH TO UNDERCROSSING (RESTRICTED SPACE)

18

Alternative 1 Install elevator to supplement stairs

| CODI ESTIMATE | ····· | | |
|--|------------------|------------------------|----------|
| <u>Item</u> | | Unit Quantity Price | |
| Mobilization | Lump sum | | \$ 3,000 |
| Demolition | 6 c.y. | \$100.00/c.y. | 600 |
| Drilling | 20 l.f. | 30.00/l.f. | 600 |
| Shoring | 900 8.00/s.f. | 7,200 | |
| Excavation | 215 c.y. | 12.00/c.y. | 2,580 |
| Backfill | 140c.y. | 20.00/c.y. | 2,800 |
| Concrete | 65 c.y. | 250.00/e.y. | 16,250 |
| Reinforcing | 12,400 lbs40/lb | | 4,960 |
| Finishes | 2,000 s.f50/s.f. | | 1,000 |
| Elevator (1) complete | Lump sum | | 15,000 |
| Equipment enclosure | Lump sum | . | 3,000 |
| Power hook-up | Lump sum | Lump sum | |
| | | • | \$57,990 |
| | Contingencies | | 15,010 |
| TOTAL 1979 cost | | | \$73,000 |
| c.y. = cubic yards l.f. = lineal feet s.f. = square feet | | | |

Alternative 2 - Replace stairs with new ramp

COST ESTIMATE

| COST ESTIMATE | | TTm:A | | |
|---------------------|-------------------------|---------------|-----------|--|
| Item | Quantity | Unit Price | Total | |
| Mobilization | Lump sum | | \$ 7,000 | |
| Demolition | 6 c.y. | \$100.00/c.y. | 600 | |
| Excavation | 1,900 c.y. | 8.00/c.y. | 15,200 | |
| Backfill | 715 c.y. | 10.00/c.y. | 7,150 | |
| Concrete | 210 с.у. | 250.00/c.y. | 52,500 | |
| Reinforcing | 52,000 lbs | .40/lb | 20,800 | |
| Shoring | 3,200 s.f. | 8.00/s.f. | 25,600 | |
| Finishes | 4,800 s.f. | .30/s.f. | 1,440 | |
| Railing | 410 l.f. | 15.00/l.f. | 6,150 | |
| Lighting/electrical | 5 fixtures | 500.00 ea. | 2,500 | |
| | | | \$138,940 | |
| | Contingencies | Contingencies | | |
| | TOTAL 1979 Co | est | \$174,000 | |
| c.y. = cubic yards | s.f. = square feet 1.f. | = lineal feet | | |

Alternative 3- Install pedestrian actuated traffic signal

COST ESTIMATE

Installation of a new pedestrian-actuated signal at a typical four-legged intersection, including all striping, signing and curb cuts for wheelchair access, will cost approximately \$64,000 including design.

19

RAMP ONLY ON APPROACH

Alternative 1 - Construct stairs to supplement ramp

| COST ESTIMATE | | 1- | |
|--------------------|--------------------|----------------------|--------------|
| <u>Item</u> | Quantity | Unit <u>Price</u> | <u>Total</u> |
| Mobilization | Lump sum | · | \$ 2,000 |
| Excavation | 50 c.y. | \$ 10.00/e.y. | 500 |
| Backfill | 16 c.y. | 12.00/e.y. | 192 |
| Concrete | 60 с.у. | 350.00/e.y. | 21,000 |
| Reinforcing | 17,000 lb | .45/s.f. | 7,650 |
| Finishes | 2,100 s.f. | .40/s.f. | 840 |
| Railings | 160 l.f. | 15.00/l.f. | 2,400 |
| | | | \$34,582 |
| | Contingencie | es | 9,418 |
| | TOTAL 1979 | Cost | \$44,000 |
| c.y. = cubic yards | s.f. = square feet | 1.f. = lineal feet | t |

Alternative 1 - Widen sidewalk within original structure

COST ESTIMATE
Alternative 1(a)-Assuming 100 foot length of structure

| Mobilization | Lump sum | | \$ 500 | |
|--------------------------|---------------|------------------------|-----------|--|
| Prepare concrete surface | 500 s.f. | \$ 1.00/s.f. | 500 | |
| Bonding agent | 500 s.f. | .70/s.f. | 350 | |
| Concrete/finish | 20 c.y. | 75.00/c.y. | 1,500 | |
| New barrier rail | 100 l.f. | 25.00/1.f. | 2,500 | |
| Restripe | 200 l.f. | 2.00/1.f. | 400 | |
| | | | \$5,750 | |
| | Contingencies | | 1,550 | |
| | Total 1979 co | ost | \$7,300 | |
| | Equivalent to | \$73.00/lineal foot of | structure | |

COST ESTIMATE
Alternative 1(b)-Assuming 100 foot length of structure

| Item | Quantity | Unit Price | Total | | |
|----------------------------------|--|---------------|---------|--|--|
| Mobilization | Lump sum | | \$ 500 | | |
| Remove existing railing | 100 l.f. | \$ 5.00/1.f. | 500 | | |
| Prepare concrete | 100 s.f. | 1.00/s.f. | 100 | | |
| New railing base | 200 s.f. | 20.00/s.f. | 4,000 | | |
| New railing | 100 l.f. | 25.00/1.f. | 2,500 | | |
| | | | \$7,600 | | |
| | Contingencies | | 1,900 | | |
| | TOTAL 1979 o | eost | \$9,500 | | |
| | Equivalent to \$95.00/lineal foot of structure | | | | |
| l.f. = lineal feet s.f. = square | e feet c.y. = cubic | yards. | | | |

Alternative 2 - Widen original structure to accommodate sidewalk

COST ESTIMATE

Alternative 2 Assuming 100 foot length of structure

| <u>Item</u> | Quantity | Unit Price | Total | | |
|---------------------------------------|---|---------------|-----------|--|--|
| Mobilization | Lump sum | | \$ 1,300 | | |
| Remove existing railing | 100 l.f. | \$ 10.00/l.f. | 1,000 | | |
| Temporary railing | 100 l.f. | 10.00/l.f. | 1,000 | | |
| Structural steel brackets | 10 ea. | 750.00/ea. | 7,500 | | |
| Deck (grating) | 800 s.f. | 15.00/s.f. | 12,000 | | |
| Railing | 100 l.f. | 25.00/l.f. | 2,500 | | |
| Finishes | 800 s.f. | 2.00/s.f. | 1,600 | | |
| | - | <u> </u> | \$ 26,900 | | |
| | Contingencies | | 3,700 | | |
| | Total 1979 Cost \$ 30 | | | | |
| | Equivalent to \$306/lineal foot of structure or \$38/square foot of structure | | | | |
| l.f. = lineal feet s.f. = square feet | | | | | |

SLOPE ACROSS STRUCTURE TOO LONG AND/OR TOO STEEP

Alternative 1 - Construct off ramp rest areas

COST ESTIMATE

Cost of implementing the alcove seats is \$2,100 to \$2,400 each (see Appendix I). A cantilevered landing four feet wide and six feet long would be in the same cost range. However, this may vary depending upon the type of structure being appended.

Alternative 2 - Overlay existing ramp to create rest areas

COST ESTIMATE

The cost of an individual rest area of this type is approximately \$200.

Alternative 3 - Construct on-ramp rest areas (partial width)

COST ESTIMATE

The cost of an individual rest area of this type is approximately \$400.

Alternative 4 - Demolish and rebuild

COST ESTIMATES

Cost of building a new structure varies depending upon site conditions, therefore no cost breakdown was made.

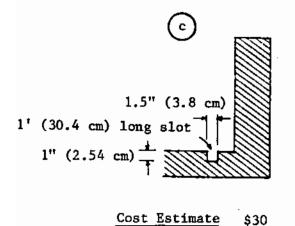
REST AREA ALTERNATIVES

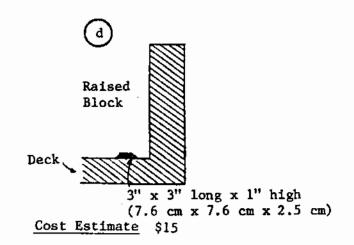


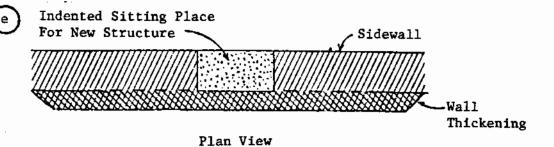
Holding Bar 18" (20.3 cm) Retractable Holding Bar Deck

Cost Estimate \$50

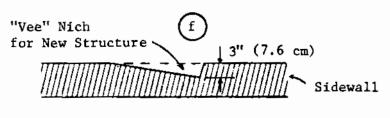
Cost Estimate \$70





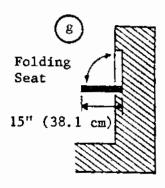


No Estimate

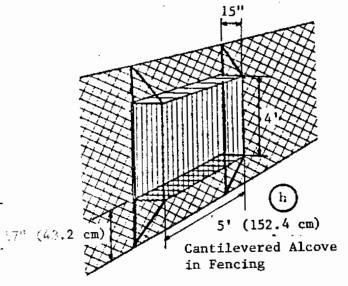


Plan View

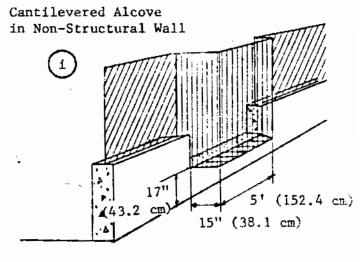
Cost Estimate \$30



Cost Estimate \$65



Cost Estimate \$2100



Cost Estimate \$2400

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FEDERALLY COORDINATED PROGRAM (FCP) OF HIGHWAY RESEARCH AND DEVELOPMENT

The Offices of Research and Development (R&D) of the Federal Highway Administration (FHWA) are responsible for a broad program of staff and contract research and development and a Federal-aid program, conducted by or through the State highway transportation agencies, that includes the Highway Planning and Research (HP&R) program and the National Cooperative Highway Research Program (NCHRP) managed by the Transportation Research Board. The FCP is a carefully selected group of projects that uses research and development resources to obtain timely solutions to urgent national highway engineering problems.*

The diagonal double stripe on the cover of this report represents a highway and is color-coded to identify the FCP category that the report falls under. A red stripe is used for category 1, dark blue for category 2, light blue for category 3, brown for category 4, gray for category 5, green for categories 6 and 7, and an orange stripe identifies category 0.

FCP Category Descriptions

1. Improved Highway Design and Operation for Safety

Safety R&D addresses problems associated with the responsibilities of the FHWA under the Highway Safety Act and includes investigation of appropriate design standards, roadside hardware, signing, and physical and scientific data for the formulation of improved safety regulations.

2. Reduction of Traffic Congestion, and Improved Operational Efficiency

Traffic R&D is concerned with increasing the operational efficiency of existing highways by advancing technology, by improving designs for existing as well as new facilities, and by balancing the demand-capacity relationship through traffic management techniques such as bus and carpool preferential treatment, motorist information, and rerouting of traffic.

3. Environmental Considerations in Highway Design, Location, Construction, and Operation

Environmental R&D is directed toward identifying and evaluating highway elements that affect

the quality of the human environment. The goals are reduction of adverse highway and traffic impacts, and protection and enhancement of the environment.

4. Improved Materials Utilization and Durability

Materials R&D is concerned with expanding the knowledge and technology of materials properties, using available natural materials, improving structural foundation materials, recycling highway materials, converting industrial wastes into useful highway products, developing extender or substitute materials for those in short supply, and developing more rapid and reliable testing procedures. The goals are lower highway construction costs and extended maintenance-free operation.

5. Improved Design to Reduce Costs, Extend Life Expectancy, and Insure Structural Safety

Structural R&D is concerned with furthering the latest technological advances in structural and hydraulic designs, fabrication processes, and construction techniques to provide safe, efficient highways at reasonable costs.

6. Improved Technology for Highway Construction

This category is concerned with the research, development, and implementation of highway construction technology to increase productivity, reduce energy consumption, conserve dwindling resources, and reduce costs while improving the quality and methods of construction.

7. Improved Technology for Highway Maintenance

This category addresses problems in preserving the Nation's highways and includes activities in physical maintenance, traffic services, management, and equipment. The goal is to maximize operational efficiency and safety to the traveling public while conserving resources.

0. Other New Studies

This category, not included in the seven-volume official statement of the FCP, is concerned with HP&R and NCHRP studies not specifically related to FCP projects. These studies involve R&D support of other FHWA program office research.

The complete seven-volume official statement of the FCP is available from the National Technical Information Service, Springfield, Va. 22161. Single copies of the introductory volume are available without charge from Program Analysis (HRD-3), Offices of Research and Development, Federal Highway Administration, Washington, D.C. 20590.

