

#### **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 age 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.
- 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, Pederal 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 phsycially handicapped persons, including those in wheelchairs, across curbs constructed or replaced on or after July 1, 1976, at all pedestrian crosswalks throughout the State.

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:

- (1) 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

- 1. American Association of State Highway and Transportation Officials, <u>A Policy on Design of Urban Highways and Arterial Streets</u>, Washington, D.C., 1973, p. 499.
- 2. 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 pub- lie transportation stop.
No sidewalk at end condition.
Parked cars restrict approach.
Parked cars obstruct view of approach.
No accessible parking.
No detectable pedestri <b>an cr</b> osswalk 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-
 Objects project into walkway (signs, trees, etc.).
Manhole covers and gratings in walkway.
Highly reflective surface materi-

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 struc- ture.	
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.	

A 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
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.	W & W.
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 metrix 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).

	Lo	cation a	nd End	Condi	tion	(LEC	)
Key: N = No mobility problem T = 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.	ı	I	D/B	N	1	N	I
Understanding deficit.	N	T	D/B	1	I	N	Ŧ
Limited attention span.	Ī	ī	D	I	I	N	I
Memory deficit.	I	1	I/D	I	I	N	I
Decreased ability to sequence, judge time, direction, distance, size.		Ņ	I/D	I	Ĭ	N	1
Impaired night vision.	D	D	I/D	D	D	N	ī
Impaired cutaneous sensation detection.		*** **-	N	I	Ť.	N	I
Chronic stooped posture.	T	I	I	I	I	N	I
Difficulty in main- taining equilibrium.	I	D	I	ī	I	D	I
Moves at slow speed.	1	I	I	Ï	I	I	I
Swaying, shuffling, uneven, eratic or stag- gering gait.	I	I	I/D	1	I	ı	Ī
Frequent need to rest during exercise.		D	I/D	I	I	D	# # #

Approximate as Environ Fire temporary (Africa), as an analysis (Africa) (Af	Į į	ocation	and En	d Cond	ition	(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.
Reduced tolerance to brisk exercise (need to move slowly).		I	I/D	N	N	, in the second	N
Limited ability to stand for long periods.		D	I	N	N	D	<u>.</u>
Impaired bladder control.	N	N	N	N	N	N	N
Extreme of size (dwarfism, giantism, obesity, etc.).	N	N	I	I	N	N	2
Cardiac Pacemaker affected by electrical interference.	)-;;*	N	N	N	N	И	N
Uses powered or manual wheelchair.	I	I	В	D	#	Ð	D
Uses walker, crutches, orthopedic cane.		* 1	D	I	I	I	
Prosthesis (including braces) for lower extremities.		I	D	I	<b>‡</b> .	I	I
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	N	in the state of th	.N	. <b>N</b>	Ñ	
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	g de constant de c	N	Ĩ	N	N	N	Z
Limited reach.	N	N	I	N	N	N	N

	Lo	cation	and End	Condi	tion	(LEC)	
	Portions of walkway are hidden from view (crime potential).	Dvercrossing/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.	1	N	N	1	D	1	I
Decreased ability to stoop.		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.	<b>3</b> .	1	I/D	I	I	I	ï.
Limited horizontal motion with legs and feet.	Ĩ	I	D	1	I	Ι	######################################
Decreased ability to tolerate heat and cold.	N	D	N	N	N	N	8
Speech disorder.	N	N	N	N	N	N	N
Loss of normal speed in motor coordination/slowed reflexes.	₩	Ĩ	I/D	**	Ι	Ι	**************************************
Fear of crime.	D	Ī	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	Ņ

	Loca	ition and	i End	Conditi	on (L	EC)	
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	Ι	I		D
Uses guide dog.	**	I	I/D	I	I		D
Limited ability to acquire or process visual stimuli.	Đ	I	D	I	I	I	I
Limited ability to per- ceive or process auditory stimuli.	D	N a	N	N	N	I	

	(LEC)							
<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 whe 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	ı	ı	N	N
Limited attention span.	N	1	N	N	1	N	N	1
Memory deficit.	N	I	N	N	I	N	N	n
Decreased ability to sequence, judge time, direction, distance, size.		I	D	N	I	F.	N	**************************************
Impaired night vision.	D	I	I	N	D	N	I	D
Impaired cutaneous sensation detection.	<b>*</b>	I	N	N	N	N	Ι	N
Chronic stooped posture.		I.	N	N	N	N	N	N
Difficulty in main- taining equilibrium.	I	1	D	N	I	I	N	ı
Moves at slow speed.	L	I	N	N	N	N	N	N
Swaying, shuffling, uneven, eratic or stag- gering gait.			D	N	N	I	N	
Frequent need to rest during exercise.	N	N	N	N	1	N	N	N

	/ <del></del>	Walkways							
W	(LEC)		**************************************	W	alkway	8 	······································		
<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	7.	N	1	N	N	N	
Limited ability to stand for long periods.	N	N	N	N	I	N	N		
Impaired bladder control.	N	N	N	N	I	N	N	N	
Extreme of size (dwarfism, giantism, obesity, etc.).	I	Ñ	D	D	Ņ	N	N	N	
Cardiac Pacemaker affected by electrical interference.	N	N	N	N	N	N	N	N	
Uses powered or manual wheelchair.	I	7	Ď	N	Ī	1	ı	Ĩ	
Uses walker, crutches, orthopedic cane.	I	I	I	A. T.	I	I	I	*	
Prosthesis (including braces) for lower extremities.	I	N	N	N	I	I	1		
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	N	N	N.	N	N	N	
Limited reach.	N	N	N	N	N	N	N	N	

	(LEC)			W	alkways	5		
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 surface 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.	ī	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.	I	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).	Ņ	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

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,	(LEC)			5	Walkways	o		
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 surface adjacent to walkway .	Objects project into walkway (signs, trees, etc).
Uses white came for guidance (visually impaired).	<b>.</b>	<del>[</del> ]	H	Z	<b>}4</b>	×	<b>⊢</b> ∢	hom shift
Uses guide dog.	ט	H	H	z	H	Z	H	ŧ⊷÷
Limited ability to acquire or process visual stimuli.	H	H	Н	z	Ö	<del>1-4</del>	Z	I/D
Limited ability to perceive or process auditory stimuli.	Б	2	z	Z	I/1)		**************************************	Z

77			Surf	ace Ma	terial		······································	
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.
Difficulty with environ- mental orientation.	N	I	N	N	N	N	N	Ĭ
Understanding deficit.	N	1	N	I/D	I	N	N	N
Limited attention span.	I	1	N	1	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	И	N	N	
Impaired night vision.	D	I	I	D/B	I	I/D	I/D	I/D
Impaired cutaneous sensation detection.	N	N	ы	N	N	I	I	÷
Chronic stooped posture.	Ν	N	N	D/B	N	N	N	N
Difficulty in main- taining equilibrium.		N	N	В	I	I	I	<b>.</b>
Moves at slow speed.	N	N	N	I/D	N	N	N	N
Swaying, shuffling, uneven, eratic or stag- gering gait.	<b>*</b>	N	N	D/B	***	I/D	I/D	1/b
Frequent need to rest during exercise.	N	N	N	I/D	N	N	N	N

			Suri	face Ma	ateria.			
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.
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	. The state of the	N	N
Impaired bladder control.	n	Ñ	Ŋ	N	N	N	N	N
Extreme of size (dwarfism, giantism, obesity, etc.).	N	N	N	<b>D</b> .	N	N	¥	N
Cardiac Pacemaker affected by electrical interference.	N	N	N	N	N	N	N	N
Uses powered or manual wheelchair,	D/I	N	en e	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.		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	
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	N	<u>F</u>	N	I/D	Ñ	N	N	N
Limited reach.	N	N	N	I/D	Ŋ	N	И	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	N	N
Inability to turn head.	I	N	N	I/D	N	N	N	N
Decreased ability to stoop.	N	N	N	Ŋ	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	1	I	I	1
Limited horizontal motion with legs and feet.	1	Ñ	N	В	I	I	Ι	I
Decreased ability to tolerate heat and cold.	N	N	N	N	N	N	N	Ŋ
Speech disorder.	N	N	N	N	N	N	N	N
Loss of normal speed in motor coordination/slowed reflexes.	I	N	И	I/D	I	ï	₩	I
Fear of crime.	Й	N	N	N	N	N	N	N
Fear of heights (vertigo)	D	N	N	Ŋ	N	N	N	N
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

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		mando managar a district	Suria	ce Mat	Surface Materials		Alle Marie Confliction Conflic	
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.	Crooves and patterns (cast into walkways or caused by small paving units).	Large, deep expansion joints.	Uneven and irregular surfaces.	Loose and soft surfaces (grayel, sand, etc.).	Rough surfaces.	Discontinuous surface materials.
Uses white cane for guidance (visually impaired).	<b>)</b>	22	<b>}</b> ∔	Þ	∺	₽÷I	<b>∤4</b>	H
Uses guide dog.	F-4	[md	H	I/D	<b>}</b> ↓	<b>;d</b>	<del>(~i</del>	<b>⊢</b>
Limited ability to acquire or process visual stimuli.	U/I	Ħ		Ü	<del>;</del> 4	<b>⊱</b> Ì	<del>jund</del>	<b>}</b> {
Limited ability to perceive or process auditory stimuli.	z	z	Z	×	z	N	Z	Z†

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	Ma	intena	nce		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 Iighted steps, stairs, ramps.	Treads less than 11" (too small).	Projecting nosings.
Difficulty with environ- mental orientation.	7-7-4 Marie Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma	N	N	N	N	I	N	N
Understanding deficit.	N	N	N	N	N	N	N	N
Limited attention span.	N	И	N	N	N	N	N	N
Memory deficit.	N	N	N	N	1	N	Ň	N
Decreased ability to sequence, judge time, direction, distance, size.		N	N	N	1	N	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	τ	I
Chronic stooped posture.	N	N	N	N	I	N	N	Ŋ
Difficulty in main- taining equilibrium.	I	ı	<b>T</b>	I	I	I/D	I.	Ĭ
Moves at slow speed.	N	N	N	I	N	I	N	N
Swaying, shuffling, uneven, eratic or stag- gering gait.	1/D	I/D	I/D	I/D	N	I/D	I/D	I/D
Frequent need to rest during exercise.	N	N	'n	I	N	I	N	N

	Ma	intena	ince		St	airway	<del></del>	
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.
Reduced tolerance to brisk exercise (need to move slowly).	N	N	N	I	1	I		
Limited ability to stand for long periods.	'n	N	N	I	Ņ	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	1	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	ı	В	ä
Uses walker, crutches, orthopedic cane.	I/D	I/D	I/D	D/B	D	<u> </u>	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	water the state of	n	N	de l'estate de	N
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	N	N	N	**************************************	N	N	И	N
Limited reach.	И	N	N	N	N	N	N	N

	ŀ	<b>Mainten</b>	ance		St	airway	/8	
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	N
Inability to turn head.	N	N	N	N	N	I	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
Limited vertical motion with legs and feet.	1	I	<b></b>	I	I/D	I	1	I
Limited horizontal motion with legs and feet.	I	I	I	I/D	N	I	I	I
Decreased ability to tolerate heat and cold.		ĸ	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	<b>1</b>	N	I	I	1
Fear of crime.	N	N	N	Ŋ	N	1	N	N
Fear of heights (vertigo)	N	N	I	N	N	I	N	N
Agoraphobia.	N	N	N	N	N	N	N	N
Claustrophobia.	N	Ŋ	N	n	N	N	N	N
Fear of loud noises.	N	N	N	N	N	N	N	N

Limited ability to perceive or process auditory stimuli.	Limited ability to acquire or process visual stimuli.	Uses guide dog.	Uses white came for guidance (visually impaired).	<pre>xey: N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier</pre>	
Z	port	<b>►</b> -(	<b>}1</b>	Debris from erosion on walkway. Disrepair (frost heaves,	Main
	∳⊷ <b>i</b>	şi	þwij	potholes, etc.).  Disrepair from vandalism or accident (handrails, guardrails, etc.).	Maintenance
Z	<b>}−</b> ‡	F	<b>}</b>	Stairway is only means of access to structure.	
22	I/D	<b>J</b>	<b>;ţ</b>	Stairway only on one side of structure.	Sta
Z	H	H	<b>}</b> 4	Poorly lighted steps, stairs, ramps.	Stairwaye
	şd	Je⊷4	<b>}</b> +	Treads less than 11" (too small).	
Z	<b>;1</b>	H	Ħ	Projecting nosings.	

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		Sı	tairwa	76			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	Ŋ
Understanding deficit.	N	N	N	N	I	N	N	N
Limited attention span.	N	N	N	N	D/B	N	N	I
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	×	I	I/D
Impaired night vision.	N	N	N	N	D/B	N	I	I
Impaired cutaneous sensation detection.	I	1	1	I	N	N	ĸ	N
Chronic stooped posture.	N	n	N	N	1/D	N	1	D/B
Difficulty in main- taining equilibrium.	I/D	I/D	I	I	D/B	Ñ	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	Î	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	8			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	***	N	I.	D/B
Limited ability to stand for long periods.	ĸ	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.).	Ţ	I	I	Ι	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	B	N	В	B
Uses walker, crutches, orthopedic cane.	D/B	D/B	D	ı	D	N	I/D	D/B
Prosthesis (including braces) for lower extremities.	D	D	D	I	I/D	N	I/D	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	1	N	N	n
Limited reach.	И	N	Ŋ	N	I	N	N	N

	Stairways					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.	Dangeroug stair Iocation.	Only ramps províded.	Only ramps provided on one side of structure.	Pathway leading to over/ undercrossing too steep and long.
Limited manual dexterity.	N	Я	N	N	I	N	N	N
Inability to turn head.	N	N	N	N	I/D	N	N	n l
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	И	N	N
Limited vertical motion with legs and feet.	N	ı	1	Ŋ	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	И	N	N
Loss of normal speed in motor coordination/slowed reflexes.	N	N	И	N	D/B	N	N	D/B
Fear of crime.	N	N	N	N	N	И	N	N
Fear of heights (vertigo).	I	D	N	N	N	N	N	N
Agoraphobia.	I/D	N	N	N	N	Ŋ	N	N
Claustrophobia.	N	N	N	N	Ŋ	N	N	N
Fear of loud noises.	N	И	N	и	N	N	N	N

The second secon		Sta	lirways	ì			Ramps	
<pre>Key: N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier</pre>	Open IIsers,	Risers greater than 7" (too high).	Step (settlement) between approach and structure.	Dangetous 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

	·			Ramp	>8			
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,
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	¥
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		D/B	N	N	N
Difficulty in main- taining equilibrium.	N	I	И	I/D	D/8	N	<b>*</b>	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	Ĭ.	N	I	D/B	N	I	1.

				Ramps	÷			
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 curs.	Helical ramp.	Ramp layout inconvenient.
Reduced tolerance to brisk exercise (need to move slowly).	3.	**************************************	N	Ţ	D/B	N	I	
Limited ability to stand for long periods.	I	N		Ŋ	D/B	N	Ι	
Impaired bladder control.	N	N	N	N	I/D	N	N	N
Extreme of size (dwarfism, giantism, obesity, etc.).	N	I	ĭ	Ï	D/B	N	N	N
Cardiac Pacemaker affected by electrical interference.	N		N	N	D	N	N	N
Uses powered or manual wheelchair.	1	Ď	1/B	D	B	D	D	D/B
Uses walker, crutches, orthopedic cane.	N/I	· · · · · · · · · · · · · · · · · · ·	# Y h	I/D	D/B	1	I	I
Prosthesis (including braces) for lower extremities.	I	I	N	I	D/B	N	Ι	<b>1</b>
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	N	N	N	N	N
Limited reach.	Ŋ	N	N	N	N	N	N/I	N/1

and the second s				Ramp	S			
Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier	Ramp toc 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	Ŋ	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.	Ī	D	N	ĭ	D/B	I	D	
Limited horizontal motion with legs and feet.	N	1	N	Warris.	D/B	I	D	Ĭ
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	Ī	Ņ	N	Ŋ
Fear of crime.	N	N	N	N	N	N	N	N
Fear of heights (vertigo).	N	N	N	N	N	N	D	N
Agoraphobía.	N	N	N	N	N	И	N	N
Claustrophobia.	N	N	I	N	N	Ñ	N	N
Fear of loud noises.	N	N	N	N	N	N	N	N

				Ram	>6		· · · · · · · · · · · · · · · · · · ·	7
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	I	I	N	N	I
Uses guide dog.	N	N	N	I	I	N	N	I
limited ability to acquire or process visual stimuli.	X	N	N	N	1/D	N	И	I
Limited ability to per- ceive or process auditory stimuli.	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	N	N	N	N	N	N	N

***	·	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.	Handralls higher than 36" (too high).	Handrails lower than 32" (too low).	No handrails.	Handrall inadequate for comfortable grasp.
Difficulty with environ- mental orientation.	N	I	N	I/D	N	N	N	N
Understanding deficit.	N	N	1	Ī	N	N	N	N
Limited attention span.	N	N	Ŋ	1	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	Ι	N	N	N	N
Impaired night vision.	I	I	1	I/D	N	N	N	N
Impaired cutaneous sensation detection.	N	N	N	N	N	N	N	N
Chronic stooped posture,	N	N	N	N	N	Ŋ	N	N
Difficulty in main- taining equilibrium.	I	I	K	I	I	D	1	1
Moves at slow speed.	N	N	N	N	N	I	N	M
Swaying, shuffling, uneven, eratic or stag- gering gait.	N	N	I/D	И	N	I	N.	N
Frequent need to rest during exercise.	N	N	N	N	N	N	N	N

A STATE OF THE STA		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).	Handralls lower than 32" (too low).	No handralls.	Handrall inadequate for comfortable grasp.
Reduced tolerance to brisk exercise (need to move slowly).	N	N	N	N	N	N	Ŋ	N
Limited ability to stand for long periods.	I	N	N	N	I	I	I	<b>T</b>
Impaired bladder control.	N	N	N	Ň	N	N	Ŋ	N
Extreme of size (dwarfism, giantism, obesity, etc.).	И	N	N	N .	D	1	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		r	I	I
Uses walker, crutches, orthopedic cane.	Ī	N	N	D/B	I	I	***	1
Prosthesis (including braces) for lower extremities.		N	N	N		ï	Ī	1
Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds.	, N	N	N	N		N	×	N
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	N	N	N	Ι		D	D	D
Limited reach.	N	N	N	<u> </u>	B/D	N	B/D	B/D

	,	Ramps			Handrails			
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.	Handrall inadequate for comfortable grasp.
Limited manual dexterity.	N	N	N	N	1	Ι	I	D
Inability to turn head.	N	N/I	N	N	N	N	N	N
Decreased ability to stoop.	N	И	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	1	I	I	I	I
Limited horizontal motion with legs and feet.	D	I	N	Ι	Ŋ	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	Ŋ	N
Loss of normal speed in motor coordination/slowed reflexes.	I.	1.	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.	Ŋ	N	N	N	N	N	N	N
Claustrophobia	N	N	N	N	Ñ	N	N	N
Fear of loud noises.	N	N	N	N	N	N	N	N

**************************************	Limited ability to perceive or process auditory stimuli.	Limited ability to acquire or process visual stimult.	Uses guide dog.	Uses white came for guidance (visually impaired).	Key:  N = No mobility problem  I = Inconvenient  D = Causes considerable  difficulty  B = An impossible  barrier	
		H	<del>} - 4</del>	\$v.(	Abrupt transition to connecting walkways.	
		<del>) nud</del>	<del> </del>	Ħ	Ramp exits directly into street or parking area (less than 6' clearance at bottom of ramp).	Ramps
	Z	I/D	<b>}-</b> [	H	Bollards in the middle of entrance to the ramp.	
	24	D/B	<b>1</b>	Đ	Steps in the middle of the ramp.	
	z	z	<b>23.</b>	<b>'</b> 24	Handrails higher than 36" (too high).	
	<b>75</b>	24	z	×	Nandrails lower than 32" (too low).	Hand
	**	z	z	*	No handrails.	Handrails
	<b>7</b> 3	Z	z	×	Handrall inadequate for comfortable grasp.	

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		Handr	aile		Guard	rails,	Barri	cades
Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty B = An impossible barrier	Handrall 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 handralls on ramps.	Barricades not detectable (blind cane).	Guardralls 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	Ň	D	N	N	N
Limited attention span.	N	N	N	N	N	N	N	N
Memory deficit.	Ŋ	N	N	N	N	N	N	N
Decreased ability to sequence, judge time, direction, distance, size.	N	N	N	N	D	Ι	N	I
Impaired night vision.	N	N/I	N	N	D	I	1	I
Impaired cutaneous sensation detection.	Į Į	N	N	N	I	N	N	N
Chronic stooped posture.	N	N	N	N	N	N	N	N
Difficulty in main- taining equilibrium.	\$ <del></del>	I	I	D	N	Ţ	I	I
Moves at slow speed.	N	I	N	N	N	N	N	N
Swaying, shuffling, uneven, eratic or stag-gering gait.	\$	I	I	I		N	N	N
Frequent need to rest during exercise.		N	I.	I	N	N	N	N

		Hand	rails		Guard	drails,	Barri	cades
Key: N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier	<pre>Handrall material metal or aluminum (hot in hot weather, cold in cold).</pre>	Handrails not continuous.	Handralls don't extend far enough (1' at top and bottom of stairs and rawps).	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	Ī	1	N	N	N	Ž.
Limited ability to stand for long periods.		I	I	D	N	N	N	N
Impaired bladder control.	N	N	<b>1</b>	N	N	N	N	N
Extreme of size (dwarfism, giantism, obesity, etc.).	I	N	Ñ	Ι.	N	N	N	100 m
Cardiac Pacemaker affected by electrical interference.	N	N	Ŋ	N	N	N	N	N
Uses powered or manual wheelchair.	I	I	N	N	N	I	I	I
Uses walker, crutches, orthopedic cane.	<u>.</u>	<u>"</u>	I	Ĩ.	N	N	N	N
Prosthesis (including braces) for lower extremities.	Ī	1	<b>**</b>	ı	N	N	N	N
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	Ň	N	N	Ì	Ñ	N	N	The state of the s
limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	I	Ď	Ť.	Ï	N	N	N	7
Limited reach.	N	D/B	1	N	N	N	N	N

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		Handr	ails	8.D.F.M.W.W.W.W.W.W.W.W.W.W.W.W.W.W.W.W.W.W	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).	Randrails not continuous.	Handralls don't extend far enough (1' at top and bottom of stairs and ramps).	No handralls on ramps.	Barricades not detectable (blind cane).	Guardrails not continuous.	Guardrails too low (less than 42").	No pedestrian guardrails.
limited manual dexterity.	I	I	T	Ī	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	A CONTRACTOR OF THE CONTRACTOR	N	N	Ń
Limited vertical motion with legs and feet.	I	I	N	I	N	N	N	Ņ
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. Carlotte	D	D	Ī
Fear of crime.	N	N	N	N	N	N	N	N
Fear of heights (vertigo)	N	N	N	I/D	N	N	N	1/0
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

os —
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.
Uses white came for guidance (visually impaired). I I I I D D
Uses guide dog. I I N N N N
limited ability to acquire   I N I/D I/D I/D I/D I/D
Limited ability to per- N N N N N N N Stimuli.

A CONTRACTOR OF THE PROPERTY O	Pe		rdrails,		cades eparatio	n	Esca]	lators
<pre>Rey: 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.
Difficulty with environ- mental orientation.	I/D	N	I	I	ı	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	1	I	I	В		N
Impaired night vision.	D/B	I	I	r	1	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	И	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

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	Pe		ardrails Lan/Vehic		ricades Separatio	m	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	Ŋ	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.).	Ñ	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.	I/D	I	I	D	I	D/B	ā	I
Uses walker, crutches, orthopedic cane.	Į	N	1	D	1	D/B	B/D	N
Prosthesis (including braces) for lower extremities.	I		Ņ	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).	Ι	N	N	N	N	N	I/D	I
Limited reach.	I	N	Ŋ	N	N	N	I/D	I/D

	<del></del> -	Gu	ardrails	Barr	icades		····		
Art	Pe				eparatio	n	Escalators		
Key: N = No mobility problem I = Inconvenient D = Causes considerable difficulty E = An impossible barrier	Inadequate guardrails.	Cuardrail 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	И	N	
Difficulty standing from sitting position, or in sitting down.	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	Ñ	N	Ţ	D	<b>T</b>	
Decreased ability to tolerate heat and cold.	N	N	N	N	N	и	N	n	
Speech disorder.	к	N	N	N	N	N	N	N	
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	B	
Fear of heights (vertigo).	D/B	I	N	N	N	В	I/D	I	
Agoraphobía	N	N	N	I	I	D	N	N	
Claustrophobia.	N	N	N	N	N	N	N	В	
Fear of loud noises.	l N	N	N	I/D	I/D	I	N	ĸ	

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Key: N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier	Insuequate guardrails.	Guardraíl 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	1	D	D	D	В	I	
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	Ð	D	D/B	Ι	N
Limited ability to per- ceive or process auditory stimuli.	N	N	1	Ī	I	Ī.	N	

	R	est Ar	eas/Be	nches	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 prov'sion for scentc 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.
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	1	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

	Re	st Are	as/Ben	ches	Emer Provi	gency Sions		giting, mination
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.
Reduced tolerance to brisk exercise (need to move slowly).	D/B	D/B	Ŋ	T.	D/B	N		N
Limited ability to stand for long periods.	D/B	Б	М	D/B	1/D	D/B	T.	
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	1/ħ	N .	N	N/I	N/T
Cardiac Pacemaker affected by electrical interference.	I	D/B	Я	N/I	N	D	[ ] ] ]	**************************************
Uses powered or manual wheelchair.	I/D	D/B	Ň	N	B/D	I	D	<u> </u>
Uses walker, crutches, orthopedic cane.	I/D	B/D	N	I/D	D/B	I	1/D	I/D
Prosthesis (including braces) for lower extremities.	I	D/B	)	D/B	В	I	I/D	I/D
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	D/B	İ	N		N	I	What had been a supplied to the supplied to th	
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	Ñ	N	N		R	И		Marine de la constante de la c
Limited reach.	N	N	N	N	74	N	I	I

	Re	st Are	as/Ber	iches	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 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	I	Ţ
Inability to turn head.	N	N	N	N	N	N	I	I
Decreased ability to stoop.	N	N	N	I/D	N	N	<b>1</b>	I
Difficulty standing from sitting position, or in sitting down.		Ĭ	N	D/B	N	N	N	N
Limited vertical motion with legs and feet.	Ž.	1	N	Ĩ	N	Ñ		I/D
Limited horizontal motion with legs and feet.	N	D	N	N	В	N	N	N
Decreased ability to tolerate heat and cold.	B	I/D	N	N	N	D	N	N
Speech disorder.	N	N	N	N	Ŋ	N	N	N
Loss of normal speed in motor coordination/slowed reflexes.	N	N	N	I/D	В	Ī	I/D	D
Fear of crime.	N	N	N	N	N	N	D	D
Fear of heights (vertigo)	N	N	N	N	Ŋ	N	N	N
Agoraphobia.	N	N	N	N	N	N	N	Ŋ
Claustrophobia.	N	N	N	N	N	N	D	D/B
Fear of loud noises.	N	Ŋ	N	N	N	N	N	N

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limited ability to per- ceive or process auditory stimuli.	Limited ability to acquire or process visual stimuli.	Uses guide dog.	Uses white cane for guidance (visually impaired).	Key:  N = No mobility problem  I = Inconvenient  D = Causes considerable  clifficulty  B = An impossible  carrier	
×	and the second	**	×	Resting places not under cover (wind, rain, sun).	Rest
	Z	22	Z	Not enough places to stop and rest.	1
z	<b>::</b> ::::::::::::::::::::::::::::::::::	z	*	No provision for scenic overlook.	Areas/Benches
	<b>;-</b> - <b>f</b>	þj	<del>}-</del> ∔	Benches too high or low, too deep or shallow, or with no armrest.	hes
N	D/B	D/B	D/B	No alternative route for flood condition structures.	Emergency Provisions
The part of the pa	<b>z</b> i	77.	<b>+</b> -	No pedestrian emergency provision.	gency sions
Z	Ö	H	5	Significant change of light level in tunnel at entrance.	Ligh Lilumi
~~	ਰ	p•n-€	Ð	Interior lighting not adjusted to outside light conditions.	Lighting, Illumination

	Ligh	ing,	Illumi	nation		Signag	e/Nedi	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.
Difficulty with environ- mental orientation.	I	I	D/B	I	D/B	D	N	1	D/B
Understanding deficit.	N	I	D/B	N	Ď	D/B	N	N	D/B
Limited attention span.	N	I/D	I/D	I/D	D/B	D	N	Ŋ	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.	T	D/B	D/B	D	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	¥	Ŋ	Ĩ	N	N	N	N	N
Chronic stooped posture.	N	I	Ñ	I	D	D	N	D	D
Difficulty in main- taining equilibrium.	D/B	D/B	D/B	D/B	N	N	N	1	I
Moves at slow speed.	N	N	N	Ŋ	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	ng, I	llumír	ation		Signa	ge/Med	iia Cue	
Key; N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier	Glare at end of tunnel.		Clare 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	1	I	I	N	В	D/E
Limited ability to stand for long periods.		D	N	Ď	3	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/D	I/D	I/D	D	ľ	N	I/D	N
Uses powered or manual wheelchair.		D	<b>I</b> .	D	, D	D	Ņ	D/B	I/D
Uses walker, crutches, orthopedic cane.	I/D	D	I/D	D	D	I/I	) N	D/B	D/B
Prosthesis (including braces) for lower extremities.		D	I/D	D	D	1/1	) N	D/B	D/B
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	Д Д	N	N	N	I/D	Ι	N	N	N.
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	N N	Ī	N	I	N	N	Ñ	N	N
Limited reach.	N	I	N	I	N	N	N	N	N

	Light	ing,	Illumir	ation		Signag	e/Medi	a Cues	- <del>-</del>
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	Ŋ	N	N	N	N
Inability to turn head.	Ī	I/D	I/D	I/D	N	D/B	N	D	Đ
Decreased ability to stoop.	I	Ι	Ï	I	I	N	N	N	N
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.	1	D	-T	I	I/D	I/D	N	D/B	1
Limited horizontal motion with legs and feet.		Ð	I	I	######################################	N	N	D/B	I/D
Decreased ability to tolerate heat and cold.	M	N	N	N	Į	N	N	N	N
Speech disorder.	N	N	N	N	N	N	K	N	I/D
Loss of normal speed in motor coordination/slowed reflexes.	D	D	Ø	D		I	Ŋ	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	Ĭ.
Agoraphobía.	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	Ň	N	N	N	N	N

	Ligh	ting,	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 dark.	<b>₩</b> \$		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 came for guidance (visually impaired).	D	*	D	1	I	D	D/B	D/B	D/B
Uses guide dog.		D	D	I	I	r	D/B	I	D/B
Limited ability to acquire or process visual stimuli.	D	D	D	D	D	Ð	D/B	D/I	D/B
Limited ability to per- ceive or process auditory stimuli.		<u>I</u> .	I	I	D	D	N	N	I/D

	·		······································		······································	· <del>A. A</del>	
			Signa	ge/Media	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 channelfzed.	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	r	N
Impaired night vision.	I/D	I/D	I/D	N	N/I	N/I	N
Impaired cutaneous sensation detection.	N	N	N	X	N	N	Ŋ
Chronic stooped posture.	D/B	D	Ð	I	a	Ĩ.	N
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

- Million - 144			<b></b>				
		·····	Signa	ge/Media	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 channelfzation.	Walkway not channelized.	Traffic noise.
Reduced tolerance to brisk exercise (need to move slowly).	D	D	D	Ñ	I/D	I	Ņ
Limited ability to stand for long periods.	D/B	D/B	D/B	Ň	D	N	N
Impaired bladder control.	N	N	I/D	N	I/D	N	N
Extreme of size (dwarfism, giantism, obesity, etc.).	<u> </u>	N	N	N	N	N	
Cardiac Pacemaker affected by electrical interference.	E\D	N	Ι	N	N	N	N
Uses powered or manual wheelchair.	D/B	I/D	I/B	Ι	1	N	X
Uses walker, crutches, orthopedic cane.	D/B	I/D	D/B	N	I	У	N
Prosthesis (including braces) for lower extremities.	D/B	I/D	D/B	N	I	N	ecoje decoje decoje
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.		N	Ι	N	N	Ñ	
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	**************************************	N	I	И	N	N	
Limited reach.	<u> </u>	N	I	N	N	N	N

			C	nno /Modd	a Cuas		
Key:		· · · · · · · · · · · · · · · · · · ·	51gn	age/Medi	a cues		
<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.	Traff1c noise.
Limited manual dexterity.	I	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	ı	, N	N	N	Ň
Limited vertical motion with legs and feet.	D	I/D	D/B	N	I/D	N	Ŋ
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	<b>N</b> .
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	Ŋ
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

		٤	ignage	e/Media (	lues		
<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

	3		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 rumoff.	Walkways and sidewalks not kept clear of snow, ice and debris,
Difficulty with environ- mental orientation.	I	1	I.	1
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	1/D	D/B
Difficulty in main- taining equilibrium.	D/B	В	D/B	D/B
Moves at slow speed.	D/E	N	D/B	D/B
Swaying, shuffling, uneven, eratic or stag- gering gait.	D/B	<b>B</b>	D/B	D/B
Frequent need to rest during exercise.	D/B	D/B	D/B	D/B

				M2
				ctors,
¥	We	ather/	Pollut	ion
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.
	H 0%	¥ T	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	T
Extreme of size (dwarfism, giantism, obesity, etc.).	I	1	I/D	D/B
Cardiac Pacemaker affected by electrical interference.		N	N	I/D
Uses powered or manual wheelchair.	I/D	Ι	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	I/D	D/B
Limited reach.	N	N	I/D	I/D

			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.
Limited manual dexterity.	N	N	I/D	1
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.	1	I	D/E	D/B
Limited horizontal motion with legs and feet.	1	Ţ.	D	D/B
Decreased ability to tolerate heat and cold.	D	I	N	The state of the s
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).	Ŋ	N	N	N
Agoraphobia.	N	N	Ñ	N
Claustrophobia.	N	N	N	N
Fear of loud noises.	N N	Ñ	N	И

Key:	Micro-Climatic Factors, Weather/Pollution							
<pre>N = No mobility problem I = Inconvenient D = Causes considerable     difficulty B = An impossible     barrier</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.				
Uses white came for guidance (visually impaired).	Þ	D	D	D/B				
Uses guide dog.	Ĭ	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



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	X	X	X	X				1		4
hidden from view			[ ;					1		
(crime potential).  Overcrossing/undercrossing	ļ	<u> </u>						<b>ļ.</b>	1	
is not close to public			Х					ļ	Ì	1
transportation stop.								·	1	
No sidewalk at	<del> </del>	ļ	<u></u>	-	400	***	4,			,
end condition.		1			Х	X	X	X		4
Parked cars	1		}							
restrict approach.*	1	3	;					1	•	
Parked cars obstruct	<b>†</b> ~~~	<u> </u>	<del>                                     </del>		***************************************	·	<b></b>	<b> </b>	1	
view of approach.*	İ		ł	1				<u> </u>		
No accessible	<del> </del>	x						<u> </u>		1
parking.**		Ι Λ	1					1		1
No detectable pedestrian	<del>                                     </del>	X	<del> </del>	X	X	X	X	X		6
crosswalk to approach.	1	•		^ 1	.Λ.	Λ	^	A		0
Driver's view of	- <b>-</b>	1		<del> </del>	············		<u> </u>	<u> </u>	İ	
pedestrian blocked.*								Į		
	1	<del> </del>	ļ		***************************************					
WALKWAYS								1		
Pedestrian walkway on	1	1	•				<b>*********</b>			***************************************
only one side.		İ		Ī			İ			
Walkway less than								***************************************		
48" (tee narrow).**		-								
Readroom below	1	<b>*</b>				*************	<u> </u>			
6'10".**		l .								
Walkway through	X									1
"long" tunnel		1	ļ							
(over 40')			1				<u> </u>			
Structure vibrates			l					1		
(traffic).	ĺ	<u> </u>	<u> </u>					-		
Abrasive or perforated				Х		ļ	}			1
material on vertical sur-	1						1	-		
face adjacent to walkway.	<u></u>		<u> </u>	<b>_</b>			<u> </u>			
Objects project into				Ì		ļ	Į			
walkway (signs, trees, etc.	)	<b>1</b>	<u></u>	<u> </u>		<b></b>	<u> </u>		<u> </u>	
	1	*	•					1	•	
SURFACE MATERIALS	<del> </del>	1	<b></b>	ļ		<b></b>	ļ	<u>}</u>	<b></b>	
Manhole covers and gratings		ł	Î	X	<b></b>	X			1	2
in walkway.	- <b>ļ</b>	ļ	ļ. <u></u>	-	<u> </u>	<b></b>	ļ	<b>-</b>	<del> </del>	
Righly reflective	Ī		4	1	ĺ		1			
surface materials.	-	<b>!</b>	<u> </u>	<del> </del>	<b></b>	<b>}</b>	<del>                                     </del>	-	<b>}</b>	<b></b>
Grooves and patterns (cast		1	-	į		•	Ĭ			
into walkways or caused by			1	-		į	l		i i	
small paving units).	1	]		<u> </u>	<u> </u>	<u> </u>	1	<b></b>	<u> </u>	L

A	er	L.	<b>j</b> ⊶	j.,	er	\$mj	Ä	Ŀ	¥	AL
Α	Under	Over	Over	Over	Under	Over	Over	Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	
Large, deep		X	X	X			X	X		5
expansion joints.**	<u> </u>	<u> </u>			<u> </u>		<u>.</u>			
Uneven and irregular						X	X		X	3
surfaces.	<u> </u>	<u> </u>								
Loose and soft surfaces		X		X	X	X				4
(gravel, sand, etc.).	<u> </u>			<u></u>			· · · · · · · · · · · · · · · · · · ·			
Rough	1								X	1
surfaces.	ļ	Ļ								
Discontinuous surface					X				X	2
materials.	<u> </u>									
<b>ኤ</b> ቶ ብ ም ቤተማ የማጃ ና ል ኳዲያን የም		l								
MAINTENANCE Debris from erosion	1	<del> </del>								
on walkway.		l						İ		
Disrepair (frost heaves,	<del> </del> -	<del> </del>		Х					x	<u> </u>
potholes, etc.).				Δ						1
Disrepair from vandalism	<del> </del>	<del> </del>	-	$\frac{1}{x}$				ļ		
or accident (handrails,	•			A						1
guardrails, etc.).		1								
guaruzaza, eco.,.	<del> </del>	<u> </u>		1		·			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
STAIRWAYS	l		<u> </u>							
Stairway is only means	X	X	X				····			3
of access to structure.**		*			Ĭ					
Stairway only on one	1									
side of structure.**	<u> </u>								L	
Poorly lighted steps,		X	X	X	4					3
stairs, ramps.	]	<u> </u>							<u> </u>	
Treads less than 11"	1		1	ŧ						
(too small).	<u> </u>	1	<u> </u>	<u>L</u>						
Projecting		Ì		ļ				1		
nosings.	<u> </u>	ļ		<u> </u>						
Open	ĺ		•	Ì				<u> </u>		
risers.		<u> </u>	<b></b>	ļ				ļ		
Risers greater than										
7" (toe high).**	<u> </u>	ļ		<b></b>				ļ 		L
Curb greater than	1	1	***************************************					ļ		
6" (too high).	ļ	<b>↓</b>	ļ		<b></b>			ļ		
Step (settlement) between	7		]						Х	1
approach and structure.**	ļ	1	<u>.</u>	ļ	ļ			<u> </u>	L	<b> </b>
Dangerous stair	Ì	1	l		•			Í		
location.				1	<u> </u>					

A	3r		<u> </u>	<u> </u>	ъ. 83	l.;	الم	يرو	s <sub>4</sub>	¥.
Α	inder	Over	Over	Over	Under	Over	Over	Over	Over	TOTAL
XXII S	1	2	1 2	4	5	6	7	8	9	
Only ramps	***************************************	1	<del> </del>	X		3	<b> </b>	<u> </u>		1
provided.			Ì	^ <u> </u>		ĺ	•	1		-
Only ramps provided on	·	<b>†</b>		1	<b>1</b>		•		Х	1
one side of structure.			1			<u>}</u>		ĺ	_ An-	*
Pathway leading to over-	X	<b>†</b>		x			Х		Х	4
undercrossing too	Δ.	1	ļ	4		İ	Δ	•	Α	"
steep and long.**					Ī	<u>!</u>		ĺ	Ì	
Ramp too long (exceeds		<b>-</b>	<del>                                     </del>	tx-	<u> </u>		<del> </del>			1
30 feet).**			ĺ	Α.	1	1	ļ	1		- 1
Ramp too steep (slope	<del></del>	<del> </del>	ļ <sup>7</sup>	†•		······································		<b>†</b>	<u> </u>	1
greater than 1:12).**				X	İ	Ì		Ì		
Ramp too narrow (less		1	<b>-</b>	<u> </u>			*********	<u> </u>		
than 48").**										
Cross slope greater than				<b>-</b>	<u> </u>			<del> </del> -		一一
1:50 (too steep).				X	X		X	İ		3
Slope across structure		<del> </del>	<u></u>	1,,	<del> </del>	<u>.                                    </u>	ļ· <b>·</b>	Ì		-,-
too long and steep.**			ĺ	X			Į	}		l
No curb		<del>                                     </del>	İ	<u> </u>	<b>-</b>			<del> </del>		
cuts.**		ļ		X	X	X	X	Ī	X	5
Helical	f	<u> </u>		<u> </u>		<u> </u>	f	<u> </u>		
ramp.		1			l	ĺ				
Ramp layout				<b></b>	<del>                                     </del>				•	
inconvenient.		ļ		Ì	[	1	İ	ļ		
Abrupt transition to		1	<u> </u>	<del>                                     </del>		<u> </u>	<u> </u>	<del> </del>	<u> </u>	
connecting walkways.	<b>!</b>	Ì	ļ	]			į	Ì	İ	
Ramp exits directly into	<del> </del>	<b>†</b>	<del>-</del>	<b>†</b>	<b>†</b>			<del></del>		
street or parking area (less		]	ĺ		1		<b>(</b>			
than 6' clearance at bottom		1			•		Ì	•		
of ramp).	4	-		l	ĺ			ļ	Į	
Bollards in the middle	<b></b>	<del> </del>	<u> </u>	<del></del>	· •		<u> </u>	<del>}</del>		[
of entrance to the		]	-		3		1	1	1	
ramp.		*			1	1			1	
Steps in the middle		<b>†</b>	<del> </del>	<del> </del>	<del> </del>				·	
of the ramp.			į	ļ	ļ	ĺ			]	i
		<del>                                     </del>	1	<del> </del>	<u> </u>	<del> </del>	<u> </u>	<del> </del>		
HANDRAILS	1	Ì			ŀ			i i	Ĭ	
Handrails higher than	<u>,</u>		1	<b>†</b>	1	<b></b>		<b>†</b>		٠,
36" (too high).	X		Į	-		į	ŧ		1	1
Handrails lower than	<u> </u>	1	<del>1</del>	X	1	İ	ļ	<b></b>	1	1
32" (too low).**	į	1		1 ^	Ì	ļ			. 1	

†		<del></del>		· · · · · · · · · · · · · · · · · · ·						
Α	Under	Over	Over	Over	Under	Over	Over	Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	
No	<del>**</del>	* ***			x	X	X	X	X	5
handrails.**	<u> </u>				#34	Α.	A		^	
Handrail inadequate for			X							1
comfortable grasp.										
Handrail material metal	X	X	X	X						4
or aluminum (hot in hot		ļ								`
weather, cold in cold).		T	]							
Handrails not		X	Х	X						2
continuous.	<u> </u>									
Handrails don't extend	X			X						2
far enough (1' at top and	Ī	1	Ī							
bottom of stairs and ramps).**		<b>!</b> !								
No handrails on		1							Х	1
ramps.			ļ							
GUARDRAILS, BARRICADES,										
PEDESTRIAN/VEHICULAR SEPARATION	<u> </u>				,					
Barricades not detectable		Х								1
(blind cane).										
Guardrails not		1							X	1
continuous.			•							
Guardrails too low						X	Х			2
(less than 42").	**									
No pedestrian					X			X		- 2
guardrails.			<u> </u>							
Inadequate		-							Х	1
guardrails.			<u> </u>		Ĺ					
Guardrail mesh	Ţ			Х						1
hazardous.*			<u> </u>	ļ						
No detectable separation				Х		X	X		X	4
between bikeway and	į		#		į					1
pedestrian way.		<u> </u>		<u> </u>	<u></u>				<b></b>	
No detectable seperation	1		*					Х		1
between roadway and walkway.		<u> </u>	<u> </u>		<u> </u>		<b></b>		<u></u>	
No detectable separation	age will:	Ì		ļ	1					
between walkway and parking	Ì	-		1	ļ	ŧ			ĺ	
lot.	<u> </u>	<del>-</del>	ļ	<u> </u>	} • • • • • • • • • • • • • • • • • • •				ļ	_
Unprotected sidewalks	Ì	ļ		•	X		X	Х	Ì	3
(cars, edges, etc.).	<u> </u>	<u> </u>	<u></u>	<u></u>	<u>.</u>		<u> </u>		<u> </u>	
ESCALATORS/ELEVATORS										
Escalators.	·····		······································					<del></del>	<del></del>	<b>†</b>
Elevators.			<del></del>				······································	·		1
										1

A	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, sum).	<b> </b>	ļ	<u> </u>							
Not enough places to				X	X	X	Х	X		5
stop and rest.	<del>}</del>								<u> </u>	_
No provision for	ĺ	ļ								
scenic overlook. Benches too high or low,	-	ļ		<b>-</b>				<u> </u>		
too deep or shallow, or	1			1	<b>\</b>	•		\ 	X	1
with no armrest.										
EMERGENCY PROVISIONS										
No alternative route for		<u></u>		<u> </u>		ļ ——			<del></del>	$\mathbf{f}$
flood condition structures.	1				•	!	1		ļ	
No pedestrian emergency	X	X	Х	x	Х	X	X	x	Х	9
provisions.	1	1			**		-			
LIGHTING ILLUMINATION										
Significant change of light	-				X	į		ļ		lı
level in tunnel at entrance.	İ	1				<u> </u>	<u> </u>		<u> </u>	
Interior lighting not	X				X	ļ				2
adjusted to outside	į	Ì		Į						
light conditions.	<u> </u>			<u> </u>	<u> </u>	<u> </u>	ļ			
Glare at end	X				Ì	l	1	İ		1
of tunnel.*	<u> </u>	<b>}</b>		<u> </u>		[		<u> </u>	<u> </u>	
Tunnel too dark.*	Ì			•	X			ĺ		1
Glare and flashing	<del></del>	ļ		<b></b>		ļ	<u></u>	<u> </u>	<u> </u>	1
lights from vehicles.*		X			X	1	1	1		2
Poor	<b>†</b>	<del> </del> -	X	X	X	X	X	X	1	6
illumination.*		<u>.</u>	-**					<i>A</i>		
SIGNAGE/MEDIA CUES		1								
No signage indicating	X	X		1	X	<b>†</b>	f	Х	X	5
location of rest areas.	<u> </u>			<u> </u>		<u> </u>	<u> </u>		LĨ.	
Street signs too high,						•		1	***************************************	
too low or far.	1	<u> </u>	<u> </u>	1	<u> </u>	<b></b>		<u> </u>	<u> </u>	
No special signage for	X	Х	X	X	X	X	X	X	X	9
the visually impaired.	<b>↓</b>	ļ	<u> </u>	<u> </u>		<u> </u>		ļ	ļ	<b>_</b>
Traffic lights with		1	1	ļ	]	‡ <b>‡</b>			e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della comp	]
short green cycle. Complicated instructions	<b>-</b>	<del> </del>		<b>!</b>	<u> </u>	<del> </del>	1	<del> </del>	<u> </u>	<b> </b>
on signs.	ĺ	}	X	•			İ		1	1
No warning of potential	+	-		<del> </del>	<del> </del>	1.		<del> </del>	1	1-
hazards.	1	X		ļ	1	X	X		<b>!</b>	3

Α	Under	Over	Over	Over	Under	Over	Over	Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	
No orientation cue as	-	X		X	X	X	X	X	X	7
to start of approach.		<u> </u>	<u> </u>		<u> </u>	Щ.	<u> </u>		<u> </u>	
Lack of orientation		X	X	X	X		X	X	X	7
cues generally.					<u> </u>					
Pathway junctions which				X					X	2
are not at 90° angle					1					
or which curve.					l	<u>.</u>				
No detectable orientation	X									1
cue as to start of			[*							
channelization.					ļ	1				
Walkway not		Х		X	X	X	X	X	Х	7
channelized.	1									1
Traffic	<del>                                     </del>	1	X	X	X	X	X	X	X	7
noise.										
MICRO-CLIMATIC FACTORS										
High wind gusts		Х	Х	X				i		3
present.*		**	1					İ		
Wind generated				<u> </u>		Х	<u> </u>	<b> </b>	ļ <b>-</b>	1
by traffic.*	-			İ						-
Inadequate provision	† · · · · ·		†	<del>                                     </del>	<u> </u>	<del> </del> -	<del> </del>	<del> </del>		
for rain-water runoff.				ĺ						
Walkways and sidewalks	1			X	X		1	<u> </u>		2
not kept clear of snow,		1	1		**				ĺ	
ice and debris.										

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

В	Over	Over	Over	Over	Over	Over	Çver	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
LOCATION & END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	-
CONDITION		į							ĺ	į				?					ŧ	
Portions of	1		X	7								Х		X	X		X	X		б
walkway are hidden	****	Ě							ĺ				ļ	! !						
from view	-				ļ					•			İ	:			ĺ			
(crime potential).													-	:					•	1
Overcrossing/	<b>†</b>		·					ļ						* <del>***</del> ********************************						
undercrossing is	-	-	Ī						Ì				•	; 			1			
not close to public	-				•				ĺ								Ì			•
transportation stop.					}					ļ										
No sidewalk at end	<del>                                     </del>	1	-	<u> </u>	Ī								<del>!</del>						<u> </u>	ļ —
condition.	www.ad.												5. 	•				Ì		İ
Parked cars	1		ļ	-		-							· · · · · ·	-				<u> </u>	<del> </del>	
restrict approach.*			<b>•</b>		9 4				ļ					<b>!</b>						
Parked cars		<u> </u>		ļ														<b>?</b>		
obstruct view of	***************************************		! 										*	}					ļ	
approach.*	ļ												Ì						<b>!</b>	
No accessible	Π	1	•						<u> </u>				1				1	X		1
parking.**	<u> </u>		ļ	<u> </u>					<u> </u>	Ì			<u> </u>	<u></u>	<u> </u>			<u> </u>	<u> </u>	
No detectable			X	X	i i			X	X				1	ł	X		•	X	r :	6
pedestrian cross-	Ì	1			1				į	1			₹ •	}			ļ		1	
walk to approach.									<u> </u>	<u> </u>		Ĺ	1	<u> </u>					· · · · · · · · · · · · · · · · · · ·	l
Driver's view of	T				Ì				<u> </u>											
pedestrian blocked.*	# * * * * * * * * * * * * * * * * * * *	47.		<u>.</u>									nonen ad 40				***************************************		<u></u>	·
WALKWAYS					ļ				 									! i	m.hv1h	
Pedestrian walkway		1	*						İ				1	*			}	X	***************************************	1
on only one side.	#**									<b>.</b>			) X				Ĭ Į	į		
Walkway less than		Ī	<u> </u>				•			İ								X	† 	1
48" (too marrow).**					1				ļ	ļ			İ					ļ	<b>4</b>	ĺ
Headroom below	<del>                                     </del>	1	<u> </u>	•	1	-							<del> </del>	·					<del> </del>	·
6'10",**	1	···	•						ļ				*	{			-		Ì	
Walkway through	1-	†	<del></del>		1				<b></b>	<u> </u>			<del>i</del>	<del></del>	ļ		X	ļ	ļ <u>.</u>	T
"long"tunnel	1		l											:	1		İ			
(over 40').					-				Ĺ				<u> </u>		<u>.                                    </u>	İ	1	<u> </u>		L.,
Structure vibrates	7	Ī	1	-									1	1		[		X	1	1
(traffic).				<u> </u>					<u> </u>		L	,	Ì	<u> </u>			<u> </u>	<u> </u>	<u> </u>	<u> </u>
Abrasive of per-	1				X			X	Х				X		1		1			4
forated material on			1	1	ĺ			1	ĺ					İ			1	1	*	ĺ
vertical surface	1	1		*					į	1			<b>ŧ</b>		1		1	į		
adjacent to walkway.	1	<u> </u>	<u> </u>			Ļ					<u> </u>		<u> </u>	Į	<u> </u>		<u> </u>	<u> </u>		<u> </u>
Objects project into					1					X		X	Ì					 	Х	] 3
walkway (signs, trees,													]		•		į.		***************************************	
etc.).		1		Í					ļ						Ì.				Ì	1

В	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
SURFACE MATERIALS	1	2	3	4	5	6	7:	8	9	10	11	1.2	13	14	15					
Manhole covers and	X	X	X	X				X						-				X	X	8
gratings in walkway.									-									1	•	0
Highly reflective	X	ļ											······································				·····•	ļ		1
surface materials.	1	)									<b>!</b> !							į		*
Grooves and patterns	<b></b> -	<u> </u>														Х		X		2
(cast into walkways or																		] **		
caused by small		1																1		
paving units).														İ				1		
Large, deep expan-	X	X	X	X	X	X	X	X	X		<u> </u>		X	**· · · · · · · · · · · · · · · · · · ·	X		***************************************	<u></u>		11
sion joints.**																				
Uneven and irreg-	-				X								······		X	X	·····	<b></b>	X	4
ular surfaces.																		•		Ì
Loose and soft						X	X	1						Х	X	X		Ì		5
surfaces (gravel,	#	·																1		
sand, etc.).	#										4									
Rough	}	•			X												**********	<u>}</u>		1
Surfaces.	•														}			•	1	
Discontinuous sur-	 }				_						<del>}</del>		·····				······	•		
face materials.	\$																			
	<u></u>										<b></b>							Ì		
MAINTENANCE								ı												
Debris from erosion	<del></del>		-				ν,	X	*r			T	· ······					<u></u>		
on walkway.	*	***************************************					¥	λ	A											3
Disrepair (frost	) 127	X	• •				<b>+</b> ,										<b>F</b>	•		
heaves, potholes, etc.).	λ	A					X				ŧ								X	4
Disrepair from vandalism		Ì	٠.	,,,	••	,,					<u> </u>									
or accident (handrails.			Å	X	X	λ					}	X	X							6
guardrails, etc.).	3																			
Engraverity arcel.	<u> </u>	3									<b>!</b>									
STAIRWAYS			•								*		i							
Stairway is only means	i												7,					<del>innanana</del> ?		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
of access to structure*	ŧ										X		Х		•	į		} 		2
Stairway only on one	<del> </del>	-	i 1		_				~~~~	X					ļ	<b>†</b>	<del></del>	<b></b>		4
side of structure.	•									A.						İ				1
Poorly lighted steps,						v	V	v	Х			X	12"	X	w	Х		<del>*</del>	ļ	Ps.
stairs, ramps.	į	1	}			A	Λ	Λ	Λ			A	A	Æ	Y	ı V				9
Treads less than Il"	<del>,</del>	1		Н	-	Χ	-			ļ	‡	<del>;</del>	••••••	ļ		<b></b>		<del> </del>	•	4
(too small).	:	1				Λ				ĺ										1
Projecting	1		<u> </u>					-		X	X	X	<b>1</b> 0						-	).
nosings.										Α.	^	Λ	X					a. by disc.		4
Open	+-			H	_	<u> </u>		H		_					ļ			ļ		
risers.		1													İ					
Risers greater than	+-	<del> </del>			_					<del> </del>	<u></u>	-		<b>!</b>	<b></b>	ļ	<b>,</b>	<del> </del>	<u> </u>	ļ
7" (too high).**	1									į	1				ĺ					ļ
Curb greater than	1	-		$\vdash$				Н	·- <b>-</b>		<del> </del>			-				ļ		
6" (too high).					İ						İ				ĺ					
~ / ~~~ *********	1		ш					ليبا		<u> </u>	<u></u>			L	L	<u></u>		<u> </u>	L	<u> </u>

	Ţ	Τ-	Γ-	Γ	<del></del>	T	<b></b>		-						1	T	ΙL	T		13
В	Over	Over	Over 0	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
w .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	7.7	1 8	าด	
Step (settlement)	X	X	X	X			X							X	X	1	-	1 A.S.	1.3.	7
between approach	Ĭ	•		1					Į						23	1		i		'
and structure.**	1				İ			•								ļ	ļ			
Dangerous stair	1	1		ļ	***************************************	<b>!</b>									<del> </del>	1	<del>                                     </del>	<del> </del>	<u> </u>	<del></del>
location.		1	1	and a	1				ĺ						ļ			İ		
		Ī				#					•				<del>}</del>			<u> </u>	ļ	-
RAMPS	ļ			ĺ	<u> </u>		ļ								1	ţ		[	-	
Only ramps	X	X		X			X							Х	X			Х	X	8
provided.						<u> </u>	<u> </u>								1	Ì	i.		]	
Only ramps provided		#													Ī					***********
on one side of			www.	-		ļ									1	ļ	1			
structure.	1	ļ		<u></u>	<u> </u>	_									<u> </u>		Ì	ļ		
Pathway leading to					Husbarra,													1		
over-undercrossing				4												1 5		1		
too steep and long.**		╙	_		ļ	ļ										ĺ				•••••
Ramp too long (ex-	X	X	X	X		X	X						X	X	X			X	X	11
ceeds 30 feet).**	Ĺ															Ĺ				
Ramp too steep	X	X	#	X		X	Х						X	X	X			X	X	10
(slope greater than			1	***************************************	1												1			
1:12).**			1	1																
Ramp too marrow			İ	1		-														
(less than 48').**	<u> </u>	į			<u> </u>										<u> </u>	1				
Cross slope greater	#	No.				] "								X	X			1		2
than 1:50 (too steep)			*			<u> </u>									1					
Slope across structure	X	X		X									X		X	Ţ		-		5
too long and steep.**	ļ	ļ	<u> </u>	<u>.</u> .	<b>.</b>	<u>.</u>							Į 		<u>.</u>	<u></u>		1		
No curb cuts.**	↓_	<u> </u>	X	X	X	1	<u> </u>						X	<u></u>	X			X		б
Helical ramp.				<u> </u>			}							X				1		1
Ramp layout			1		}										Ī					-
inconvenient.	<u>_</u>	<u>l.</u> .	<u> </u>	<u> </u>	<u> </u>	1	ļ							ļ			<u> </u>			
Abrupt transition to	1	•												<b>!</b>				ļ	1	
connecting walkways.	1		<u> </u>	<u></u>		ļ	<u> </u>					<u> </u>			<u> </u>	!		<u> </u>		
Ramp exits directly			X	X	: •	#	X	X	X						_			]		5
into street or park-			-	•											Ĭ			Ì		
ing area (less than 6	1					T. March								Į		Ĭ				
clearance at bottom			ĺ		ĺ	1						Ì	İ	ļ.		; ;		ļ	i	
of ramp).	<u> </u>	ļ	_	ļ	ļ	<u></u>	<u></u>	ļ,					<u> </u>		<u> </u>	<u>L</u> .	ļ			
Bollards in the mid-		1	X		X		X	}			Х									4
dle of entrance to			1									•		<b>‡</b>				4 <del></del>	1	
the ramp.	_	ļ	ļ <del></del>	ļ.,	<u> </u>	1	<u> </u>					<u> </u>		<u></u>	<u></u>	<u> </u>		ļ	<u> </u>	,,,,,,,,
Steps in the middle				į	1	1						<b>#</b>		•	İ	#				
of the ramp.	1	<u> </u>		ļ		Ļ	<u> </u>	<u> </u>			<u> </u>	-	<u> </u>		<b></b>	<u> </u>	ļ			
HANDRAILS	*****	Í		! !	Ì		Ì						<b>!</b>				*			
Handrails higher than	1	İ	1	$\vdash$	<u> </u>	1	<b></b>			<b>~</b>		Х		-	<b>4</b> 9	<u> </u>	<b>†</b>			Į-
36" (too high).			١.						ĺ	X	X	A		Х	X			į		5
Handrails lower than	+	1	<b>†</b>	<del> </del>	-	+	$\vdash$		ļ Ī			<del>  -   -   -   -   -   -   -   -   -   -</del>	<del> </del>	<b>!</b>		1	<del> </del> -	<del> </del>	1	
32" (too low).**				•		· ·											ļ			
~~ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1	1_	<u></u>	<u> </u>	1	<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>	ļ		

	-	_	1									·—			Ţ	<del>! ""</del>	Ĭ	T		
В	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
	1	•	_			,	,,	***	,		***************************************	·	·····	14	•	200000000	<u> </u>	10	10	
No		Y	X	Y	X	Ų	_/_ X	- У У	X	+.₩.	**		X	~. <del>1</del>	<b></b>	X	X			13
handrails.**	**	**	***	1	•		••	1.	-				<i>*</i> *			^	^	_	^	ريد
Handrail inadequate for		ļ —					***	•	-		## WARREN			***************************************	**********	<b></b>	†			
comfortable grasp.	ļ						1										1	1		
Handrail material metal	Ī					X				X	X	X		X	X	<b>!</b>	<b>†</b>	¢		б
or aluminum (hot in hot	ĺ	www.			ļ		****		3			**		**	**			4 O		,
weather, cold in cold).	•		•	•								į				Ì		1		
Nandrails not	<b>†</b> ~	<u> </u>		Ì	<u> </u>	•	-			X	X	X			•	<u> </u>	<u> </u>	<del>•</del> •••••••••••••••••••••••••••••••••••		3
[continuous.	o and o and o			#dbaaa.											-			***************************************		~*
Handrails don't extend	1				-							***************************************		***************************************	•	************	•	•	-	
far enough (1' at top	-	V1 /4404	ł													orden de la companya			•	
and bottom of stairs			1													-	1	*		
and ramps).**	ĺ	Ì	1													*		***		
No handrails on	1	X	X	X			X						<b></b>			•	<b>†</b>	X	X	6
ramps.																			-	
<u>\$</u>	<del> </del>	-													<b></b>	<del> </del>				· · · · · · · · · · · · · · · · · · ·
GUARDRAILS, BARRICADES,																and a				•
PEDESTRIAN/VEHICULAR	ļ	]														}				
SEPARATION	ļ	ĺ	ŀ	į											}		1			
Barricades not detect-	1	<u> </u>		Γ		_				Х		X		ļ			-			2
able (blind cane).															<b>!</b>					
Guardrails not	1	1	1	-	X									•						1
continuous.	İ		Ì		-											<u> </u>	1	<u> </u>	[	1
Guardrails too low	1	T	1	_	_					*	X	X	•	************			]	X		3
(less than 42").		1									***	**				<u> </u>		**	•	~
No pedestrian	-	<del>  -</del> -		-	-				•	•		1		***************************************		<u> </u>	<b> </b>	ł		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
guardrails.		Ì	i		1				1		Ì								'	
Inadequate	<del></del> -	<del> </del>	<del> </del>												<b>Í</b>	<u> </u>		<u> </u>	<u> </u>	
guardrails.	*	1		•		1														
Guardrail mesh	X	╆		<del> </del>	v	33	<b></b>	327	X						<b></b>	<b>*</b>		<u> </u>		7
hazardous.*	Λ	#	-	*	Λ	^	v	Λ	Λ				X			4			}	<i>J</i>
No detectabel sep-	i v	v	¥	v	¥	v	Ţ	v	X				····	Х	v	**	**	X	v	15
aration between bike-	Α	•	A	v	А	Λ	Ŷ	Α	Λ					Λ	A	. A	X	A	A	13
way and pedestrian way.	-	-	:		***************************************										•		***************************************	1		1
No detectable sep-	†	<del>ب</del> •	;					******				*	<b></b>		<u> </u>		<u> </u>	<b>.</b>	X	1
aration between road-	l	•	· •													ĺ		1	<b>A</b>	*
way and walkway.		:	,	-											¥		¥		į	I
No detectable sep-	<del> </del>	İ		$\vdash$			-				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			***. ********	<b></b>	<u></u>	<u> </u>	-	<del> </del>	<del> </del>
aration between	?	-		Ì											1	-		<u> </u>		
walkway and parking lot		-					1								İ					1
Unprotected sidewalks		H					Ħ			-				***************************************	<b>!</b>	<u> </u>	Tx	<u> </u>	X	2
(cars, edges, etc.).															Ì		_ ^x		A	-
	1	+-		-						······································	······································	,			<b>!</b>	<u> </u>	<b>-</b>	<u> </u>		<b> </b>
ESCALATORS/										,										ĺ
ELEVATORS					}											į		1		į
Escalators.	1	1	-							X					<u> </u>	<b></b>	<b>†</b>			1
Elevators.	†	1	<del>                                     </del>		<u> </u>	Н				X		X			<u> </u>	1	1			2
1	<u> </u>	<u> </u>		<u>.                                    </u>	L.,	نـــا			L	£1	i		I	L	<u> </u>	<u> </u>	]			-

	<b></b>	1	<u> </u>			_									Γ	Ĭ				
R	ä	1	ä	H	er	20	1.4 0	er Er	er.	# G	Over	Over	er	Over	Over	E E	Under	į,	1	TOTAL
	Over	ठ	8	S	õ	Š	8	ô	Š	Over	S	රී	Over	Š	ð	Š	Ωn	ô	ô	T 2
REST AREAS/BENCHES	1	2								10	11	12	13	14	15	16	17			
Resting places not	Х	]						X	X		X					X			X	8
under cover (wind,	l																		***	Ŭ
rain, sun).		<u> </u>	<u> </u>																	
Not enough places to			X	X	X	X	X							X	X		X	X		9
stop and rest.		<u>.</u>		_		L.,									<u></u>					
No provision for										·						•				
scenic overlook.		<u> </u>																		
Benches too high or	X			X						X										3
low, too deep or																				•
shallow, or with	#																			
.no armrest,	<b> </b>	<u> </u>		<u> </u>			L													
ንጋዝ ብሮን ቸን ደን ምንያስ ያጎኝያ ፡፡ . ያላ ያህ ያላ የም ም ልዩ የም ደላ ላይ የዛ				# <b>.</b>																
EMERGENCY PROVISIONS	┞	<u> </u>	<del> </del>	<del> </del>			-	·····								-				
No alternative route	ł	•	İ														. !			į
for flood condition	-	i		Ì																
structures.	ļ	<u> </u>		<u> </u>				·•·····•			<u> </u>					ļ				ļ
No pedestrian emergency	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	19
provisions.	<u> </u>	ļ	<u> </u>	ļ																
LIGHTING ILLUMINATION	-																			
Significant change of	<u> </u>	<del> </del>	-	<del> </del> -		-	-			<b></b>										
light level in tunnel	ĺ	1	1																	
at entrance.		Q		Į																
Interior lighting not	<del> </del>	╆┈	<u> </u>	<del></del>		-		ļ	-							ļ				j F
adjusted to outside	1		[	İ																
light conditions.		ļ												,						
Clare at end of		<u> </u>	<del> </del>	1		-									,	<u> </u>				
tunnel.*		İ	•																	
Tunnel too	ļ	<u> </u>	<u> </u>	<del>-</del>					-							ļ		-		ļ
dark.*				ļ																İ
Glare and flashing	X	-	X	x	X	X	X		-		X			X	X		X		X	11
lights from vehicles.*	] -	7 A				**	**				4.			-5%	<b>4</b> 2		v		Α.	TI
Poor		-	<u></u>	<u> </u>		X	X					X	X	X	X	X	Х	X		9
illumination.*		ĺ	ļ									<b>^</b> *		<b>4</b> 3	41	•	<i>a</i> .	A.		,
	<b></b>	-				H	ļ,		-	······································										<u> </u>
SIGNAGE/MEDIA CUES	1 .																			
No signage indicating	X	x	x	X	X	X	X	x	x	χ	¥	X	X	X	¥	**	v	X	v	19
location of rest	1	-		<b> </b>		**			*	<b>*</b> *	43.	<b>^</b> 2	^	•	Λ	^	Α.	A.	•	17
areas.							]													
Street signs too				-				•												ļ
high, too low or far.		1							•			ļ								
No special signage for	X	X	X	X	X	X	X	X	X	X	X	X	Х	X	X	X	X	X	X	19
the visually impaired.											<u> </u>							" h		
Traffic lights with		[						•												
short green cycle.	<u> </u>									L										
Complicated instruc-									]							[				
tions on sign.									,	*						ĺ				
	<u></u>	<b></b>	ł	L		L	L	ا	<u>l</u> ,	L	ļ	L	ــــــا		L	ļ	i	L	ļ	L

В	Over									Over		Over				Over	Under	Over	Over	TOTAL
÷	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
No warning of potential hazards.														<b></b>						
No orientation cue as to start of approach.										X		Х	Х	X	X	X	Х	X	X	19
Lack of orientation cues generally				X	X	X	X	X	X	X	X	X	X	Х	X	X	X	X	X	19
Pathway junctions which are not at 90 degree angle or which curve.	X	X			X											HIIII. Alliectic control of contr	<b>*</b>	X	X	5
No detectable orienta- tion cue as to start of channelization.																		A-Chidden a bon connocerome	***	
Walkway not channelized.	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X	16
Traffic noise.							X											X		2
MICRO-CLIMATIC FACTORS	ļ									,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				×				<b>!</b>		
High wind gusts present.*		X	X	X		X	X	X	X	X	X	X		Х	X			X	Х	14
Wind generated by traffic.*		-																	X	1
Inadequate provision for rain-water rumoff.		-														Ì				
Walkways and sidewalks not kept clear of snow, ice and debris.		X	X	X	X	X	Х	X	X			X			*				X	10

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

С	Wer	wer	ver	nder	ver	ver	ver	ver	ver	nder	wer	ver	00 13	Wer	wer	wer	nder	ver	wer	TOTAL
LOCATION & END	0	<u>ი</u>	3	<u>n</u> 4	5	6	7	8	9	n 10	11	12	13	14	15	16	17	18	19	
CONDITION	-	-	,			ľ				-"						١٠٠	- '		-	
Portions of		H			1	X		-				х		X	X		X		X	6
walkway are hidden																	1			
from view		1													Ì			}	:	
(crime potential).												ļ			į			-		
Overcrossing/	✝	Т	Н		H	Н	Η	Г	$\vdash$	X	_	<b> </b>	X		1		<del>                                     </del>			2
undercrossing is	ĺ											1					Ì			
not close to public		ĺ			ĺ							1			İ					
transportation stop.														1			ļ			
No sidewalk at end	<del>                                     </del>	Ι_	-			T		Г	_					-	-		1			
condition.				ĺ									Ì	ĺ	j					
Parked cars	Т	T			1-	Γ		_	_					$\vdash$					_	
restrict approach.*			'							,		1					1			
Parked cars	Τ	Т	Г		Г		1		·				$\vdash$			<u> </u>		$\vdash$		
obstruct view of				l																il
approach.*				<u> </u>											}			1		
No accessible					ļ			Γ.					Х			Х				2
parking.**															1		l	1		1
No detectable	+-	-		<del>-</del>	- <del>-</del>		1			X			X			Х	1			3
pedestrian cross-												1						İ	İ	
walk to approach.			Ì	İ								Į			]					
Driver's view of					Γ-	Г			X			-	X		1		l			2
pedestrian blocked.*				Ĺ	_								-							
WALKWAYS																				
Pedestrian walkway		Г							T					ĺ			$T^{-}$	1		
on only one side.								ĺ	İ				1						1	1 1
Walkway less than	1	<del>                                     </del>	-	<u>-</u> -	-		-	_	_			╆┈╌		<b>†</b>	1	_	$t^-$		_	
48" (too narrow).**	1																			
Headroom below	T			┌~	-	<del> </del>	<del>                                     </del>			-		<del> </del>	<del> </del>	$\vdash$	<del>                                      </del>	1				
6'10".**	l										i	}								1
Walkway through	†-			-		<del>                                     </del>	<del>  -</del>	-	$\vdash$	X							Х			2
"long"tunnel																Ì				
(over 40').					1								ļ						ļ	]
Structure vibrates	1-	Τ	П		X	$\vdash$	t-	_				<u> </u>					T			
(traffic).																	1		ł	ļļ
Abrasive or per-	T	Π	П		X							X		X	$T^{-}$			X	X	5
forated material on																				
vertical surface																				
adjacent to walkway.		L	_					_	L.										<u></u>	<u> </u>
Objects project into		Γ		[		Γ	Γ	_				X						Ī		1
walkway (signs, trees	ļ,				İ			İ											1	]
etc.).														}				ļ	Į	

	Ver	Wer	ver	Juder	Over	Over	Ner	Wer	Wex	Under	Mer	Over	Ver	Xer	Over	Xex	Under	Over	Over	TOTAL.
SURFACE MATERIALS	ī	2	3	4	5	6	7	8	Ģ	10	11	12	13	14			17			
Manhole covers and	<del>  -</del>	-	-	-	X	;	•	~					-2-4	# 1	***	* 4				1
gratings in walkway.	*					į												•		
Highly reflective	├	-				-												<u> </u>		ļ <b>i</b>
surface materials.	l		Į														į	1		
Grooves and patterns	₩	╆	-		├	<del> </del>	X.	70"	-		<b></b>	<b></b>		X	x			-	<u> </u>	5
(cast into walkways or	ļ		į				Λ	A.				İ			Λ			X		)
caused by small	Ī		İ				1					i								
, ,	i																			
paving units).	<u> </u>	ļ	_			<u> </u>		ļ									}			
Large, deep expan-	X												X					X	X	4
sion joints.**		ļ	ļ			ļ							·····							
Uneven and irreg-		ļ		•		ĺ	X	X						X	X			X		5
ular surfaces.		<u> </u>									<u>.</u>									
Loose and soft	[	[	"			}					X							[		1
surfaces (gravel,	ļ				ļ		•				•									
sand, etc.).	į	l		•																
Rough	1	Τ-	1				X	X					***************************************	X	X		***********	*******		4
Surfaces.						l		ļ -						***						
Discontinuous sur-	┪	-	-	-		<b></b>					X									- <sub>Y</sub> -
face materials.											e.h.									^
rare mererare	<u> </u>	<b>.</b>			<u> </u>	<u>.</u>	_	<b></b>	ш.					<b></b>						
MAINTENANCE	ĺ	ŧ	Ì		Ì	<b>!</b>													į	
Debris from erosion	┪	┿~	<b></b> -		—							X		X	X		**********			3
on walkway.		Ì										21		^	<u> </u>					Ì
Disrepair (frost	<u>L</u>	<b>)</b>	<del> </del>		<del> </del> —	<del> </del> -		<del> </del>		·		ļ			X		X			3
	`	ĺ	Ī					ĺ					,		А		X	X		٤
heaves, potholes, etc.			<b> </b>	<b>.</b>		ļ		ļ						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						احر- ا
Disrepair from vandali		) I	X		X			İ						X	X			X	Х	6
or accident (handrails	·,							İ												
guardrails, etc.).					ļ			İ											i	
	<del>├</del> ~~	╁┈┉	-	H	<u> </u>	├		<u> </u>				ļ						,.,		
STAIRWAYS	<u> </u>	ļ		_		L														
Stairway is only means	ř						X				Х		X							3
of access to structure	**	Ì.,					-				ļ '					ĺ				
Stairway only on one	[	Γ-				Ī		-				X				******	**********			I
side of structure.**			-		ĺ	ļ		1										t t		
Poorly lighted steps,	Γ'''	Ι	1		X	Ī		T			Х			X	X		*****	X		5
stairs, ramps.		ĺ		ļ			•													
Treads less than 11"	<b> </b>	X	<b></b>			† –	-					<u> </u>			X		***********	*******	X	3
(too small).																				
Projecting	<del> </del>	-	-		-	-	X	$\vdash$	-	~				···········					X	Ź
nosings.	1	1					Α												w	
Coen	-	X			X	$\vdash$	_	-	X										X	4
risers.	ĺ	l^			*	***************************************		-	~										**	, T
\$	V	X	-		X	-		-						•				X		4
Risers greater than	١	A			Λ			*				•						£™.		<sup>54</sup>
7" (too high).**	ļ	<b>Ļ</b> _	<u> </u>	ļ		1		ļ				<u> </u>	X		<u> </u>					
Curb greater than	Ĭ	ĺ				ĺ						;	A.							*
6" (too high).	L	Ĺ.,				l		L				Ĺ								1

	Ħ	1.4		er	¥	¥	¥	) }	L.	er	1.e		I	Į.,	ju:	ы	er		н	A.
C	8	ove O	Ove	Und	Ove	9 0	OVE	aΛO	Ove	Und	Š	Ove	Over	Ove	Over	Ş	Under	Over	Over	TOTAL
		2	3	4	5	6	7	8	9	10	11	12	13	14	15			18		
Step (settlement)														X		X				2
between approach																ĺ	ļ			
and structure.**		ŀ													İ	Ī				
Dangerous stair	T	<b></b>	<b></b>		X	· ******	-	****		-				···		<b>•</b>	Ι	1	***************************************	1
location.																		[ [		
**************************************	1	-		<b></b>	,****					<b></b>				,	i i	<del> </del>	<u> </u>	ļ		
RAMPS	ļ	<u> </u>	<del> </del> _	<b>ļ</b>		<b>*</b> ;	<b>!</b>	***	<b></b>			ļ				<u> </u>	ļ	ļ		
Only ramps			X			X		X								X	ļ			4
provided.	1	L.,	<u> </u>		<u> </u>		ļ				; 	<b>.</b>		<u> </u>		<u> </u>	<u> </u>	<u> </u>		
Only ramps provided	1			Į					Х					•	X	1	I			2
on one side of					[										1	1	1			
structure.	<u>.</u>			L	<b>.</b>				Ĺ	<b> </b>		ļ				<u> </u>	<b>_</b>	ļ	<b></b>	
Pathway leading to	İ			İ					[			ĺ		X						1
over-undercrossing	Ì	į											,			į		4194	1	
too steep and long.**					i			İ							ļ		T. C. C. C. C. C. C. C. C. C. C. C. C. C.	Ì		
Ramp too long (ex-	X	X	X		X	X	Ī		X						X	Х	-	X	X	10
ceeds 30 feet).**	**	1 -	1 "							l.		•			**	ļ <b>~</b>		**	1	_~~
Ramp too steep	X					*****	m	x	X				17-200	• 	X	X	<u>†                                     </u>	X		6
(slope greater than	1	1	ļ		1			<b>*</b> *						ļ		1		1	Ì	, v
1:12).**	]	ļ	Ì							İ				ļ		[	Ī			
Ramp too narrow	<b>†</b> ~~	<del>                                     </del>	<b></b>	<b>†</b>	<u> </u>	i	1				<b></b>	1		<u> </u>	<b>!</b>	1	<del>                                     </del>	<del>• • • • • • • • • • • • • • • • • • • </del>		
(less than 48').**		}			l							•	ĺ	İ		}	1		•	
Cross slope greater	1	<del> </del>	1	<del>                                     </del>	<b>-</b>		<del>                                     </del>	<b> -</b>	-	_		<b>†</b>		<u> </u>	<b>!</b>	├	<b>†</b>	<del> </del>		<b></b>
than 1:50 (too steep).	ļ	ļ	İ	1	•		1			-				ļ Ž		Į	ļ			•
Slope across structure	1-	┢	ļ	ļ		-	<u> </u>	-	ļ <b></b>					<u> </u>	-	<del> </del>	•	<b></b>		
too long and steep.**		1					İ			•				ļ			}			
No curb cuts.**	+	<u> </u>	<del> </del>	┣	<b>-</b>		<del> </del>		x	<del></del> -	<b>-</b>	<u> </u>	X	<del> </del>	<b>!</b>	X	┼──	<del> </del>	<b></b>	3
Helical ramp.	+	<del> </del>	<del> </del>	├	├		ł		₩.			<b>!</b>		<u> </u>		_ <b>^</b>	<del> </del>	<del> </del>	<b>-</b>	
Ramp layout	<b> </b>	-	<del> </del>		┝		┪	-	-	<b></b>		<u> </u>	<del> </del>	ļ	ļ	<del> -</del>	<del>[</del> -	1	Х	1
inconvenient.		ļ	1						ŧ							1		-	A	*
Abrupt transition to	<del></del>	├	<b> </b>	ļ	-		ļ.,	-	-	<u> </u>				<del> </del>			┿	<u></u>		
connecting walkways.		ļ	İ	*	l	-			1							X	i	Ì	ł	1
Ramp exits directly	┼─		X	<u> </u>	X	ļ	┪~~~		X	<del> </del> -	<u></u>	1	7.7		ļ	<del>  _</del>	<del> </del> -	┼	<del>                                     </del>	7
into street or park-		^	A		Λ		İ		Λ				X		ļ	X			X	'
ing area (less than 6'		ļ	Ì			ĺ	ĺ		•					İ		1			ļ	
, <del>"</del>		ļ	ļ		]								4		Ì	ł		ļ	1	
clearance at bottom	1	•	ĺ	ĺ	1	ì	ŀ			•						-		•		
of ramp).	<del> </del>	<del> </del>	ـ	<b>!</b>	<b>!</b>		ļ	ļ	<b>!</b>	<u> </u>		<del> </del>	<b> </b>	<b> </b>	<u> </u>	<b>.</b>	ऻ—	<del> </del>	<b>!</b>	ļ
Bollards in the mid-	1	1			ĺ		***					į		1	1				Į	
dle of entrance to			ł			Ì	İ			İ		*	Ì		}	ĺ		1	1	
the ramp.	<b>_</b>	ļ	<b>!</b>	ļ	_	ļ	1_	<u> </u>	<u> </u>	<u> </u>	<u></u>	<b></b>	<u> </u>	<b> </b>		<b>_</b>	<u> </u>	<u> </u>	<b> </b>	
Steps in the middle	1	]	Ì	ļ						ļ			ļ					1	-	
of the Tamp.	_		L.,	<u> </u>	Ĺ					•		<u> </u>		<u></u>		<u> </u>		ļ	<u></u>	
HANDRAILS				Ĺ			***************************************						_			İ		-		
Handrails higher than	X	X	X	[	X		X	X	X	]	X	1	<b> </b>	X		Ī	T	X	X	11
36" (too high).		L										1		<u>.</u>	1		Ĺ	_		L
Handrails lower than	T	ľ		-	Ĭ		T			<u> </u>	T-*********	Ī	<u> </u>	T	1			Ī	I	
32" (too low).**				į					1	]				j				[	I	

C	Ver	ver	Jver	Inder	Ver	Ver	Ver	Ver	ver	Under	Over	Over	Ser	Over	Over	Over	Under	Over 1	Over	TOTAL
	1			,		,	3	ž	3,,,,,,,			12	·	14		······································	<del></del>	18	<del></del>	
30		-	<del>د</del> ن (	X		X			-2	10.	* *	: * 4	X	***	X	X	*********	**********	11.7	6
handrails.**			*	**	•	•	Ì						<b>^</b>		•	•	A	i		V
Handrail inadequate for	1		-				<u> </u>		•			<u> </u>	<del> </del>	X	·····	<u> </u>	Ì	<del></del>	<u> </u>	1
comfortable grasp.			<b>.</b>	<b>*</b>			*		•	} •		*		A			-		Ī	
Handrail material metal	x	¥	X	1	Х		Y	X	¥		X	X		X			<del> </del>	X	X	1 12
or aluminum (hot in hot		111	1	*			}					1 1		, .e.	:		*	1	<b>₽</b> • • • • • • • • • • • • • • • • • • •	1 **
weather, cold in cold).	Ì	Ì	Ì		}			-			,			*			-	· ·	#	
Handrails not	Y	X	<u> </u>	<u></u>	Х		X				X	-	X	χ		<u> </u>	<del> </del> -	X	X	† q
continuous.	1,	. 4 <b>1</b>	ĺ	:	: **			ì				ŧ	, n	) <i>1</i> •			*	1	1.4	7
Handrails don't extend	X	1	<del> </del>	<u> </u>	X		X	İ	X	-	X		<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>	<b> </b>	†	X	ł	16
far enough (1' at top	1	ļ					. A.		^		Α		ĺ	*			-	A	1	6
and bottom of stairs		•	1	i I	:		É		:		<u>.</u>			•				ļ	ŧ	1
and ramps).**		1		1	ī		ţ				ĺ			Ī		[ ]			1	Į
No handrails on	+			-		<u> </u>	<u> </u>		<del>-</del>				<del></del>	<b> </b>		X	<b></b>	<b></b>	<del> </del>	<b> </b>
	Ì				1	r E	\$		:				1	}		A	1			] ]
ramps.	<u> </u>	ļ	_			ļ 	<u> </u>	: 			<u> </u>		į		<u> </u>					1
ZYTAWNWATTE BABBIZÁNGE	Ì	ì	ļ		ŀ	į		ļ		,	ĺ		, bel 8 - 4			,				
GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR			Ì		E				į	1		ĺ		1		}				
					į			i	ŀ	į		ĺ			ĺ			Ì	[	
SEPARATION	┼-	<del> </del>	<u>i</u> .	•	-	!	ļ	<u> </u>		<u> </u>	<u> </u>	<u> </u>	₩.	<u> </u>		ļ	ــــــــــــــــــــــــــــــــــــــ	<u> </u>	ţ	ļ
Barricades not detect-				•	[				X			1			į Į	i i			ĺ	1
able (blind cane).	⊥_			<u> </u>	<u>i</u> _	<u> </u>		<u>i</u>									ļ	<u> </u>	<u> </u>	
Guardrails not		ļ	į				ļ	1	X				X		}				1	2
continuous.	4	ļ	ļ	<u> </u>	ļ.,	_		ļ <del> </del> -	¦ }	<u> </u>	<u> </u>	ļ	<u> </u>	ļ	<u></u>	ļ	<u> </u>	ļ	ļ	<b></b>
Guardrails too low				X	i	† 	İ		1		ļ	1			1					1
(less than 42").		<u>.</u>				<u>.                                    </u>		<u> </u>	•	[		<u> </u>		1			1		<u> </u>	
No pedestrian		The state of the s		1		į  -	-		:	ļ		į į			1			İ		
guardrails.	<u>L</u>	1	ļ	Ĺ		<u>L</u>	<u> </u>	! 	ļ	<u> </u>	<u> </u>	<u> </u>	1	ļ			ļ	<u> </u>		1
Inadequate				T				i	Ī					-		1	Ī			
guardrails.		4						!		İ	ĺ		1	1	1		į	1	· [	
Guardrail mesh		Π	Γ		X			Ī	1	1	X	X	X	1	1	1		X	X	6
hazardous.*		1			Į	ļ	-		Į.				4		1		1			1
No detectabel sep-	Ť₹	X	X	X	X	X	X	X	X	-		X	1	X	1	X	X	1		1 13
aration between bike-				i			ļ		į.					ĺ	1		ļ	1	-	i
way and pedestrian way.	Î				ĺ			Į	İ			1			##	i	1	-		
No detectable sep-	+	<del>!</del>	†	İΤ	H	<del>                                     </del>	+-	<del>!</del>	╁┈	X	<del> </del>	<b>†</b>	1			<del> </del>		1	Í	<del>                                     </del>
aration between road-	ļ	ĺ	Î							1	1	1		-		i i		į	*	
way and walkway.	*	1	Į			1	ŧ			į	1	1		Į	-	•		Ì		
No derectable sep-	1	<del>}</del>	<u> </u>	<del>-</del>	╁-	<del>-</del>	<del> </del>	<del>,</del>	<del> </del>	1	<u> </u>	<u> </u>	1	1	1	<del></del>	1	╅~~~	***********	1
aration between	*		1,419,444	-		¥	***************************************	;		1		-			1		-	*		
walkway and parking lot.	*		***************************************	***************************************	*	***************************************	***************************************	;	****		ļ	***************************************				4		***************************************		
Unprotected sidewalks	1	-	-	-	-			<del>}</del>	<del> </del>	<del> </del>	<b></b>	<del> </del>	<del> </del>	<b>-</b>	<b> </b>	<u> </u>	<del> </del>	<b>†</b>	•	ł
(cars. edges, etc.).		-	v to we to v	***********	Productive conf	V+ www.	-	*****	· v show southoo	***************************************	Ĭ	#		1		After on on	ļ		**************************************	1
	+	-		-	-			***************************************	#			<u> </u>		<u> </u>	1	*	ì	<del> </del>	<del> </del>	<del> </del>
ESCALATORS/		#4 v#	A- MAP-48	-		:	*	1						ļ			ĺ	-	Ì	į.
ELEVATORS	1		Ĺ			4.40004		,	ì			1	1	1			1		1	1
Escalators.	T	Ī	- valence			Money				Į	1	T	Ţ		1	-			T	
Elevators.			1			1	T	-	Ī			ĺ	į		1	1	1	1	T	Ť

C	Over	Mer	Wer	Inder	Wer	Sver	Wer	Wer	Xer	Under	ver	Over	Over	Over	)ver	Over	Under	Over	Over	TOTAL
REST AREAS/BENCHES	1												,					18	<del></del>	
Resting places not	X		X	***	-		X			**		X			<b>*</b>	10		<u> </u>		6
under cover (wind,																				
rain, sun).	<u> </u>	<u> </u>															<u> </u>	<u>.                                    </u>		
Not enough places to		X	X	X	X		7		X	X	X	X	X	X		X	X	X	X	14
stop and rest.	<u> </u>	_							<u> </u>	<b></b>							ļ			
No provision for	X	X															<u> </u>			2
scenic overlook.	<b>_</b>	<u> </u>						,									<u> </u>	<b></b>		
Benches too high or		İ					X													
low, too deep or																				
shallow, or with								<u> </u>										ļ		
no armrest.																			1	
EMERGENCY PROVISIONS																				
No alternative route	X												1				X	Ì.		2
for flood condition		İ																		
structures.	<u> </u>	<u> </u>	<u> </u>	L				ļ							· ••••••••••••••••••••••••••••••••••••			<u> </u>		
No pedestrian emergency			X	Х	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	18
provisions.	<u> </u>	L															<u> </u>			
LIGHTING ILLUMINATION		•	]					-									 	<u> </u>		
Significant change of		<u> </u>						Ī									X	-		1
light level in tunnel		ļ	•						•								ł			
at entrance.			l													ļ	Ì			
Interior lighting not	-	Γ						ļ		X							ļ	]		1
adjusted to outside								•								į	•	•		
light conditions.	<u> </u>	<u> </u>		_												<u> </u>	<u> </u>	<u> </u>		
Glare at end of									•									•		
tunnel.*	<u> </u>	L	<u> </u>	<b>.</b>					Ĺ			· · · · · · · · · · · · · · · · · · ·		<del></del>		<u> </u>		<u> </u>		
Tunnel too				}				•									X			1
dark.*	<u> </u>	Ļ.	<u> </u>	-												<u></u>		<u> </u>		
Glare and flashing	X	X	X	X	X	X			X	X		X	X			X		X	X.	13
lights from vehicles.*	<u> </u>	ļ.,		_					ļ_							<u> </u>		<u> </u>	<u> </u>	
Poor	X				X					X				X	X	X	X	X		8
11lumination.*	<u> </u>	L			<u> </u>															
SIGNAGE/MEDIA CUES																				<u> </u>
No signage indicating	X	X	X	X	X	X	X	X	X		X	X		X	Х		X	X	X	16
location of rest	#			'				İ											l	
areas.		-	<u> </u>	ļ 																
Street signs too		•	Ĭ -							<del></del>						<u> </u>				
high, too low or far.	<del> </del>	ļ.,	ļ	ļ			ļ	-	<b> </b>		L.,				<b>.</b>	<u> </u>	<u> </u>	ļ	<b>!</b>	L
No special signage for	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	19
the visually impaired.	Ĺ.,	<u> </u>	<u> </u>	<u> </u>	ļ_		<u> </u>	<u> </u>								<b></b>	<u></u>	ļ	<b></b>	
Traffic lights with	1		#	Ì				Ĭ										t t		
short green cycle.	<u> </u>	ــــ	<u>L</u>		-		<u> </u>	ļ	ļ							<u> </u>		<u> </u>	1	
Complicated instruc-		1	1	Ì			Ì	Í		[						1				
tions on sign.	<u> </u>		<u> </u>		<u> </u>	<u> </u>	L_,	للل			<u></u>				Ĺ	<u> </u>	<u> </u>	<u> </u>	<u></u>	L

C	Over	Over	Over	Under	Qver r	Over	Over	Over	Over	Under	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
No warning of	<del></del> -					_						<del> </del>	X	<del>•</del>		<del> </del>		······································		1
potential hazards.	1	L		•										<u> </u>						
No orientation cue as	X	X	X	Х	X	X	X	X	X	X	X	X	Х	X	X	X	Х	X	Х	19
to start of approach.	ļ											<u>}</u>	<u> </u>	<u> </u>	<u> </u>	<u>}</u>	<u> </u>		<u> </u>	
Lack of orientation	X	X	X	X	X	X	X,	X	X	X	Х	X	X	X	X	X	X	X	X	19
cues generally	<u> </u>										<u>L</u>			ļ	L				L	
Pathway junctions	X	X										X	X	X	X	X		*	İ	7
which are not at 90	} •	•									<u> </u>		•	<b>!</b>	ļ			*		The state of the s
degree angle or														ĺ		4				<u> </u>
which curve.		<u> </u>														<b>!</b>		Ì		
No detectable orienta-												1						Ī		
tion cue as to start											Ì								1	
of channelization.	<u>.</u>	L										<u> </u>		<u> </u>		1		<u> </u>	•	
Walkway not	X	Х	X	X	Х	X	X	Χ	Х			X		X	X		X	X	X	15
channelized,	<u> </u>									‡ 		<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>			
Traffic		}	X	χ					X			X	X			*	X	X	X	8
noise.		<u> </u>								: {				<u> </u>		<u> </u>				
MICRO-CLIMATIC FACTORS		-										 								
High wind gusts	TX	X	X		X	X	Х	X	X	,	X	X	X	<del>†</del>	<u></u>	X	<b>}</b>	X	X	14
present.*	•								[ "	į E		1		-			1	1	1	
Wind generated	1	1	-	X					-		<b></b>					<u> </u>			<b></b>	1
by traffic.*					1									4			Į		<b>‡</b>	
Inadequate provision	1		<b></b>						·····			<b></b>	1	Ì	X	1	X	X	<del></del>	3
for rain-water runoff.			<u> </u>		! !				*			1		1				ĺ	į Į	
Walkways and sidewalks		<u> </u>	X	[		X						X		X	X		X	]   	]	6
not kept clear of snow,	`	ĺ	ţ	ļ				•	İ	İ		1		ŀ						
ice and debris.	1	Ì	'	1					ļ	1	•			1		Ī	Ī		1	

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

D	Over	Over	Over	Over	Over	TOTAL
	Ö	5	6	6	6	3.L
LOCATION & END CONDITION	1	2	3	4	5	
Portions of walkway are		X	<b>1</b>			1
hidden from view	Ī		ł	l		
(crime potential).			İ			
Overcrossing/undercrossing			T			
is not close to public				1		
transportation stop.		<u> </u>				
No sidewalk at	X	Х	X			3
end condition.			<u> </u>	<u></u>		
Parked cars						
restrict approach.*			<u> </u>	<u> </u>		
Parked cars obstruct						
view of approach.*			<u> </u>			
No accessible						
parking.**						
No detectable pedestrian		X				1
crosswalk to approach.		<u> </u>		<u> </u>		
Driver's view of						
pedestrian blocked.*				<u> </u>		
			[			
WALKWAYS		<b> </b>	<b> </b>	<b></b>		
Pedestrian walkway on		1		1		
only one side.		<b> </b>	<u> </u>	<b>!</b>		
Walkway less than				1		
48" (too narrow).**	<u> </u>	ļ	<u> </u>	<u> </u>		
Headroom below				•		
6'10".**	<u> </u>	<u> </u>	↓_	<u> </u>	ļ	
Walkway through		İ				
"long" tunnel				Ì		
(over 40').		<u> </u>	ļ	<u> </u>	L	
Structure vibrates		ŀ		1		
(traffic).		<u> </u>	Ļ.,	<b> </b>	<u> </u>	
Abrasive or perforated		•	Х	ł		,
material on vertical sur-					•	
face adjacent to walkway.		<b></b>	ļ	<b> </b>		<b> </b>
Objects project into				ĺ	l .	
walkway (sigms, trees, etc.).	<b></b>	ļ	<del>                                     </del>	╀	<u> </u>	
SURFACE MATERIALS			1			
Manhole covers and gratings	<b></b>		<del>                                     </del>	<del> </del>	_	<b>!</b>
in walkway.					į	
Highly reflective	<b></b>		1-	╁	╁┈╴	<b> </b>
surface materials.						
Grooves and patterns (cast	<b> </b>	<del>                                     </del>	x	<b>†</b>	<del> </del>	ī
into walkways or caused by	ŀ	1	^			<b>.</b> .
small paving units).						
small paving units).		<u> </u>	1	L	<u> </u>	

		1		<del> </del>	·	T .
<b>n</b> ,	14	i.	EL	1	<b>3</b>	K
D	Over	Over	Over	Gve	Over	TOTAL
	1.	2	3	4	5	
Large, deep	X		1		X	2
expansion joints. **		İ	· · ·	Į		
Uneven and irregular	-		X	X		2
surfaces.		ì L.	<u>.</u>			
Loose and soft surfaces		i i	ŀ			
(gravel, sand, etc.).	<u> </u>	<u></u>	<u> </u>			
Rough			X	X		2
surfaces.			<u></u>		ļ	
Discontinuous surface		ĺ	X	X		2
materials.					<u></u>	
		•				-
MAINTENANCE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ļ		<u> </u>	ļ	
Debris from erosion		- - -				
on walkway.	······	<del></del>	<del> </del>	-		
Disrepair (frost heaves,					X	1
potholes, etc.). Disrepair from vandalism	3,7	<del></del>	<u>!</u>	-	ļ	2
or accident (handrails,	X	X	Į	ļ	}	34
guardrails, etc.).		į	Š.	*		
Adding and arrely			<del>}</del>	-	<u> </u>	
STAIRWAYS		-		-		
Stairway is only means	, , , , ,	r –	X	X	···········	2
of access to structure. **				•		
Stairway only on one						
side of structure.**				<u> </u>		
Poorly lighted steps,				X		1
stairs, ramps,			: <del></del>	-	<b></b>	···
Treads less than 11"			X	X		2
(too small).		<u> </u>	<del></del>	:		
Projecting				X		1
nosings.				X		·····
Open			X	A		£
risers. Risers greater than			X	ļ		1
7" (too high).**		•	1 1	!	,	•
Curb greater than		-	<del> </del>	<del> </del>		
6" (too high).		4	¥	Ì		
Step (settlement) between			<del> </del>	-		
approach and structure.**			<b>*</b>	<u>}</u>		
Dangerous stair			<del>!</del>	<del></del>	<b></b>	
location.			-			
			<u></u>	Ţ		

D	Over	Over	Over	Over	Over	TOTAL
RAMPS	1		· 3	4	5	
Only ramps		X				1
provided.			<u> </u>	<u> </u>		
Only ramps provided on					X	1
one side of structure.		<u> </u>	<b> </b>	<del> </del>	<b>!</b>	
Fathway leading to over-					•	
undercrossing too	ţ				ĺ	
steep and long.**		X	┡	<del> </del>	X	2
Ramp too long (exceeds		^	1	1	^	"
30 feet).** Ramp too steep (slope	╁	X	<del> </del> -	<b></b>	X	2
greater than 1:12).**	1	1		1		_
Ramp too narrow (less	┿	-	╂	╂	<u> </u>	
than 48").**			ļ	1		}
Cross slope greater than	<del></del>	-	<del> </del>	<del> </del>	<del> </del>	
1:50 (too steep).						
Slope across structure	+		H	┰	<del> </del>	
too long and steep.**		ł		1		
No curb	X	Х		T-		2
cuts.**						
Helical	1	х				1
ramp.		<u> </u>				<u> </u>
Ramp layout	J					
inconvenient.			1	1		
Abrupt transition to		1	1	1	1	1
connecting walkways.			<u> </u>	<u> </u>	<u> </u>	<u> </u>
Ramp exits directly into	-	•		1		]
street or parking area (less	į				-	
than 6' clearance at bottom		•	Ì	l		l
of ramp).	—	<b>!</b>	╀	ـــ	ļ	<b> </b>
Bollards in the middle	•	Ī	l	ĺ		
of entrance to the		-				ţ
ramp.   Steps in the middle		-	-	┈	╁—	<b>├</b>
of the ramp.				1		1
Ar wife womb.	+	-	1	<del></del>	<del> </del>	ļ
HANDRAILS				ļ		
Handrails higher than		X	╈	X	1	2
36" (too high).		1^		<b> </b> ^		] ~
Handrails lower than	1		1	1	1	1
32" (too low).**	l				1	I
	I	<u> </u>	1		<b></b>	<u> </u>

			T	<b>†</b>	1	<del></del> -
D	Over	Over	Over	Over	Over	TOTAL
	1	,,,,,,	3		5	
No	-		X	····	X	2
handrails.**	Ì					
Handrail inadequate for					1	
comfortable grasp.						
Handrail material metal		X		Х	1	2
or aluminum (hot in hot		Ì			1	
weather, cold in cold).		ĺ		l		
Handrails not		Х		X	Ī	2
continuous.		L				
Handrails don't extend		X	***			1
far enough (1' at top and			1		ļ	
bottom of stairs and ramps).**			<u> </u>		<u> </u>	
No handrails on						
ramps.			<u></u>			
GUARDRAILS, BARRACIDES,					İ	
PEDESTRIAN/VEHICULAR SEPARATION	L_	<u> </u>	L	<u> </u>	<u></u>	
Barricades not detectable		ĺ	į			
(blind cane).	<u> </u>	<u> </u>		<u></u>	<u></u>	
Guardrails not						
continuous.	<u> </u>		<u> </u>	<b></b>	ļ	
Guardrails too low	X	X	1		X	3
(less than 42").		ļ	<u> </u>		ļ	
No pedestrian						
guardrails.			ļ	ļ	<b> </b> -	
Inadequate					Ī	
guardrails.				ļ	<u> </u>	
Guardrail mesh		İ	X			1
hazardous.*		<u> </u>	<b></b>	<b>!</b> ,		<b>-</b>
No detectable separation	X	X		<b>5</b>		2
between bikeway and						
pedestrian way.		<del> </del>		<b>}</b>	<b>-</b>	
No detectable seperation						
between roadway and walkway. No detectable separation		$\vdash$	-	<del> </del>	<b>-</b>	
between walkway and parking						
i lot.						
Unprotected sidewalks	<b></b> -	<u> </u>	<del></del>	<b></b>	-	
(cars, edges, etc.).			•			
Charles And Process		<u> </u>	<u> </u>	<b></b>		
ESCALATORS/ELEVATORS			1			
Escalators.	-	<b></b>	<del>                                     </del>	L [	<b></b>	•
Elevators.				<u> </u>		
	Ļ	L	L	L	L	

**************************************		·				
D	Over	Š	Over	Over	Over	TOTAL
REST AREAS/BENCHES	1	2	3	4	5	
Resting places not under		<b> </b>				
cover (wind, rain, sun).			<u> </u>	ļ		
Not enough places to	Х	x	X	X	X	5
stop and rest.		<u> </u>	<b>.</b>			
No provision for						
scenic overlook.	L	<b> </b>	ļ	ļ	<b></b>	
Benches too high or low,						
too deep or shallow, or with no armrest.						
with no aimtest.			<del>                                     </del>	<del> </del>	-	
EMERGENCY PROVISIONS		1				
No alternative route for	<u> </u>	<b>1</b>				
flood condition structures.	<u></u>	L		<u> </u>	<b></b>	
No pedestrian emergency	Х	X	X	X	X	5
provisions.	<u> </u>			<u> </u>		
LIGHTING ILLUMINATION	ļ	<b>!</b>	ļ			
Significant change of light						
level in tunnel at entrance.	<u> </u>	<b>}</b>	ļ	<b>ļ</b>		
Interior lighting not adjusted to outside	1					
light conditions.	l					
Glare at end		╂╼╌		<del> </del>		
of tunnel.*						
Turnel too	<b></b>	<u> </u>	┪	┪		······
dark.*		1		l		
Glare and flashing	<u> </u>	1		X		1
lights from vehicles.*		<u> </u>	L	<u> </u>	<u> </u>	<u> </u>
Poor	X	X	X	Х		4
111umination.*	<u> </u>	Ļ	<u> </u>		ļ	<u></u>
		l	ĺ			l
SINAGE/MEDIA CUES	<del>                                     </del>	-	X	┨	X	2
No signage indicating location of rest areas.		1	A		Ā	′
Street signs too high,	<del></del>	<del> </del>	<del> </del> -	+	<del> </del>	-
too low or far.	1	1	į			•
No special signage for	X	T <sub>x</sub>	T <sub>X</sub>	X	X	5
the visually impaired.		ľ	^^	"	1	_
Traffic lights with	1		_	1		
short green cycle.	<u> </u>					
Complicated instructions						[
on signs.	<u> </u>	<u> </u>	<b>Ļ</b>	<b> </b>	<b> </b>	<u> </u>
No warning of potential		X		X	X	3
hazards.	<u> </u>	<u>L</u>	<u></u>	<u> </u>	<u> </u>	

D	Over	Over		Over	Over	TOTAL
	1	2	3	4	5	
No orientation cue as to start of approach.	Х	Х	X	ž.		
Lack of orientation cues generally.	X	X	X	X	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.	X	X				2
Traffic noise.	X					1
MICRO-CLIMATIC FACTORS						
High wind gusts present.*						
Wind generated by traffic.*						
Inadequate provision for rain-water rumoff.						
Walkways and sidewalks not kept clear of snow, ice and debris.		Х				,

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

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

	Under	2 Ret	wer	Japun 4	Over	Under	rowal
	<u> </u>	2	3	4		6	
Large, deep				7		<del></del>	
expansion joints. **	***************************************	ł					į
Uneven and irregular	į		4.7		37		
surfaces.	ļ		X		X		2
Loose and soft surfaces		······································					***************************************
(gravel, sard, etc.).	***************************************						
Rough	•	X		Ÿ	Х	1	2
surfaces.					Λ		۷
Discontinuous surface			Х		X		2
materials.			**		А		áur .
MAINTENANCE							
Debris from erosion							
on walkway.		. !					
Disrepair (frost heaves,							
potholes, etc.).		*	!				
Disrepair from vandalism					·····		
or accident (handrails,			:			Į	
guardrails, etc.).							
STAIRWAYS			**********			~~~	
Stairway is only means		<del> </del>					***********
of access to structure.**		•					
Stairway only on one					***************************************		
side of structure. **		!				1	
Poorly lighted steps,							
stairs, ramps.		1					
Treads less than 11"				<u> </u>			************
(too small).						1	
Projecting			******************				
nosings.							
Open							
risers.							
Risers greater than							
7" (too high).**			······				
Curb greater than							
6" (too high).				! • •			
Step (settlement) between							
approach and structure.**			<del></del>	<u> </u>	<u> </u>	1	
Dangerous stair				-	1		
location.							

F	Under	Over	Over	Under	Over	Under	TOTAL
	-1						<u> </u>
RAMPS	1	_2	3	4	_5_	6	
Only ramps			X				1
provided.		<b></b> ,					
Only ramps provided on				١.			
one side of structure.		]					
Pathway leading to over-				X			1
undercrossing too	i i						
steep and long.**							
Ramp too long (exceeds				į		•	
30 feet).**				<u> </u>			
Ramp too steep (slope							
greater than 1:12).**					ķ		
Ramp too narrow (less	]						
than 48").**	1						
Cross slope greater than	<u> </u>						
1:50 (too steep).				Į Į			
Slope across structure			X		X		2
too long and steep.**							
No curb	-						v
cuts.**				<u>.</u>			
Helical							
ramp.							
Ramp layout							
inconvenient.							
Abrupt transition to	1						
connecting walkways.	İ			ļ			
Ramp exits directly into	Ī						
street or parking area (less				Ì	ļ	1	
than 6' clearance at bottom	1			1			
of ramp).				1			
Bollards in the middle	-1	1			<u> </u>	<u> </u>	
of entrance to the	*	# }		1	1	1	
ramp.	Ì			Į			
Steps in the middle		1		1	<del> </del>	1	
of the ramp.	1	1				1	
		ļ		<del>                                     </del>	<b></b>	1	<b></b>
HANDRAILS		•			<b>.</b>		
Handrails higher than	<u> </u>	1	X		х	Ť	2
36" (too high).	į		•	1	^	1	
Handrails lower than	1	<b>†</b>		İ	<b> </b>	<b>†</b>	
32" (too low).**					1		
7		1	<u> </u>	11	<b>1</b>	1	L

***************************************	<u>.</u>			<u></u>		l lu	<u></u>
	Under	Over	Over	Under	Š	Under	TOTAL
<b>L</b>	5	Õ	8	5	8	Un	10
	1	~		, 1			
No	1	2	3	4 X	5	6	
handrails. **				.Х.			1
Handrail inadequate for	1	·	x		X		2
comfortable grasp.		*3	Α.		Λ	!	4
Handrail material metal	X						1
or aluminum (hot in hot			<b>‡</b>				1
weather, cold in cold).							
Handrails not	1			· · · · · · · · · · · · · · · · · · ·		<b></b>	
continuous.			l			İ	
Handrails don't extend	*		ļ —		Х		1
far enough (1' at top and			1				
bottom of stairs and ramps).**			<u> </u>				
No handrails on			1			Ĭ.	
ramps.			•				
GUARDRAILS, BARRICADES,	<del>*************************************</del>				·		
PEDESTRIAN/VENICULAR SEPARATIO	} N1						
Barricades not detectable	1		<u> </u>			<b></b>	
(blind cane).			Į				
Guardrails not	<b> </b>		<u> </u>			<u> </u>	
continuous.	¥.		Ì				
Guardrails too low	1~~~			***************************************			
(less than 42").	Ì					1	
No pedestrian	†——	X	<u> </u>	X		<del> </del>	2
guardrails.		-7.	1	n.			
Inadequate	1						
guardrails.							
Guardrail mesh		<del> </del>			····	1	***
hazardous.*			1			į	
No detectable separation	Х	Х	T X		X	-	4
between bikeway and			1			3	
pedestrian way.	1	<b>.</b>	ļ				
No detectable seperation		Ī					
between roadway and walkway.	-		-				
No detectable separation		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-			]	
tetween walkway and parking			,			Ī	
lot.		<u> </u>				1	
Unprotected sidewalks	-	Х	<u> </u>	X			2
frars, edges, etc.).	A COLOR						
ESCALATORS/ELEVATORS							
Escalators.		•	1				
Elevators.	<u> </u>	<u> </u>	1			1	<u> </u>
<u> </u>	J	1	1	ł	<u> </u>	<del></del>	J

		<del> 1</del>					<del></del>
E	Under	Over	Over	Under	Over	Under	TOTAL
REST AREAS/BENCHES	1	2	7	4	5	6	•
Resting places not under	-			<b>_</b>		<u> </u>	
cover (wind, rain, sun).							
Not enough places to	X	``	X	X	Х		4
stop and rest.	-						
No provision for							
scenic overlook.							
Benches too high or low,							
too deep or shallow, or	•						
with no armrest.							
EMERGENCY PROVISIONS							
No alternative route for						<b></b> _	
flood condition structures,	•						
No pedestrian emergency	X	X	X	X	X		5
provisions.						<u> </u>	
LIGHTING ILLUMINATION							
Significant change of light	}						<b></b> -
level in tunnel at entrance.					i .		
Interior lighting not	<b>†</b>			X	Ì		ī
adjusted to outside							
light conditions.							
Glare at end	1		··	X			I
of tunnel.*							
Tunnel too				X	ļ		I.
dark.*							
Glare and flashing				ļ			
lights from vehicles.*					<u> </u>		
Poor				X			1
illumination.*							
SIGNAGE/MEDIA CUES							
No signage indicating				X	T		1
location of rest areas.	'					<u> </u>	
Street signs too high,	T						
too low or far.	ļ				ļ 	<u></u>	
No special signage for	X	X	X	X	X		5
the visually impaired.	<u> </u>			<u> </u>	Î		
Traffic lights with				•	1		
short green cycle.	<u> </u>			<u> </u>	ļ		L
Complicated Instructions	1			<u> </u>			
on signs.	<u> </u>	<u> </u>		<u> </u>	<u> </u>	L	<u> </u>
No warning of potential	1	1		1		I	
hazards.	1	<u> </u>		1	1	<u> </u>	<u> </u>

	Under	Over	Over	Under	Over	Under	rotal.
	1	2	3	4	5	6	
No orientation cue as to start of approach.	X		Х		X		3
Lack of orientation cues generally.	X	X	X	X	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	X	Х	Х	X		5
Traffic noise.							
MICRO-CLIMATIC FACTORS					1		
High wind gusts present.*						•	
Wind generated by traffic.*			<del></del>		<u> </u>		
Inadequate provision for rain-water runoff.			<del></del>	1		****	
Walkways and sidewalks not kept clear of snow, ice and debris.	X		######################################		Washington and American		l

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

F	/ver	Wer	ver	wer	Inder	Wer	Wer	Ver	Inder	ver	Over	nder	Over	Over	Under	TOTAL,
LOCATION & END												12			15	F
CONDITION Portions of				Н	77	_			<b> </b>	<u> </u>		- · · · · · · · · · · · · · · · · · · ·		ļ		
walkway are hidden					X				X	X					X	4
from view						İ								ĺ		
(crime potential).																1
Overcrossing/			-			-			<u> </u>				ļ	<del> </del>		
undercrossing is						:								•		1
not close to public													<u> </u>			
transportation stop.										•						
No sidewalk at end						<b>-</b> -			-				-	<b></b>		
condition.																
Parked cars						<b></b>			$\Box$							1
restrict approach.*																1
Parked cars	<b></b>	***						<u> </u>	<b>†</b>					<u> </u>		
obstruct view of		(														
approach.*														ļ		
No accessible						_		-	<b>-</b>					-		
parking.**						•										
No detectable						<u> </u>		<b></b>	Х				<b>!</b>	<b></b>	Х	2
pedestrian cross-						Ì									,	
walk to approach.										•						
Driver's view of										İ				-	****	
pedestrian blocked.*	<u></u>	_							_							
WALKWAYS															<b>.</b>	
Pedestrian walkway												Х				1
on only one side.															<u> </u>	
Walkway less than									Ī							
48" (too narrow).**					<u> </u>	<u> </u>		<u> </u>	L				<b>.</b>	<u></u>		
Headroom below													ļ			
6'10", **	<u></u>	L.	Ш						<b>_</b>				<u> </u>	<b></b>		
Walkway through					X				Х						X	3
"long"tunnel										1	•			1		
(over 40').	ļ				Ĺ,	<u> </u>			<u> </u>		<b>.</b>		ļ	ļ	ļ	
Structure vibrates										•	•		İ			
(traffie).	ļ	<u> </u>	Ц		_				<u> </u>		<u> </u>	<u>L</u>		<b></b>	<b></b>	
Abrasive or per-	X	X	X	X		X	X	X	ļ		X	X	X	X		11
forated material on	1															{
vertical surface	•	Į							j	ĺ		Í				{
adjacent to walkway.	<b></b>	<b>!</b>			ļ			<u> </u>	<u> </u>	ļ	<b>_</b>	ļ			ļ	<b></b>
Objects project into	1											İ		-	1	l i
walkway (signs, trees,									1			<u> </u>		İ	•	
etc.).	L	<u> </u>					L	L	<u> </u>	<u> </u>	<u> </u>	Ĺ,	<u> </u>	<u> </u>	<u> </u>	<u> </u>

		r	1		<b>1</b>	Ī	Ī	!	<b>5</b> -i			1.4	- <del> </del>	1		
	E	Æ	er	ær	<b>\$</b>	ä	ē	<u>بد</u> ق	Under	Over	Over	Under	Over	Over	Under	TOTAL
	5	ŏ	5	ే	ă	5	6	€	5	ි		ä	Š	ે	H	10
SURFACE MATERIALS	1	2	3	4	5	6	<b>[</b> 7	8	9	10	11	12	13	14	15	
Manbole covers and								X				X				2
gratings in walkway.		L	Ĺ		<u> </u>	<u> </u>			<u> </u>	Ì				<u> </u>		
Highly reflective	-		ļ							•						
surface materials.					<u> </u>		<u> </u>		<u> </u>							
Grooves and patterns		Х	X	•										i I		2
(cast into walkways or						#			Ì							-
caused by small					ļ	#								i		
paving units).			1					İ								
Large, deep expan-		X	Ì		•	X	¥	¥		Х			Х	Х		7
sion joints.**		I**				**	,		ļ	, A.			Λ	1		*
Uneven and irreg-	X			¥	x	X	y		į		:		Х		Ì	6
ular surfaces.	*			-	**	# X	×.						Λ	*		O
Loose and soft						1		Х	1				······································	1		1
surfaces (gravel,		l			ļ	l	-	Λ	i					1		7
sand, etc.).		I	'			ĺ		I								
Rough		<del> </del>	┪	X	ļ	<del> </del> -		<del> </del>	_				- X	<del> </del>		······································
Surfaces.	į		ĺ	Α			F	Ì	-				X	1		2
Discontinuous sur-		<del> </del>	1		<del></del>	-	<u> </u>	<del> </del>	<u> </u>					<b></b>		
face materials.			1			l		1						<b>!</b>		
TOUR MOLECULATION			┼	-	ļ	<b></b> -		-						<u> </u>		
MAINTENANCE					•	ļ			į					Ì		
Debris from erosion	ļ	ļ	<b>-</b>		X	-	H		ler.			**				
on walkway.	ļ	I			Α				X			X			X	4
Disrepair (frost	X	<b>!-</b>	┼┈	├~	ļ	X	X	<b>!</b>	ļ	_						
heaves, potholes, etc.).	A					ľ.	Λ.	ļ								3
	X	٠	<u> </u>	X	ļ	<del> </del>	X						***	<b>!</b>	ļ	
or accident (handrails,	Λ		l	Α			1	X.	•				X.	İ		5
						-			Ì						1	
guardrails, etc.).			}		-		-		<u> </u>					<b></b>		
STAIRWAYS			Ž						4							
			x		<b>.</b>	<del>]</del>		ļ		<del> </del> -				<b>!</b>	<b></b>	
Stairway is only means of access to structure.**		į	ľ.				X	1	'				Х			3
			-					-	<del> </del>			·*- :		-		
Stairway only on one		Ì			]	ĺ	)	•	Ì	]			X			1
side of structure.**	ļ 1	L.	Ļ	<b></b> -	<del> </del>			<u>L</u>	<b>!</b>	ļ				<del> </del>	-	
Poorly lighted steps,	X	X	X	<u> </u>			X	X	#			X				6
stairs, ramps.		-	-		<u> </u>	ļ		<del> </del>	<u> </u>					<b>!</b>	<u> </u>	
Treads less than 11"			1				[		Ĭ	X				ļ		1
(toc small).	<u></u>	ļ	-	<u> </u>	<u> </u>	ļ.,		-	-	-			<b></b>	<u> </u>		
Projecting	•	1			ĺ					1			X		F	1
nasings.		<u> </u>	1	ļ	<b>_</b>	<u> </u>	-	-	<b>_</b>	ļ			<u> </u>	<u> </u>	ļ	
Open	<b>.</b>					1	***************************************						ļ			
risers.		ļ	<u> </u>			<u> </u>	<b></b>	ļ	<u> </u>	<u> </u>			<u> </u>	<b> </b>		- <del></del>
Risers greater than	X	***************************************	******							ļ				ļ		1
7" (too high).**	<b></b>	<u></u>	<u> </u>		ļ <u>.</u>			<u> </u> _	<u> </u>	<u> </u>			<b>!</b>	<del> </del>	ļ	
Curb greater than								i	ĺ					1		
6" (too high).		<u> </u>	1		L	Ĺ.,	Ĺ			<u> </u>				<u> </u>		

	L.		L	ŭ	er	L	L	s.	er.	<b>1</b>	L.	k e	S-a	ı.	e K	2
,	ő	OVE	Ove	OVE	nuq	Ove	Ove:	Ove	ng	Sve Sve	Over	Unde	Over	ο Σ	Under	TOTAL
Step (settlement)	1					6	7	8	9		11		13	14	15	
between approach	X					X		X							ļ	3
and structure.**									١,					•		
Dangerous stair	<b> </b>					-					······································			-		
location.					,											
4.55 3.56 11 30 30 30 30 30 30 30 30 30 30 30 30 30		-						-								
RAMPS	<b></b>															
Only ramps	X	X						X			X			X		5
provided.	ļ															
Only ramps provided	ļ															
on one side of																
structure.	ļ	_				Щ.	$oxed{oxed}$									
Pathway leading to					X.				X						X	3
over-undercrossing																
too steep and long,**		Ļ				$\vdash$			_							
Ramp too long (ex- ceeds 30 feet).**	X	X						X		X	X			X		6
Ramp too steep	7	X		X	-	-		X			X			X		
(slope greater than	**	Λ		Λ				Λ			<b>ሕ</b>			X		6
1:12).**																
Ramp too narrow	<b></b>	-						_		A/A						
(less than 48').**							i									
Cross slope greater	ļ		_											<b></b>		
than 1:50 (top steep).																
Slope across structure	ļ	-									X			-		
too long and steep.**	•															
No curb cuts.**	<b></b>	X			-	X										2
Relical ramp.		-														
Ramp layout	<b>[</b>	_									···········	İ		•		<u></u>
inconvenient.									į							
Abrupt transition to	Ī					X						****				1
connecting walkways.																
Ramp exits directly	X	, ,							X				X	X	X	5
into street or park-																
ing area (less than 6'																
clearance at bottom																
of ramp).						_										,
Bollards in the mid-																
dle of entrance to												ł				
the ramp.	X		_													
Steps in the middle	Λ															1
of the ramp.		_												<u> </u>		<u>-</u>
HANDRAILS																
Handrails higher than	[	X	X			X								X		4
36" (too high).						-										
Handrails lower than	***************************************					П										**************************************
32" (too low).**														•		

	Ŧ	T						*****								·
F	Over	Over	Over	Over	Under	Over	Over	Over	Under	Over	Over	Under	Over	Over	Under	TOTAL
	1										11		13	14	15	
No	X				X				Х		Х		   	-	Х	7
handrails.**	<b> </b> -	-				_								ļ		<u> </u>
Handrail inadequate for		X		X		X								X		4
comfortable grasp.	<u> </u>			<u> </u>								ļ			ļ	
Handrail material metal	] :	X	Х	X			Х	X		X			X	X	}	8
or aluminum (hot in hot															•	
weather, cold in cold). Handrails not	<b>-</b>	Ļ.,.	X	ļ,	_			X		47				**		
continuous.	1	Λ	٨					Α		X			X	Х		6
Handrails don't extend	<del> </del>	x				X		X					-	X		4
far enough (1' at top		A				Α.		4						^		<del>4</del>
and bottom of stairs													1			
and ramps).**			İ													
No handrails on	<del> </del>	-		X	-		H		χ				<b></b>	<b></b>	X	3
ramps.	•															
	-										***************************************		<del>                                     </del>	<del>                                     </del>		
GUARDRAILS, BARRICADES,																•
PEDESTRIAN/VEHICULAR	1															
SEPARATION	:						4							ļ		
Barricades not detect-	ļ		Х							•			<b>†</b>	1		1
able (blind cane).																,
Guardrails not									***					· · · · · · · · · · · · · · · · · · ·		
continuous.										 						
Guardrails too low	X												X			2
(less than 42").	<u> </u>													i i i		
No pedestrian						X	-									1
guardrails.								Ĺ					<u> </u>			***************************************
Inadequate		X	X													2
guardrails.				,									<u> </u>			
Guardrail mesh		X	X	X		X	X	X			X			Х		8
hazardous.*	<u> </u>												<u> </u>	<u></u>		
No detectabel sep-	X ·	X		X	Х	X		Х	Х		Х	X		X	Х	11
aration between bike-														ĺ		
way and pedestrian way.						4:5							<b>-</b>	ļ		
No detectable sep- aration between road-						X										1
way and walkway.													ł		1	
No detectable sep-		-					H						<del> </del>	ļ		<u></u>
aration between														]		
walkway and parking lot.								3					1	ļ 1		
Unprotected sidewalks		Н							-				-	X		1
(cars, edges, etc.).													1	1		<b> </b>
							-				-		<b></b>	<b></b>		
ESCALATORS/																
ELEVATORS															i	
Escalators.																
Elevators.										X			[			1
		نــــــنا					l					<u></u>	<u>.</u>	<u> </u>	أجبيسية	L

					i.	ı.	ī.		ΞŢ	L.	£.;	뉡	i.	L	Li co	J
	Ove:	Ove	Over	Over	pun	Ove	(aao	Ove	∌pu∩	Over	Over	Under	зэл0	Over	Under	TOTAL
REST AREAS/BENCHES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Resting places not				X												1
under cover (wind,																
rain, sun).																
Not enough places to	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
stop and rest.	ļ															***************************************
No provision for																
scenic overlook.	ļ												<b>,,,,,</b>			
Benches too high or									j							
low, too deep or									Ì							
shallow, or with																
no armrest.																
EMERGENCY PROVISIONS														, '		
No alternative route					X				X							2
for flood condition					~				**							****
structures.																
No pedestrian emergency	X	Х	X	X	X	X	X	X	Х	Х	X	X	X	X	X	15
provisions.							:									
LIGHTING ILLUMINATION																
Significant change of					X											1
light level in tunnel																
at entrance.					Ŀ									ļ •		······································
Interior lighting not	1				X				1						1	1
adjusted to outside																
light conditions.	<b></b> :											ļ		ļ		· · · · · · · · · · · · · · · · · · ·
Glare at end of					X	-									1	I
tunnel.*					Ц	_	_								<b>[</b>	
Tunnel too dark.*					X											I
Glare and flashing				_		_					•			*******	ļ	
lights from vehicles.*	X	X	X		ļ	Α	X	X	I		X	X	X	X		10
Poor	-	4	77		3,7	-	4	77				***		ļ		8
illumination.*		Α	X		X		λ	X			X	X	X			Ö
And A William Print to A to the to			_		-									<u> </u>		
SIGNAGE/MEDIA CUES																
No signage indicating	×	¥	¥	Ÿ	Ÿ	Y	Y	y	X	¥	X	X	X	X	X	15
location of rest	- 1		*	<b>41</b>	ű.	.,	.,	. L	^	A	A	^	•	[ **	" <sup>*</sup>	**
areas.														-		
Street signs too			П	-	П	П					<b></b> -		<b></b> -		1	
high, too low or far.												•		1		
No special signage for	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
the visually impaired.											<u></u>		<u> </u>	<u> </u>	<u> </u>	
Traffic lights with										-				1		•
short green cycle.																
Complicated instruc-															Ī	
tions on sign.																

		-					,		<del> </del> -	·	······································	····	,	·	ţ	
<b>F</b>	Over	Over	Over	Jaag.	Under	Over	Over	Over	Under		Over				Under	TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
No warning <b>o</b> f		"				•										
potential hazards.			-2			-		}	ĺ							
No orientation cue as	X	X	X	X	Х	Х	X	X	Х	X	Х	Х	Х	X	Х	15
to start of approach.													""	l **		
Lack of orientation	X	X	Х	Х	Х	X	X	X	Х	X	X	X	Х	X	X	15
cues gen <b>erally</b>										ļ <sup></sup>		•	"-		] ^ ]	
Pathway junctions					Х	X			X			X	X		Х	6
which are not at 90					ĵ								ļ <sup>~</sup>	ĺ	^	
degree angle or					ĺ	ĺ			ļ			ļ	į			
which curve.									ĺ				ţ			
No detectable orienta-	1												<u> </u>	<u> </u>		·
tion cue as to start							1					į į		İ		
of channelization.											İ					
Walkway not	X	X	¥	×	Х			x	X		Х	Х	<u> </u>	X	X	11
channelized.				""	T.	1			•		**	1		1 4	^	* 4
Traffic	1			_	·····	X	X	х				Х	Х	x		6
noise.						[		· ·				**	**	**		,
	1				-	1		-	-				!	ļ -		
MICRO-CLIMATIC FACTORS	1				<u> </u>											
High wind gusts	X	X	X				X	Х			Х		X	X		8
present.*					İ					j }				ĺ		
Wind generated	Ī													<u> </u>		
by traffic.*													ļ		•	
Inadequate provision	Ī				X	П			X			X			X	4
for rain-water runoff.	-												•		[ ]	
Walkways and sidewalks		X	ma		Х		Х		X			Х	X	Ī	x	7
not kept clear of snow,	l													•		-
ice and debris.													!			
	·-	<b></b>				ir.	·			<del></del>				<del></del>	ł	····

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

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

				,		
G	Under	) ().	Under	,	S.	TOTAL
G	Š	Over	្តារា	Over	Over	1.0
	1	2	3	4	5	
Large, deep			<del></del>	- '		
expansion joints. **						
Uneven and irregular						
surfaces.						
Loose and soft surfaces						
(gravel, sand, stc.).						
Rough						
surfaces.		w·ww·				
Discontinuous surface						Ü
materials.						
MAINTENANCE						
Debris from erosion						
on walkway.						·
Disrepair (frost heaves,						
potholes, etc.).	1					
Disrepair from vandalism					···-	-
or accident (handrails,	ş					
guardrails, etc.).	ĺ					
E description of the second of						
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	ļ			1		
risers.	···					
Risers greater than 7" (too high).**	l				. ;	
Curb greater than						
6" (too high).	į			Ī		
Step (settlement) between						
approach and structure.**	į					
Dangerous stair				······································		
location.	[			ļ		

				r	,	<del> </del>
G	er	<u>i</u>	er	<u></u>	54	TOTAL
G	Under	Over	Under	Over	Over	5
RAMPS		2	3	4	5	
Only ramps	┪┷	X	X	X	1-2-	3
provided.	1	^	Λ.		1	,
Only ramps provided on	+	<del>                                     </del>	<u></u>		<b></b>	
one side of structure.					1	
Pathway leading to over-	1				1	
undercrossing too						
steep and long.**					ļ	
Ramp too long (exceeds	1	Х				1
30 feet).**						
Ramp too steep (slope		Х				1
greater than 1:12).**			l	]	<u> </u>	
Ramp too narrow (less				[	Ţ	
than 48").**		<u> </u>				
Cross slope greater than		]				
1:50 (too steep).			<u> </u>	<u> </u>	<u> </u>	
Slope across structure		X		X		2
too long and steep. **	1	<u> </u>				
No curb	X	X	X	X	X	5
cuts. **					<u> </u>	
Helical		X			1	1
ramp.	<u> </u>			<u> </u>		
Ramp layout						
inconvenient.		<u> </u>	<u> </u>	<u> </u>		
Abrupt transition to		•			1	
connecting walkways.	<u> </u>	<u> </u>			ļ	
Ramp exits directly into	į		<b>4</b>			
street or parking area (less			<b>{</b>			
than 6' clearance at bottom	•			l		1
of ramp).	<del></del>	<u> </u>	<u> </u>	<u> </u>		<b></b>
Bollards in the middle				1		
of entrance to the		Ì				
ramp.		ļ	ļ	ļ		
Steps in the middle		1				
of the ramp.	<del>- </del>	<del> </del>	ļ	<b>_</b>	1	
HANDRAILS			Ì			
Handrails higher than	+-	1	<del> </del>	<del> </del>	<b> </b>	<del>                                     </del>
36" (too high).			1	1		•
Handrails lower than	<del></del>	<del> </del>	<del>                                     </del>	<del> </del>	╂	<b></b>
32" (too low).**				Ì	I	]
TOT (EDO TOM) *		<u> </u>	1	1	.I	ł

***************************************	·········	<del></del>	¥	<del>,</del>	,	
G	1 1	Ł.	<u>,                                    </u>	<b>.</b>	ایدا	L.
G	Under	Over	Under	Over	Over	TOTAL.
	Þ					Ĭ
	11	2	3	4	5	
No handrails.**	X	X.	X	X	X	5
Handrail inadequate for	·		<u> </u>	<b></b>		
			ļ	l		
comfortable grasp. Handrail material metal	-		<b>!</b>	<b></b>	<b>}</b>	
or aluminum (hot in hot						
weather, cold in cold).						
Handrails not				<b> </b>		
continuous.						
Handrails don't extend	+		1	<u> </u>		
far enough (1' at top and						
bottom of stairs and ramps).**			l			
No handrails on	<del> </del>	··*···································	<b> </b>			
		X	1	X		2
ramps.	<del>-</del>		ļ			
GUARDRAILS, BARRICADES,	į					
PEDESTRIAN/VEHICULAR SEPARATION						
Barricades not detectable	<del>†                                      </del>		<b></b>	<b>!</b>	<u> </u>	
(blind cane).	Ì		1			
Guardrails not	<del> </del>					
continuous.						
Guardrails too low	·					***************************************
(less than 42").				:		
No pedestrian	+x		<b></b>			I
guardrails.	"					-
Inadequace	1	X				1
zuardrails.	Ì	**	]			_ ;
Guardrail mesh	1		<del> </del>	X		1
hazardous.*						-
No detectable separation	TX		l x		X	3
between bikeway and			•			-
pedestrian way.						
No detectable seperation	<u>†</u>	*********	<b>.</b>			
between roadway and walkway.						
No detectable separation	T	<u> </u>				
between walkway and parking		-			<b>§</b>	
lot.						
Unprotected sidewalks		X		·		I
(cars, edges, etc.).						
ESCALATORS/ELEVATORS						
Escalators.	<del>                                     </del>		<b> </b>			<u>.</u>
Elevators.	1					
		L	<u> </u>	L		

		·	T	¥		
G	Tapu	0ver	Under	Over	Over	TOTAL
REST AREAS/BENCHES	l	2	3	4	5	
Resting places not under		<u>-</u>	<b></b>	1		
cover (wind, rain, sun).	l					
Not enough places to	X	X	X	X	Х	5
stop and rest.	i			į		
No provision for						
scenic overlook.	1		Ę			
Benches too high or low,				[		
too deep or shallow, or		i				
with no armrest.			<u> </u>			
EMERGENCY PROVISIONS						
No alternative route for			ļ	<b></b>		
flood condition structures.	i i		<u> </u>			
No pedestrian emergency	<u> </u>	Х	<u> </u>	<b> </b> -		3
provisions.			ļ.			
			<u> </u>			
LIGHTING ILLUMINATION			•			
Significant change of light			Х			1
level in tunnel at entrance.			ļ			
Interior lighting not	X		Х			2
adjusted to outside			l			
light conditions.						
Glare at end			X			1
of tunnel.*			<u> </u>			
Tunnel too			X			1
dark.*						
Glare and flashing	1					
lights from vehicles.*						
Poor	Х	X	X	X	Х	5
illumination.*					i	
SIGNAGE/MEDIA CUES						
No signage indicating	X	X				2
location of rest areas.						
Street signs too high,			l			
too low or far.		<u>۔۔۔۔</u>				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
No special signage for	X	X	Х	X		4
the visually impaired.					l	
Traffic lights with						
short green cycle.					<u> </u>	
Complicated instructions						
on signs.						
No warning of potential	X	X	X		X	4
hazards.						
		···				

G	Under	Over	Under	Over	Over	TOTAL
	1	2	3	4	5	············
No orientation cue as	Х	Х	X	X		4
to start of approach.	<u> </u>					
Lack of orientation	X	X	X	X		4
cues generally.						
Pathway junctions which	•					
are not at 90° angle	<b>.</b>					
or which curve.						
No detectable orientation	٠.					
cue as to start of						
channelization.	l					
Walkway not	Х	X	Х	X		4
channelized.						
Traffic	X					I
noise.	1					
			į			
MICRO-CLIMATIC FACTORS			•	1		
High wind gusts		Х		į		1
present.*				•		
Wind generated			•	<del></del>		
by traffic.*	ŧ.			į		
Inadequate provision			<del> </del>	<b>†</b>	1	
for rain-water runoff.	Ì		•	ł		
Walkways and sidewalks			<u> </u>	<b></b>	1	***
not kept clear of snow,				1		
lice and debris.				1		
		L	<u> </u>			<u> </u>

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

H	Under	Over	Over	Under	Over	Over	Over	Over	Over	Over	Under	Under	Over	Over	Under	Over	TOTAL
LOCATION & END											11				15	16	
Portions of walkway are hidden from view (crime potential).	X	X	***************************************							***************************************				X		Х	4
Overcrossing/ undercrossing is not close to public transportation stop. No sidewalk at end	***************************************		***************************************				-										
condition. Parked cars restrict approach.*			4. x														
Parked cars obstruct view of approach.*	X																1
No accessible parking.** No detectable pedestrian cross- walk to approach.	Х	X	X	X	-	X			X	X	X	X	Х	X	X	X	13
Driver's view of pedestrian blocked.*	X		-			Х			Х	X					Х		5
WALKWAYS Pedestrian walkway on only one side.	<u> </u>												,				<b></b>
Walkway less than 48" (too narrow).** Headroom below			The state of the s				Х										1
6'10". ** Walkway through "long"tunnel (over 40'). Structure vibrates	X	····	######################################		X					######################################	Х	X			X	***************************************	\$
(traffic).  Abrasive or perforated material on vertical surface adjacent to walkway.	- The state of the	**************************************	¢	X			AND THE TWO THE PERSONNEL PROPERTY OF THE PE	H-4				X			W. HILLIAN STATE S	X	*
Objects project into walkway (signs, trees, etc.).	X		X														2

H	Under	Over	Over	Under	Over	Over	Over	Over	Over	Over	Under	Under	Over	Over	Under	Over	TOTAL
SURFACE MATERIALS	1	ï					7	8				12	13	14	15	16	
Manhole covers and						· ·	X										1
gratings in walkway.								!						İ			
Highly reflective						-	┢		_	<del>                                      </del>	<u> </u>						
surface materials.																İ	
Grooves and patterns													Х	Х			2
(cast into walkways or	ĺ	ŀ															_
caused by small																	
paving units).				!					i								
Large, deep expan-	X	$\vdash$	Н		X	-	-	X		-	<del> </del>			_			3
sion joints.**			:				İ										
Uneven and irreg-			-					Х	_	-			х	X			3
ular surfaces.																	
Loose and soft			Τ	<del>                                     </del>				-						†	X		1
surfaces (gravel,	[																
sand, etc.).										•				l			
Rough	<del> </del> -			$\vdash$	-	-		1,,	<u> </u>				37				2
Surfaces.							ŀ	X					X				2
Discontinuous sur-	<u> </u>	-	H				-	-		-				<del> </del>	<u> </u>		<u> </u>
face materials.		l												X			1
race materials.			L			_	L					ļ					
MAINTENANCE																	!
Debris from erosion	-		$\vdash$		<del> </del>	-	$\vdash$	$\vdash$						+-	<del> </del>		<u>-</u> . <u>-</u>
on walkway.	ļ		1														
Disrepair (frost				├-		┪	-					<del>                                     </del>	<del> </del>	$\vdash$		Х	1
heaves, potholes, etc.).				į								l		ŀ		^	
Disrepair from vandalism	-	X	-	X			-	-		-			<u> </u>		<del> </del>		2
or accident (handrails,		^	1	ſ^							ļ	i					
guardrails, etc.).				ļ											[		Ì
guarurairs, etc.).		_	L	_		L							<u> </u>				
STAIRWAYS	ļ												Į				
Stairway is only means	-	┼-	Н				1					<del> </del>	-	<del>                                     </del>			
of access to structure.**			ļ	1								ĺ					
Stairway only on one		+-	H	┢	-		+	┼╌		<del> </del>	╁─	<del> </del>		+-			
side of structure. **								ļ									
Poorly lighted steps,	-	-	<del> -</del> -				H		┪		-	1	-	+-			
stairs, ramps.			1								ļ	i				i	
Treads less than 11"		├-	├-	-	-	$\vdash$	$\vdash$	┝	-		├	<del>                                     </del>				ļ	
(too small).						ĺ						ļ	]	1	Ì		1
Projecting	-	╀		-	-	├-	┝	-		<del> </del>		-	-	-	-	1	
nosings.																	
Open	}		1	-		$\vdash$	+	+-		<del> </del>	<del> </del>		ļ <u>.</u>	-	<b>├</b>	<del> </del>	<del></del>
risers.	ſſ								ĺ	J					1		•
	-	-	$\vdash$	$\vdash$		$\vdash$	$\vdash$	$\vdash$	-	<del> </del>	-					<del> </del>	<del> </del> -
Risers greater than 7" (too high).**																	
Curb greater than	-	+-	$\vdash$	<u>l</u>	Х	-	H	$\vdash$	<del>                                     </del>	$\vdash$	X	-	-	┼		<del>                                     </del>	2
6" (too high).	Ì				^						^	1					~
0 (600 117911).	i	ĺ			1				i		L	I	1	1	1	1	1

H	Under	Over	Over	Under	Uver	Over	Over	Over	Over	Over	Under	Under	Over	Over	Under	Over	TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Step (settlement)			-	_					Ť				<b> </b>	<u> </u>			
between approach	•										ĺ						
and structure.**										ļ	ļ				į		
Dangerous stair					-				-	·····	<del> </del>		<del> </del> -	<b></b>	<b>†</b>		
location.																•	
	<del></del>		_	ļ						<u> </u>	<u> </u>	<b> </b> -	<u> </u>	<u> </u>			
RAMP5			L					Ĺ			<u> </u>				l	<u> </u>	
Only ramps		X			X			X						X		X	5
provided.				İ										Į			
Only ramps provided	<b>†</b> ******	1		<b></b>							***************************************		i –	<b></b>			
on one side of			}	ļ	ן י												
structure.	<u> </u>	L.	L			<u> </u>	L_	<u> </u>			<u> </u>	L	<u> </u>	<u> </u>	<u> </u>		
Pathway leading to	-				}	X	X		X	X		ļ	l			100	4
over-undercrossing				1	ĺ		1					İ	-		1		
too steep and long.**	<u> </u>	<u> </u>	1	<u> </u>						ļ		<u> </u>		<u> </u>	<u> </u>		
Ramp too long (ex-	X	X			X			Х					1	X	-	X	6
ceeds 30 feet).**			1	L													
Ramp too steep	X	X	Ī	Ī	X	ļ		X			]	1	<b>†</b>	<u> </u>	Ţ	X	5
(slope greater than		Į					ļ			l			ĺ	•	ļ		
1:12).**			į		1		1			l	1	ļ	•	ĺ		İ	
Ramp too narrow	1	Ī	ļ		-	_	X	•		]			Î		<b></b>		1
(less than 48').**			Ĺ		ŧ		į				į			l			
Cross slope greater	Ī	Π	Ī	X							Ī						1
than 1:50 (too steep).													ļ			i 	
Slope across structure		7				-				_	1				1		
too long and steep.**	<u> </u>	<u> </u>		<u> </u>					<u> </u>				<u> </u>	Ĺ	<u> </u>	į	
No curb cuts.**		X	X	X	X	X			X.	X	X		X	X			10
Helical ramp.		Ī	Ī			Γ		-			[				T		
Ramp layout		Ī	Ī	Ī							<u> </u>	•				X	T
inconvenient.	<u> </u>	<u> </u>	L.		<u> </u>		į				<u> </u>	<u> </u>	<u> </u>	<u> </u>			
Abrupt transition to				ł												Į	}
connecting walkways.	<b>_</b>	<u> </u>	<u> </u>	ļ		L	<b>!</b>		ļ	ļ	<u> </u>	<u></u>	<u> </u>		ļ	<b></b>	ļ
Ramp exits directly		X	1	1	X	į		X		•				[	}	X	4
into street or park-			*										•				
ing area (less than 6'	!		1		ļ				*** <b>±</b>	Ì	-				l		į
clearance at bottom		W. Broander	*	•					•	ĺ							
of ramp).		<u> </u>	$\perp$	L	_		Ļ	<u> </u>		ļ		<u> </u>	<u> </u>	<b></b>	ļ	<u></u>	ļ
Bollards in the mid-		-				4		ĺ	1			***************************************	1			1	
dle of entrance to		4.4			1	ww.w.	#	ĺ				****					
the ramp.	<u> </u>	ļ	ļ	<b></b>	L	<u> </u>		_	<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>	<u>L</u>	<u> </u>	<b></b>	
Steps in the middle	-		-	-	word A Jones		ĺ							1	1		
of the ramp.	1			***************************************						Į		-				1	•
**************************************	1	1	1	T	<b>†</b>	<b>†</b>	1	<b>†</b>	_		<b>†</b>	ļ	<b>†</b>	<b></b>	1	1	<b></b>
HANDRAILS	<b>!</b>	ļ	-	┞	├-	_	_	<b> </b>	<u> </u>	<u> </u>		1	ļ	<u> </u>	<u> </u>	<b></b>	<u> </u>
Handrails higher than		X	T.			X	X	1	X	X			X	X	1	1	7
36" (too high). Handrails lower than	<b>↓</b>	<b></b>	<b></b>	ļ	<u> </u>	_	-	┡-	<u> </u>		-	<u> </u>		ļ	1	<u> </u>	<u> </u>
	Į					1						l	Ì		1	•	1
32" (too low).**	<u> </u>		L	L.		<u> </u>	1	<u></u>	<u> </u>	<u> </u>	<u></u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	

	Under	Wer	Over	Under	Over	Over	Over	Over	Over	Over	Under	Under	Over	Over	Under	Over	TOTAL,
	1	2	3	4	5	6	7	8	9	10			13			<del></del>	
No handrails.**				Х						 	X	Х	••••••••••••••••••••••••••••••••••••••				3
Handrail inadequate for comfortable grasp.	X		X			X	X		X	X	***************************************		Х	X	-		8
Handrail material metal or aluminum (hot in hot weather, cold in cold).	X	X	X		X	X	Х	X	X	X				X		X	11
Handrails not continuous.	X	X									1			Х		Х	4
Handrails don't extend far enough (I' at top and bottom of stairs and ramps).**			X	•		X	Х		X	X			Х			X	7
No handrails on ramps.	X	X				X			X	X							5
GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION Barricades not detect-												**************************************		the same of the sa	• <b></b>		
able (blind cane). Guardrails not continuous. Guardrails too low						***************************************						***************************************					
(less than 42"). No pedestrian			ļ	X			-		<u>.</u>		X	<u></u>		1			2
guardrails. Inadequate	<u> </u>		-	<u></u>	<u> </u>			-	-	ļ			•	ļ.,	ļ		
guardrails. Guardrail mesh	<u></u>	<u> </u>	X	<u> </u> 	•	•	-	ļ	ļ		•			ļ	! <del> </del>	} 	1
hazardous.* No detectabel sep-	X	X	X	X	X	X	X	X	X	X	<del>-</del>	X		X	X	X	15
aration between bike- way and pedestrian way.			W. 4	***************************************			•	1				1					
No detectable sep- aration between road- way and walkway.			Х	X		X				######################################	• • • • • • • • • • • • • • • • • • • •			!	X		4
No detectable sep- aration between walkway and parking lot. Unprotected sidewalks (cars, edges, etc.).			X	X		X	X		X	X	X	X		- Hardward Control of the Control of	X	And Annual Inc. An	9
ESCALATORS/ ELEVATORS	<u></u>													-			
Escalators. Elevators.							-								······································		

H	Under	Over	Over	Under	Over	Over	Over	Over	Over	Over	Under	Under	Over	Over	Under	Over	TOTAI,
REST AREAS/BENCHES	1	2	3	4	5	6			9		11			14			
Resting places not under cover (wind, rain, sun).													X				1
Not enough places to stop and rest. No provision for	X	X		X	X		X	X			X	Х		Х	X	X	11
Benches too high or low, too deep or shallow, or with no armrest.															THE PARTY OF THE P		
EMERGENCY PROVISIONS No alternative route for flood condition structures.		X		X		Х		Х									A Section of the control of the cont
No pedestrian emergency provisions.	X	X	X	X	X	X	Х	X	X	X	X	X	X	X	X	X	16
LIGHTING ILLUMINATION Significant change of light level in tunnel at entrance.	X			X			-										2
Interior lighting not adjusted to outside light conditions.	X			X											***************************************		2
Glare at end of tunnel.*	X			X											à la	<b>.</b>	2
Tunnel too dark.*	X			X							X						3
Glare and flashing lights from vehicles.*		X	X			X			X	X							ò
Poor illumination.*	X			X			X				Х				X		5
SIGNAGE/MEDIA CUES No signage indicating location of rest	X	X	X	X	X	X	X	X	X	X		X					11
areas. Street signs too high, too low or far.			X		•••										-		1.
No special signage for the visually impaired. Traffic lights with	X	X	X	X	X			X	X		<b>\$</b>	Х	X	Х	х	X	16
short green cycle.  Complicated instruc-	-			·		X			X	Х					-		3
tions on sign.		<u> </u>	<u> </u>								<u> </u>					######################################	

1 1	Under	Over	Over	Under	OVET	Over	Jac Oxer	Over	Over	Over	Index	Under	Over	Over	Under	Over	TOTAL
	$\Box$ 1	2	3	4	5	б	7	8	9	10	11	12	13	14	15	16	
No warning of						X			X	X	1	X	-		-		4
potential hazards.	<u> </u>	ļ	`*				<u> </u>	<u></u>			_	ļ	ļ	<u> </u>		<u> </u>	
No orientation cue as	X	X	Х	Х	X	X	X	X	X	X	X	Х	X	Х	X	X	16
to start of approach.	ļ						ļ			·	<u> </u>	<u> </u>	<u> </u>			<u> </u>	
Lack of orientation	X	X	Х	X	X	Х		Х		4	X	Х	X	X	X	X	13
cues generally.											į			1			
Pathway junctions	1											X		Х	ĺ	Х	3
which are not at 90	4	į	ĺ				e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della comp			i	ļ		ĺ	1		7	
degree angle or	ĺ	1			×		r e			•	-				İ	*	] :
which curve.	1	ļ	L	<u> </u>							<b>_</b>	<u> </u>	<u> </u>			<u> </u>	
No detectable orienta-				*							*				1		
tion cue as to start	ļ	]		ĺ			ļ			5	•		Ì		•		3
of channelization.	!			İ							j			1		1	
Walkway not	X	X	Х	Х	Х	X	Χ	X	X	X	X	X	X	Х	X	Х	16
channelized.	•	Ì												ļ	ļ		
Traffic			X	X	X	X	X	Х	X	X	X	X			X	Х	12
noise.										<u> </u>		<u> </u>			<u> </u>		
MICRO-CLIMATIC FACTORS				}										***************************************			
High wind gusts	1	X	X		Х	X	X	X	X	X	X	<del>*************************************</del>		<b>T</b>	Х	X	11
present.*			1							Ì	***************************************	•		ŀ	į		1
Wind generated	<u> </u>	-	X	-	-	X	Ì			1	1	X		1	Ì	† <del></del>	13
by traffic.*						1					-	!		***************************************		1	
Inadequate provision	1	T			[		1	1		<del>!</del>	***************************************	1		1	1	†	1
for rain-water runoff.		L										į	***********			4	
Walkways and sidewalks	T	X	i I I				Ī					1		ļ		1	1
not kept clear of snow,			ļ [	İ						1				-			1
ice and debris.				i	- Poor	Ì	ļ			1	****			#	•		

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

		Li	š.;	L	l <sub>u</sub>	34	<u>د</u>	<u>.</u>	ندا	£.	S.	<u>.</u>	7
	Over	Over	) AG	Ve	Ž	ž.	Ve.	χe	2	Over	5	Over	rora
	***************************************		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			_	ï		***************************************	10	6-A	<del> </del>	£1
LOCATION & END CONDITION	1	2	3	4	>	b	/	8	9	10	11	12	
Portions of walkway are	X	X			-				ĺ				2
hidder from view			٠,	ĺ									
(crime potential).				Į	<u> </u>			<u> </u>	<u> </u>	<u> </u>	<u> </u>	1	
Overcrossing/undercrossing	X	X		•	***			X		•	X	X	5
is not close to public									*	*	1		
transportation stop.				Ĺ.,	<u> </u>	ž.		<u> </u>	į į			Manufacture and the second	
No sidewalk at	X				ĺ			l					I
end condition.		1		ļ				L	-	i } }		<u> </u>	
Parked cars			ĺ	ļ								 	
restrict approach.*				ļ				<u> </u>	<u> </u>	ļ			
Parked cars obstruct				1					l				1
view of approach.*				<u> </u>	<u> </u>			<u> </u>	<u></u>	<u> </u>	<u> </u>	<u>į</u>	L
No accessible		X	X	X	1		X	X				X	6
parking.**		<u> </u>		<u>.</u>	<u> </u>			<u> </u>	<u> </u>			<u>į</u>	
No detectable pedestrian	X	X		į	ĺ	X		****	X			•	4
crosswalk to approach.			<u> </u>					<u> </u>				}	
Driver's view of		1			ļ						ļ		
pedestrian blocked.*			<u> </u>		Ł								
WALKWAYS													
Pedestrian walkway on	<del></del>				1						ļ		
only one side.					İ								
Walkway less than	******	Ī		1	1						<u> </u>		
48" (too narrow).**				*	1							•	
Headroom below	***************************************	-		•	†	X	-		<u> </u>		<b></b>	<del></del>	ī
6'10".**		*	Ì	M.M.M.		-						•	
Walkway through	*****	<u> </u>		*******	•	†	-	<u> </u>	1-		·	<u>.</u>	
"long" tunnel					ĺ							Ì	
(over 40').				}	!						ļ		
Structure vibrates				<del> </del>					<del> </del>	<u></u>	······································	······································	
(traffic).					İ							 	
Abrasive or perforated	X	X		<del> </del>	Ì		T -	_	<u> </u>		<u> </u>	X	3
material on vertical sur-	**	ļ ""		1	Ì							""	
face adjacent to walkway.			ļ		1	ŀ			•			ļ	
Objects project into		1		<u> </u>	<del>                                     </del>			<b></b>	İ		<b>!</b>	<u> </u>	
walkway (signs, trees, etc.).				,	<b>!</b>						}	<b>*</b>	
SURFACE MATERIALS			<del></del> -	Ī									
Manhole covers and gratings	**********	<b>†</b>		-	-	┼┈		-	<del> </del>		İ	<u> </u>	1
in walkway.								}			1		
Highly reflective		1		1	-	1-		-	-		†	<b></b>	1
surface materials.				1	ĺ						i		
Grooves and patterns (cast		<b>†</b>	<del> </del>	t	1	1-	<b>†</b> —	<del> </del>	<b> </b>	<b>†</b>			
into walkways or caused by		İ	Ì		-	***************************************					•	1	
small paving units).					•						l	1	
	<u> </u>	<u></u>	<u></u>	İ.,	<u> </u>			<u> </u>	1		<u> </u>	<u></u>	<u> </u>

	Jver	ver	Sver	Dver	Wer	ver	Jver	Jver	Ver	Over	wer	Over	TOTAL
	Ϊ,					*******			***************************************				
large, deep	<u>.</u>	4		ŧ	2	ь	1	B	9	μv	11	12	-
expansion joints.**	X		X										2
Uneven and irregular			<u> </u>	<b>-</b>		<u> </u>			ļ				
surfaces.					Ì	}							
Loose and soft surfaces				-		<b>!</b>	-		<b>-</b>				<b></b>
(gravel, sand, etc.).				*				•					
Rough			-	-	<u> </u>	-				<b>!</b>			
surfaces.				-				,					
Discontinuous surface	•						·····	-	†				
materials.													
		,-			ļ	ļ	-		<u> </u>				
MAINTENANCE													
Debris from erosion					1								
on walkway.	i												1
Disrepair (frost heaves,		<b>-</b>		-				<u> </u>			-	<u>-</u> -	
potholes, etc.).													
Disrepair from vandalism							-		·····		*********		
or accident (handrails,													
guardrails, etc.).									!				
	-	-		-		-							
STAIRWAYS				<u>L</u>			Ĺ						
Stairway is only means		X			X								2
of access to structure.**									<u> </u>			_	
Stairway only on one													
side of structure.**				_	į							<del></del>	
Poorly lighted steps,		X	X				X	İ			Х	X.	5
stairs, ramps.				<u> </u>				1					
Treads less than II"					*								
(too small).								İ					
Projecting					Į								
nosings.						ļ			ļ				
Open													
risers.					ļ	ļ							
Risers greater than													
7" (too high).**				<b></b>				_	<b></b>		<del></del>		
Curb greater than	X			•									1
6" (too high),				-			<u></u>					·	
Step (settlement) between			X										1
approach and structure.**				<u> </u>	<u> </u>	ļ	<u> </u>						
Dangerous stair													
location.				Ĺ	l					l			

	Ī.,		4.				<b>5</b> .2	C.	ı.	1	1	ı.	17
	Over	Over	ove:	Over	Over	Over	Over	Over	Ove	Over	Over	Over	TOTAL
RAMPS	1	2	3	4	5	6	7	8	9	10	11	12	
Only ramps	x		¥	X	ļ	x	X	X		х	х	X	9
provided.	ļ ^`		•	*		41.		42.		43	<i>A</i> L	44	
Only ramps provided on	Γ												
one side of structure.	<u>]</u>		<u>.</u>	L	<u>.</u>	L	<u> </u>					c	<u> </u>
Pathway leading to over-							'						
undercrossing too	-												
steep and long.**	<u> </u>	<u> </u>	ļ	[								Į Č •••••••••••••••••••••••••••••••••••	ļ
Ramp too long (exceeds	X		X	X		X	X	X	X	X	X	X	10
30 feet).**	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<b>.</b>		<b>.</b>	<b> </b>		<b>.</b>
Ramp too steep (slope	X		X	Х		Х	X	Х	X	X	X	į	9
greater than 1:12).**		<u></u>		<u> </u>	<u> </u>	<u></u>	ļ	-	<u> </u>	ļ		ļ .	<u> </u>
Ramp too narrow (less				ĺ		•		1	·*	Ì		ĺ	
than 48").**		<u> </u>	<u> </u>	Ļ	ļ	} }	<b>!</b>	<b>!</b>	Į	ļ	<b> </b>	ļ	<b>_</b>
Cross slope greater than		ļ	X			Ì			¥ ¥	Ì			1
1:50 (too steep).		<u> </u>	<u> </u>	ļ	<u> </u>	ļ	<b>L</b>	<u> </u>	ļ	ļ	ļ	ļ	<b>.</b>
Slope across structure	X	X	X	X	Ì					X			5
too long and steep. **	┿	<u> </u>		<b>!</b>	ļ	<b>ļ</b>	<u> </u>	<b></b>	<b> </b>	ļ	ļ	<b></b>	<b> </b>
No curb	X	Х	X	X		ļ		X				X	6
cuts.**	ļ	<u>.</u>	ļ	<u></u>	<u> </u>	<u> </u>	ļ	<b>Ļ</b> .	<b> </b>	<b></b>	Ļ	ļ	<b> </b>
Helical		i	X	X	l	İ	X	X	X		•		5
ramp.	-	┿	ļ	-	╄	<b>.</b>	<del>}</del>	<b>!</b>	<u></u>	ļ	<b>*</b>	<b>!</b>	<b>}</b>
Ramp layout		l	ļ	n <del>d</del> udd		***************************************	•	#	*		•		
inconvenient.	1	╄	<u> </u>	-	╄		ļ	<u>}</u>	<u> </u>	<u> </u>	<b></b>	<b>!</b>	<b>}</b> -
Abrupt transition to				Ì	Ì	wyw-w	ļ	1	opportunity.		į		
Connecting walkways.  Ramp exits directly into	+-	╀	-	<u> </u>	<b>-</b>	<u> </u>	-	-	<u> </u>	<u> </u>	<del> </del>	<u> </u>	<u></u>
street or parking area (less				X	X	1	1		ĺ	X	İ	X4	3
than 6' clearance at bottom					1				1			1	
!		Ì	l			l	l			ļ	l	Į	
of ramp). Bollards in the middle	·	+	┢	-	╫	-	<del> </del>	<del>-</del>	-	<del> </del> -		<b></b> -	<del> </del>
of entrance to the	İ	Ì									i	•	
Tamp.			1		Ì			l	1	1			
Steps in the middle	+	1	<b>†</b>	1	1	<b>-</b>	+	ļ	†	<b></b>	<b>-</b>	<b>†</b>	<del>                                     </del>
of the ramp.			Ì		1							İ	
		+	↓	ļ	4	1	-	ļ	-	<u>{</u>	ļ	<del> </del>	<b> </b>
HANDRAILS						1.				ĺ			
Handrails higher than	1	T	╁	T	+	†	†	<b>†</b>	<b>†</b> ***	†	<b>†</b>	*	1
36" (too high).													
Handrails lower than	7	T	1	1	_	1	<b>†</b>	<b>†</b>	Ī	Í	1	1	1
32" (too low).**	1	1		1		}	ļ		ĺ	-		ŀ	1

990nmiA////////////////////////////////////			······································		T	·····	_			•			
	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	TOTAL
	T	2	3	4	5	б	7	8	9	10	11	12	
No			X				X			X		X	4
handrails.**	L.,		**		<b></b>	<u> </u>	Ĺ.	<u> </u> _	-		·		
Handrail inadequate for				X				 					1
comfortable grasp.	ļ	<u> </u>			<u> </u>	ļ	ļ		<u>.</u>				
Handrail material metal	X	X		Х	X	X		X	X		X		8
or aluminum (hot in hot		***************************************						*					
weather, cold in cold).	<u> </u>	ļ	ļ	ļ	-		<u> </u>		-				
Handrails not	***			X	1	X	*	X			X		4
continuous. Handrails don't extend		-	<u> </u>	ļ	<u>.</u>	<b>.</b>			<del> </del>		<del></del>	u.u.u	
far enough (1 at top and		X		•	-		X	X					3
bottom of stairs and ramps).	i kak		,										
No handrails on	1	┪		ļ_,	├-		1		╂				
ramps.			X	X			X	•		Х		X	5
	<u></u>	ļ	<u> </u>	ļ	ļ	ļ	ļ	ļ	<u> </u>	****	···········	<b></b>	
GUARDRAILS, BARRICADES,	•	l		Ì			#					ļ	1
PEDESTRIAN/VEHICULAR SEPARATI	ON				+							i i	
Barricades not detectable	•	1		X	<del>*</del>	X	Ŋ		-				3
(blind cane).													
Guardrails not				•			Г	Γ	Γ				
continuous.	<u> </u>	<u> </u>	<u></u>		1			<u> </u>	L	į		<u> </u>	
Guardrails too low		1					1		#				
(less than 42").	<u> </u>	Ĺ.	<u> </u>		<u> </u>		ļ	ļ	<u></u>			<u> </u>	
No pedestrian	1	-				Į	-	\(\text{\tint{\text{\tint{\text{\tin}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tex{\tex					
guardrails.	<u> </u>	<u> </u>			ļ.,	ļ		L				<u> </u>	
Inadequate			1					1					
guardrails,	-	╀-	ļ	<b>!</b>	ļ	ļ	-	ļ	Ļ.	<u> </u>		ļ	
Guardrail mesh	X	X	1	X	į			X		•		X	5
hazardous.* No detectable separation	<b>-</b>	┺	1	<del>                                     </del>	-	<del> </del>	<u> </u>	ļ	ļ	<b>}</b>		<u> </u>	<del>                                     </del>
hetween bikeway and		İ	İ	X		-	, page 1					ļ	1
pedestrian way.		*		ļ		- Warren						ŧ	
No detectable seperation	╀╌	╫	<del> </del>	<del> </del>	<del> </del>	1	<u> </u>	1	┼-	<b></b>		<u> </u>	
between roadway and walkway.	1		1	- Page		ļ							
No detectable separation	1	†	<del> </del>	†	X	<del></del>	<del> </del>	†	<b>.</b>	X	<u> </u>	<u> </u>	2
between walkway and parking			-	1	1	-				**			[
lot.	-	Dec	-							#			
Unprotected sidewalks	1	Ť	1	1	1	Ī	T	1	1	•			
(cars, edges, etc.).	******	Ì	· ·						1		1	1	
FSCALATORS/ELEVATORS		1-		1	1	Ī	<b>***</b>	T	T-			<b>†</b>	
Escalators.	+	+	╁	╁	╁	₩	┿.	<u> </u>	+	1	<del> </del>	1	<del> </del>
Elevators.	╁┈	-	<del> </del>	<del> </del>	-	╁	╁	┿	╁╌	<b></b>	<u> </u>	<del> </del>	<del> </del>
**************************************	Д			Ĺ	L	<u> </u>	<u> </u>	l.,	1	<u> </u>	<u>L</u>	<u> </u>	L

	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	g L1	Over	TOTAL
REST AREAS/BENCHES	1	2	3	4	5	6	7	8	9	10	11	12	
Resting places not under			X	X		-							2
cover (wind, rain, sun).										:			
Not enough places to	Х	Х		X	X	X	X	X	X		X		9
stop and rest.	ļ		ļ	_	ļ. <u>.</u>	<u> </u>							
No provision for		ļ	ļ			ļ					•		
scenic overlook.				ļ	<u> </u>	ļ	<u> </u>	L.,					
Benches too high or low,			X										1
too deep or shallow, or		1				1	*			ĺ			
with no armrest.	<u> </u>	<u> </u>	L	L	L								
EMERGENCY PROVISIONS													
No alternative route for	1		X	4	*						<b>!</b>	-	1
flood condition structures.	<u> </u>			<u> </u>	Ĺ.					<u>.                                    </u>	<u> </u>	<u> </u>	
No pedestrian emergency	X	X		***************************************	X	X	X	X	X	X	X	X	10
provisions.			<b>1</b>							*	# # # # #		
LIGHTING ILLUMINATION	1	•	<b></b>	1			1	1	•	1			
Significant change of light	<del>-</del>	l	1	······	<u> </u>			┢┈	Ì	ļ	·····	<b></b>	
level in tunnel at entrance.	ĺ	ŧ		1		Ì	***	ŧ	1			•	
Interior lighting not	<del> </del> -	<del> </del>	-	-	1	1-	<del> </del>	<u> </u>	╁┈	-	<u> </u>	<b></b>	
adjusted to outside	ļ			1	And the		Ì		<b>!</b>		İ	Į	
light conditions.							1				•		
Glare at end	-	<b>!</b>	-	-	<del>† -</del>	<u> </u>	<del> </del>	1	<b>†</b>	1	<u> </u>		
of tunnel.*		4	4	l					#				
Tunnel too	1	<b></b>	•	1	<b>†</b>	1	1	-	-	•		-	
dark.*		wewy						į		ĺ	ļ <sub></sub>	<u> </u>	
Glare and flashing	X	X	Г			X	X	X	X		X	X	8
lights from vehicles.*	1	<u> </u>	_			1	L		<u> </u>	<u> </u>	}	<u> </u>	
Poor		X				*******	Х		1			X	3
illumination.*	-			į		-							
SIGNAGE/MEDIA CUES	Ì		1		Ī	T	Т						
No signage indicating	╁	X	H	╁	-	-	X	+	<del> </del>	<b>-</b>	<del> </del>	├	3
location of rest areas.	^	Į 🏝					1			•			,
Street signs too high,	****	ĺ	1	Ť	†-	$\dagger$	T	╁	<u> </u>	<u> </u>	<b>†</b>	<del>†                                    </del>	
too low or far.		Į	-					*	,	-	Ì		1
No special signage for	X	X	<b>†</b> **	X	1	X	X	X	X	Х	X	X	10
the visually impaired.	1				1	-		1		_	-	1	
Traffic lights with	1	T		T	Ī	T	T	Ì		T	1 -		1
short green cycle.						ĺ				1		***	
Complicated instructions	<u> </u>	Ţ	Ţ		T	Т	T	7		Ţ	Ī	Ī	
on signs.	$\perp$		1	<u> </u>				1	L	1	1		
No warning of potential			***************************************					,		ĺ	-		
hazards.	<u> </u>	<u> </u>	١	上	$\perp$		1	<u> </u>	L.				

	Over	Over	Over	Over	Over	Over	Joan C	Over	Over	Over	Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
No orientation cue as to start of approach.	X	X	X	Х	X	X	X	X	X			Х	12
Lack of orientation	₩.			<del>  ,,</del>	ļ.,	<b> </b>	ļ	1,-	37		37	47	
cues generally.	A	A	Y	Ā	A	Α	X.	A	A	X	A	X	12
Pathway junctions which	<b>†</b> ~~		X	<b> </b>	<u> </u>	<b>†</b>	-	<u> </u>	X			Х	3
are not at 900 angle						l							
or which curve.				<u> </u>	_	<u> </u>	<u></u>						
No detectable orientation			٠,	X									à
cue as to start of channelization.					ļ	l	ļ						
Walkway not	ļ			ļ	ļ	<u> </u>	<del> </del>	ļ	_				
channelized.	Ì												
Traffic	<b>-</b>		ļ		╁┈	<del> </del>	<del> </del>		<b></b>				
noise.					1								
MICRO-CLIMATIC FACTORS					<u> </u>	<b></b>	ĺ						
High wind gusts	<del> </del> -				<b>.</b>	X	v	v	*17				
present.*						^	ſ^.	^	•				**
Wind generated					ļ	T	ļ -						
by traffic.*		-			L.			ļ					
Inadequate provision													
for rain-water runoff.	<u> </u>				-		<u> </u>	ļ					
Walkways and sidewalks							•						
not kept clear of snow,	1												
ice and debris.						l							

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

	1		_				_										1		
1	1	Į.	er	i.	<b>.</b>	7.	i.	E.	Į,	k.	<b>5.4</b>	ja Pi	i.	<b>1</b> -4	<b>.</b>	Under	بر ا	ير	TOTAL
U	3	3	3	Š	Š	ő	Š	3	Ž	Over	Over	Over	Š	Over	Q.	Ind	Over	Over	질
LOCATION & END	1		±						±					14			17		
CONDITION	*	-	•	7		۲	,	O	,2	10	11	14	4.0	1.4	כיו	1.6	LI	10	
Portions of	y	v	Х		v	v	v	X	Ţ	X	Х	X		X	х	X	1		14
walkway are hidden	ľ	<b>^</b>	·			A	A	^	Λ	Λ	A	A		^	Λ				14
from view																į			
(crime potential).																			
Overcrossing/	<b>†</b>	ļ	1			-						n					1		
undercrossing is		į						F											
not close to public	l																1		ı
transportation stop.			Ì													į			ì
No sidewalk at end														<b></b>	·				
condition.			Ì									j							
Parked cars		<del>• • • • • • • • • • • • • • • • • • • </del>	X							X		***************************************							2
restrict approach.*	l														Ì	_			
Parked cars		X										Х							2
obstruct view of	:		•												i '	ĺ			,
approach.*		•														 			j
No accessible	Î															Х			1
parking.**														[		<u> </u>	<u> </u>		
No detectable	X	X		X	Х	X		Х	X		Х		X	X	X	Х			12
pedestrian cross-								İ.							•				
walk to approach.																	ŧ		
Driver's view of		X	X					X	#.v.#			X							4
pedestrian blocked.*																<u> </u>	Ì		
WALKWAYS	1																		
Pedestrian walkway	-		-	-		-						_				<u> </u>	<del> </del>		
on only one side.		1															Ì		
Walkway less than	<b>ļ</b>	ļ				-			-							<u> </u>	<del>-</del>		
48" (too narrow).**		ĺ							Ì								l		
Headroom below	<del> </del>	<del> </del>	1	}		-			ļ			ļ	ļ		<del></del>	<b></b>	<del> </del>		
6'10".**	ĺ																		
Walkway through	<del> </del>	1	-								ļ				-	X	<b>†</b>		1
"long"tunnel		-														1			-
(over 40').			'										}				ļ		
Structure vibrates	<del> </del>	-	-	-	-	-				<b></b> -		<b></b>			<u> </u>	<b>-</b>	<del>                                     </del>	-	
(traffic).		ļ																	
Abrasive or per-	Y	x	X	Ì	X		Х	-	<del> </del>	X	X		<b>†~</b> ~~	<u> </u>	Τ~	<del>                                     </del>	1	$\vdash \vdash$	7
forated material on	1 **	[*	(**		*	;			Ì	^	, n								. '
vertical surface												}	*		ì	į			
adjacent to walkway.	Ì						}				1					•			
Objects project into	T		1	<u> </u>	Γ	<b> </b>					<del>                                     </del>	5			1	[			
walkway (signs, trees,			-						ļ		Ì.		•				1		
etc.).			*	Į					l				1				ł		
	1	•—	_	بببب			_	_		T		_	*	****		4	- THIPPING -		

	T			ļ						<b>!</b>			~~~	Ţ			<u> </u>		
	Over	re r	⁄er	/er	ZG.	70.5	Į.	79.	7er	Over	æ	Over	'er	Over		15	er.	Over	TOTAL
	6	5	6	Ó	ర్	5	5	5	ర	ó	ó	ి	်	ó	े	S	ð	ઠ	10
SURFACE MATERIALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Manhole covers and	1-	<del> </del>			<u> </u>			<b></b>	<b></b>	<u> </u>				<b>_</b>		ļ	-		
gratings in walkway.					,						[			1					
Highly reflective	Ī	Ī	Ī											ĺ					
surface materials.	1	_			<u></u>										-	]			
Grooves and patterns	Ī				_						X	Х		1					2
(cast into walkways or		1									Ì								
caused by small	#	•												•					•
paving units).	Ì	_		*						į		•		}	Ì				
Large, deep expan-	X		X		ļ		X	X		Х									5
sion joints, **	<u> </u>	<u>.</u>			<u> </u>									ļ	-	Ĺ			
Uneven and irreg-				Ì	•			X		X	X								3
ular surfaces.	1_				_						Í			ļ					
Loose and soft	1			ļ <u>.</u>	-	X								-		X			2
surfaces (gravel,			l							1	'					# H W W W W W W W W W W W W W W W W W W			
sand, etc.).	<u>.</u>	<u> </u>			<u> </u>						ļ				]				
Rough														[	*	Ì			
Surfaces.	1	1	į	<b>.</b>	<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>		<u> </u>			<u> </u>	<u> </u>				
Discontinuous sur-			*								ļ			1			1		
face materials.	Ļ	Ļ	ļ	<u> </u>	<u> </u>					ļ				<u> </u>	ļ	}	ļ		***************************************
terrefried in the control of the con	***	į	-						ĺ			•				ļ			
MAINTENANCE	<u> </u>	ļ.		<u> </u>	<u>L</u> ,	ļ •	ļ				ļ	<b>[</b>		L	ļ		<u> </u>		:
Debris from erosion						X								1	1				1
on walkway.	1	<u> </u>		<u> </u>	ļ	Ĺ	<u></u>	<u> </u>			ļ	<u></u>			<u> </u>		-		
Disrepair (frost			4					X	•		ŧ			Į	İ		1		1
heaves, potholes, etc.).		Ļ.	ļ.,	<u> </u>	<u> </u>			<u> </u>	ļ	ļ				ļ	ļ	<u> </u>	ļ <u>.</u>		
Disrepair from vandalism	4		į	ĺ	Х	Х			Ì		X		X	X		X	X	X	8
or accident (handrails,	1				Ĭ				İ			ŧ		ĺ	Ì	ļ	Ì		
guardrails, etc.).	↓	_		<u> </u>	<u> </u>	ļ	ļ	<u> </u>	<u> </u>	<u> </u>		<u> </u>			<u> </u>	ļ			
A. T. T. T. T. T. T. T. T. T. T. T. T. T.		1		4													] ,		
STAIRWAYS	<b>ļ</b>	<u> </u>	<u> </u>	-	-	-			<u> </u>	ļ	<u></u>	ļ <u>.</u>		<u> </u>	<u> </u>	<b></b>	<u>}</u>		
Stairway is only means	į	l		İ						Î		X		ĺ					1
of access to structure*	` <b>.</b>	<u> </u>		<u> </u>	<u> </u>	ļ	<b></b>	ļ. <b></b> .	<u> </u>	ļ	ļ	<u> </u>		<del> </del>	ļ	<b>↓</b>	<u> </u>	<b> </b>	
Stairway only on one					4	•		Ì								*		•	
side of structure.**	<b>+</b>	<del> </del>	<u> </u>	<u>}</u>	1	-	<b></b>	-	<del> </del>	<u> </u>		<b> </b>		77	<del> </del>	<u> </u>	-		
Poorly lighted steps,				Î	and	}		*			X	•				1			
Stairs, ramps. Treads less than 11"	1	1	<b>}</b>	<u> </u>	<b>Ļ</b>				<b>.</b>	ļ	<u> </u>	<b>_</b>	ļ	ļ	╄	-			<del></del>
(too small).	1	-		1			•			ļ				-			X	•	1
Projecting	+	+-	-	-	<u> </u>		-	<u> </u>		<u> </u>	<u> </u>	X		ļ	<b> </b>	<b> </b> -	├	<u> </u>	i i
rrojecting nosings.	1		}	ļ	1		•			ļ	ŧ	^	1			i			   **
Open	╁~~	+	1	1	-	ļ	<b></b>		ļ	1	<b>!</b>	<b></b>	<b></b>	1	┪	<b>!</b>	<del> </del>	-	
risers.	]	*	į		1					***								1	
Risers greater than	+	<del>-</del>	┪	<u> </u>	<del> </del>	$\vdash$	-	-	<u> </u>	<u> </u>	<u> </u>			<u> </u>	┼	<del> </del> -	ļ <u>.</u>	<del> </del>	
7" (too high).**	1	1							ļ					Ì		1			
Curb greater than	╁	╁	┼	<del> </del>	Ļ.,	┼	-	<u>.                                    </u>	<del>  -</del> -	<b></b> -	ļ	<b></b>		<del> </del>	<del> </del>	<del> </del>	-	<b> </b>	*
6" (too high).	Ī			1	X	1					<b>.</b>		ĺ						1
~ / woo margines, *		1	1	1	}_		<u> </u>		ŧ	L	<u> </u>	L	L	1	Ĭ	Ĺ	1	l	

	1				ļ		_	-				-				·			<b></b>
	-	i.e	er	¥	h.	) (1)	14	i.	i i	뇳	1.6	Ju M	Over	i.	Į.	Under	<b>5</b> 4	z Over	TOTAL
U	Over	8	Š	Š	Š	Š	Š	Š	3	Ŏ.	ð	3	ð	Š	ž	ž	3	)A(	[0]
	Ī	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Step (settlement)	X						X						-		······································			- 1 -	2
between approach																Ì			•
and structure.**	ļ_	_																	
Dangerous stair	1																		
location.	L																		
RAMPS	<u> </u>	_			_	. <u>.                                   </u>		Ĺ	ļ										
Only ramps		X	X	Х	X	X	X	X	X	X	X		Х	Х	Х			X	14
provided.	L								<u> </u>							<u> </u>			- "
Only ramps provided	X								X	Х							X		4
on one side of					_											İ			
structure.	<u> </u>																		****
Pathway leading to	1																		
over-undercrossing	-												·						
too steep and long.**	<u> </u>			ļ	<u> </u>														
Ramp too long (ex-	X	X	X	X	X	X	X	Х		Х	X		X	Х	X		X	X	15
ceeds 30 feet),**	L						ţ												
Ramp too steep	X	X	X	X	X	X	X	Х	X		Х			X	Х		X	X	14
(slope greater than																			
1:12),**	<u> </u>														4				
Ramp too narrow																			
(less than 48').**	Ļ.															<u></u>			
Cross slope greater	ļ					X													1 1
than 1:50 (too steep).								<u> </u>											
Slope across structure		X	Х	X	X		X	X	Х	X.	Х	X		X	X			X	13
too long and steep.**	ļ															<u> </u>			
No curb cuts.**	X	X	X	X	X	X	X	X	Х	Х	X	X	X	X	X	X			16
Helical ramp.	X					·								X	ي أ		x		3
Ramp layout																			
inconvenient.	ļ				L		ļ.,.,,	<b>.</b>	<b>.</b>			,_			ļ	<u> </u>			
Abrupt transition to	1	X	X	Х				Х	X										5
connecting walkways.	L												 			<u></u>	ļ [		
Ramp exits directly			X		X		Х	Х	X	X	Х			X	X	•			9
into street or park-		1				١	!												1
ing area (less than 6'																			
clearance at bottom	1																		
of ramp).	1					Ц			ļ										
Bollards in the mid-	1		Ì				X												1
dle of entrance to																			
the ramp.								<u> </u>								<u> </u>	<b>_</b>		
Steps in the middle							•												
of the ramp.					Ш											ļ		L	
**********																			
HANDRAILS	<u> </u>								<u> </u>				L		<u> </u>	<b></b>	<b>!</b>		ļ
Handrails higher than	X		1														ļ	X	2
36" (too high).	1	Ш								<u> </u>			<b></b>	 		ļ	<b>!</b>	ļ	***************************************
Handrails lower than			Х																1
32" (too low).**																	L	<u> </u>	

		_				- 1					1			<del>,</del>				-	, ,
J	OVET	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Qeer	Over	TOTAL
	1			_				_		**************************************	11	12	13	14	15	16	17	18	
No		X		X								Х	¥	X	x				6
handrails.**		**		4%								A.	Λ		А	*			٥
Handrail inadequate for	X			,				mr ******	X		<u> </u>					1	<u></u>		2
comfortable grasp.		ļ	•				1				-			•					-
Handrail material metal	X	<b>!</b>	X		X	X	X	x	X	X	X	1				ļ	X		10
or aluminum (hot in hot		Ì	-				**				"			ŀ		· ·	***		- "
weather, cold in cold).											*			1			1		
Handrails not	х	<b>—</b>	X	<del>}</del>	х	Х		**********			1			<b>********</b>	<u> </u>	<u> </u>	X		5
continuous.			•								<u> </u>			<b>.</b>	į			Ì	
Handrails don't extend			Х		X	X		X			X			ļ		1	Х		6
far enough (1' at top	ĺ										¥ -	<u>.</u>	-	•		•			
and bottom of stairs							1							***************************************	1	İ		•	
and ramps).**					:						[			f f	<b>[</b>				
No handrails on	Х		ļ	X	X						Ť		X	X	ļ	[	†************		5
ramps.				:	•									•	<b>1</b>	-			
GUARDRAILS, BARRICADES,		Ī		· · · · · · · · · · · · · · · · · · ·							F F	-		<del></del>	ļ				
PEDESTRIAN/VEHICULAR		1		!		! !					1	***************************************	•	•	1		9		
SEPARATION	İ	•		}							1				: !	*		: :	
Barricades not detect-		-	<del> </del>	X						<u>-</u>	<u> </u>	<del></del> -	<u> </u>		·	<del></del>	<del> </del>	<u> </u>	1
able (blind cane).		¥	*	#ħ	Î	1						•		i i	}	1	1		*
Guardrails not	<b>!</b>	<del>                                     </del>		<u> </u>	X	-						<del> </del>		-	-	<u> </u>	-	<b></b>	1
continuous.		ĺ		1	; ; ;							•	Ť					1	-
Guardrails too low	<del> </del>	<b>!</b>	<del> </del>	<u> </u>	<del> </del>	ļ					<b></b>	1	• • • • • • • • • • • • • • • • • • •	ļ {	<u> </u>	ļ	1	<u> </u>	
(less than 42").	1			1		į					1	1	•		{ 	: 1	ļ	*	
No pedestrian	-	<del> </del>	H	<u> </u>	<del> </del>	}-			<u>-</u>		<u> </u>	<b>-</b>	1		<del></del>	1	<del>}</del>	<del> </del>	<del> </del> -
guardrails.	Ì	Ì		1 1	. · · · · · · · · · · · · · · · · · · ·						1	Ì	İ	! i	•				1
Inadequate	<b>}</b>	<u> </u>	T	X	f i	ŧ			<u> </u>	<u> </u>	<del> </del> -			<del>                                     </del>		<b>,</b>	Ì	<b>!</b>	1
guardrails.	1	i		1		ł			www	*	Ī			:	:				1
Guardrail mesh	X	<u> </u>	X	-	X	X	X	-	X	X	1	1	<del></del>	ŧ	<del></del>	<del></del>	<b>†</b>		7
hazardous.*	-		-	1	]	1	1 **			1		Ì		j	3		1		^ '
No detectabel sep-	x	X	x	X	X	X	X	X	X	X	X	•	<del> </del>	X	X	<u> X</u>	X	X	16
aration between bike-	_		ļ					1						1			-	1	I ~~
way and pedestrian way.		) -	i i	Ì			*	•	Ī		ŧ	1	VA004 A A A .	1		ļ	~~~		
No detectable sep-	<b>†</b> "	T	1-		1	<u> </u>	-	Ì	İ	<del> </del>	<del> -</del> -	1	•	<b>†</b>	•		†~~ <del>~</del>	<del> </del>	<b>†</b>
aration between road-				-							1	1		-	***	}			ļ
way and walkway.	1							1	THE CONTRACTOR OF THE CONTRACT		!		1	****					Ì
No detectable sep-	Ť	1	<del> </del>	1	. <del></del>	T	ļ	<u> </u>	-	<del> </del>	<del></del>	*	†··	•	<del>*</del>	1	*******	1	İ
aration between			-		-X-	***************************************			·	1		:				***************************************	1		
walkway and parking lot	•	1		-	1						MMA							ļ	1
Unprotected sidewalks	Ţ	1	1		Τ.	Ī	1				Ī	1	<b>*</b>	***************************************	•	1		Ī	T T
(cars, edges, etc.).		-						#					-	<u> </u>		1			
ESCALATORS/			Ţ~~		. Kr	-										Ì			]
ELEVATORS		ĺ		Ì			, j		-						}	į		-	
Escalators.	<del>•</del>	•	T	T	†	-			<u> </u>	1	+	1	<b>†</b>	<del> </del>	i	····	1	<b>†</b>	1
Elevators.	<del>}</del>	†		-	1-	÷	1		Η-	<del> </del>	1	<del> </del>	<b>†</b>	<del> </del>	<del> </del>	<del>-</del>	<del>}</del>	<del>                                     </del>	<b>†</b>
	ل	1	<u></u>		<u>.</u>	J	1	<u> </u>	1		<u></u>	<u></u>	.t	4	1	<u> </u>		J	J

J	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	Under	Over	Over	TOTAL
REST AREAS/BENCHES	1										11				15			18	
Resting places not	X							X							1		}**********		2
under cover (wind.	-							, , ,									}		*
rain, sun).								l									ŧ		
Not enough places to		¥	¥	χ̈́	Y	¥	¥		Х	X	X	X	X	X	X	X	X	X	16
stop and rest.		A	41		21.	~	.A.R.		4		**	·	A	A	Λ	ľ	^	^	* # # 2
No provision for		-			********										ļ	<del> </del> -	<b>├</b>	<u> </u>	
scenic overlook.				İ .							}			[			1		i i
Benches too high or	X	<u> </u>	ļ									ļ				<u> </u>	<del> </del>	ļ	,
***	Δ															į	1		1
low, too deep or								l								į	Į		
shallow, or with														•	l	•	İ	•	
no armrest,	L							ļ						<u> </u>	<u> </u>	<u> </u>	<u> </u>		
EMERGENCY PROVISIONS								•							<b>!</b>	•			
No alternative route		-	}								<b> </b>		ļ	<b></b>			<b>†</b>	1	
for flood condition			į													İ	1	j	
structures.														İ		İ			
No pedestrian emergency	A	¥	ļ.,	¥	~	v	¥	*	v	X	X	X	X	X	X	X	X	X	18
provisions.	^	•	^	А	43.	.a?a.	£.		A	Α.	A	-∧-	Α.	^	Λ	^	^	A	10
LIGHTING ILLUMINATION															-	****			
Significant change of			ļ								ļ			ļ	<del>}</del>	X	İ	1	ì
light level in tunnel		Ì	,					Ì.					Ì	Ì	1	[	ļ		
at entrance.			ŀ													1	Ì		
Interior lighting not					***		······				<del> </del>	<u> </u>				X	1		1
adjusted to outside						į										} i	į	}	
light conditions.	ĺ					į										į		*	
Glare at end of		Ì	-	7	•										<b>!</b>	X	<b>!</b>	1	1
tunnel.*																		ļ	
Tunnel too	-														<u> </u>	X	<u> </u>		1
dark.*															<u> </u>	<u> </u>	<u> </u>		Ÿ
Glare and flashing	x	X				,		x	X	1	X					}	X	X	7
lights from vehicles.*								••			•••			•			**	***	, ′
Poor		Х	X						X			Х		X.	Х	X	X	X	9
illumination.*						4	1											1	
CTALLO INCIDE ATTO				······														<u>.                                      </u>	
SIGNAGE/MEDIA CUES No signage indicating	-					42	¥.9	-	7.7				¥Ŧ	<u> </u>	-27	X	-	<u> </u>	10
location of rest	X			X		Ā	Λ	Ÿ	X				X		X	A	X		10
areas.																1	ì	į	
Street signs too	-	-			-			-	-		<del></del>				<del> </del>	<del> </del>	<u> </u>	-	<b> </b>
high, too low or far.																			
No special signage for	X	X	Х	X	X	X	X	х	X	X	X	Х	X	X	Х	X	X	X	18
the visually impaired.													**				L"		
Traffic lights with														[ <b>- "</b>			1		
short green cycle.				,				•			į	<b>.</b>				<u>'</u>	į		<u> </u>
Complicated instruc-															<u> </u>	ļ <del></del>	1	ļ	
tions on sign.				,	L						<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<b>.</b>	

J	Over	OVET	Over	Over	Over	Over	Uver	UVer	Over	Over	Over	Over	Over	Over			Over	Over	TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
No warning of	X					X	X	X	X	Х		X							7
potential hazards.	<u> </u>	ļ								ļ • • • • • • • • • • • • • • • • • • •	ļ	<b></b>			<u> </u>	ļ		<u> </u>	ļ
No orientation cue as to start of approach.	X		X	X	Х	X	X	X	X	X	X	X	X	X	Х	Х	X	X	17
Lack of orientation	X	Γ	X	X	X	X	X	Х	X	X	X	X	X	X	X	X	X	X	17
cues generally	<b></b>	<u>.</u>								ļ	<u> </u>	<u></u>	<b></b>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	ļ	ļ
Pathway junctions	X			Х	X	X					1	X			X	į	X	]	7
which are not at 90	ļ	1											-	- Comment		Ì		•	
degree angle or												1				•	ļ		
which curve.	<u> </u>	-	ļ				-			<u> </u>	<u> </u>	<u> </u>		<u> </u>	ļ	i 1	<del> </del>	ļ	<b></b>
No detectable orienta-		İ	*		İ					ĺ				-				1	
tion cue as to start												1				4			
of channelization.		<del> </del>	1								ļ <u>.</u>	<u> </u>			ļ	<del> </del>	<del> </del>	-	1
Walkway not	X	X	X	X.	X	Х	X	X.	X	X	X	X	X	X	X	X	X	X	18
channelized. Traffic			X		17	47				X	X	Į	<u> </u>	ļ	-	<u> </u>	X	X	13
	A	v	A		λ	Y	A	A	A	. A.	A	•			X	İ	A	1 ^	1 13
noise,		<u> </u>	<u> </u>							-	<u> </u>	ļ	Ĺ	<u> </u>	<u> </u>		<u> </u>		
MICRO-CLIMATIC FACTORS	•																		
High wind gusts	X	X	X	X	X	X	X	X	X	Х	X		1	Х	X		1	X	14
present.*		<u> </u>										1		<u> </u>		1	*	<u>.</u>	
Wind generated		]	-											•					
by traffic.*		*	Ì		Li			1						<u>.</u>		<u> </u>			
Inadequate provision	<u> </u>	Γ	Ţ					1				T	[				<u> </u>	Ţ	
for rain-water runoff.	<u></u>	!	}					ļ		<b></b>	<u> </u>			<u> </u>				<u> </u>	
Walkways and sidewalks						X	X						1			X	1		3
not kept clear of snow,	Ì			ļ	•			•			1	1	1	1					
ice and debris.	ļ	-	***************************************						]	1			į						

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

## CUMULATIVE MATRIX: OVERCROSSINGS



	Area A (7 Structures)	Area B	Area C	in orthograsi	Area D (5 Structures)	Area E	(3 Structures)	Area F (11 Structures)	Area G	Area H	Area	(12 Structures)	Area J (17 Structures)	TOTAL (103 Structures)	% of Total
LOCATION & END CONDITION				Ī											
Portions of walkway are				T					f						
hidden from view (crime	3	5	-	5]	1			1	1	3	1:	2	13	34	33.0
potential).		<u> </u>	1	1											
Overcrossing is not		1		١						]	İ				† [
close to public trans-	1	ļ	1	!	!					1		5		7	6.8
portation stop.	<u> </u>	<u> </u>		4					<u> </u>	ļ					<b>1</b>
No sidewalk at		ļ	į	1						١ _	ļ	. :			
end condition.	3	ļ	<del></del> -	4	3		_		ļ	2	<del>-</del>	1		9	8.7
Parked cars restrict approach.*									•		ŀ		,		, ,
Parked cars obstruct view	<b>-</b> -	<b>_</b>	+	-	······································		<u>w</u> .	```````	ļ	<b></b>	_		4	2	1.9
of approach.*			İ	ļ		•					Ì		2	2	1.9
No accessible	<b> </b>	1		┉	<del></del>	<u> </u>	·····		ļ	<del> </del> -				<del>-</del>	<u> </u>
parking. **		1 1	1 2	2 [					İ		1	6		10	9.7
No detectable pedestrian	ļ	<u> </u>		1	Arminin	<b></b> -		***************************************	1	<del> </del>	1				<del>                                     </del>
crosswalk to approach.	5	6	1 2	2	1				4	8	1.	Ļ	11	41	39.9
Driver's view of		1		Ī	<del></del>	-		***************************************	<u> </u>		<b></b> "				
pedestrian blocked.*	1	ļ		2		Ĺ				3			4	9_	8.7
WALKWAYS		Mary Control							}						
Pedestrian walkway on	<b>*</b>	<u> </u>	<u> </u>	7		<del> </del>				1	_				
only one side.	<u> </u>	1	Ì	Ì					l	Į.				1	1.0
Walkway less than 48"		1									1				
(too narrow).**	<u> </u>	1							<u> </u>	1				2	1.9
Headroom below			-	١					i		ļ				
6'10". **	<u> </u>	<u> </u>	ļ.,,	_	<b>**</b>	Ì		<b></b>	<b> </b>	<del> </del>	╃	1		1	1.0
Structure vibrates		١.	1.	.					ļ					_	١,,
(traffic). Abrasive or perforated	<del> </del>	1				<del> </del>		<b></b>	<del>!                                    </del>	<del>                                     </del>	+			2_	1.9
material on vertical sur-	1	4		.	1	l		10	] ;	1		3	7	33	32.0
face adjacent to walkway.	<b>†</b> *	*	1 *	1	£	1		1 **	*	1	į		[ /	33	J2.U .
Objects project into	<u> </u>	1 3	<b></b>			<del> </del>		<del>                                     </del>	<b>†</b>	1	-	_	1	5	4.9
walkway-signs, trees, etc.									<u></u>	1					743
SURFACE MATERIALS															
Manhole covers and gratings	1	1													
in walkway.	2	8	;	۱				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 (II 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	ļ <u></u>	<u> </u>	·····	ļ <u>.</u>	<b>}</b>	······························					1.	1.0
Grooves and patterns (cast into walkways or caused by small paving units).		2	5		2	2	<b>4</b>	2		2	16	15.5
Large, deep expansion	<b> </b>	ļ <u>.</u>	<del>                                     </del>	<del> </del>		<b></b>	<b>.</b>					
joints.**	5	11	4	2		7		2	2	5	38	36.9
Uneven and irregular					} [							
surfaces.	3	4	5	2	2	5	<u> </u>	3		3	27	26.2
Loose and soft surfaces	I .		l ,			١.				•	4.4	* 4 - 7
(gravel, sand, etc.)	3	5	1	<u> </u>	<u> </u>	1	<u> </u>	ļ		1	11	10.7
Rough Surfaces.	1	1	4	2	2	2		2			14	13.6
Discontinuous surface		+	<u> </u>		<del>                                     </del>	<del>-</del>	<u> </u>		Í 		14	1.2.0
materials.	1		I	2	2	1		1			7	6.8
MAINTENANCE Debris from erosion												
on walkway.		3	3			<u> </u>			ļ	L	7	6.8
Disrepair (frost heaves, potholes, etc.).	1	4	2	1		3	<u> </u>	1		1	13	12.6
Disrepair from vandalism	<b>-</b>	} <u>`</u>	<del></del>		<u> </u>	<u> </u>				<u> </u>		14.0
or accident (handrails,	1 1	6	6	2		5	1 1	1		7	28	27.2
guardrails, etc.).		]					<u> </u>			***		
	1		1	<del>                                     </del>	1	<b>†</b>	<u> </u>	]			· · · · · · · · · · · · · · · · · · ·	
STAIRWAYS	<b>!</b>	<u> </u>	ļ	<b></b>	<u> </u>	<u> </u>		<b>]</b>		<b></b>		
Stairway is only means	] _	1 ^		_	<b>!</b>	,	1	* * * *				11.
of access to structure.**	2	2	3	2	<b>}</b>	3	<u> </u>	<u> </u>	2	-1	13	14.6
Stairway only on one side of structure.	l	1	1		[		•		1	1	3	2.9
Poorly lighted steps,	<del>                                     </del>	<del> </del>	<u> </u>	<u> </u>	<b>†</b>	<del>  - , -</del> +		ļ	<u> </u>	<u> </u>	ļ	£ 4 7
stairs, ramps.	3	9	5	1	1	5			5	1	29	28.2
Treads less than 11"	<u> </u>	<b>†</b>	-	-	1			<b> </b>	<u> </u>			
(too small).	1	1	3	2		1	ļ	1		1	8	7.8
Projecting	Ţ~~~	]	ļ		1	<b>1</b>	}	[	• • • • • • • • • • • • • • • • • • •		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
nosings.		4	2	1		1	ļ		ļ	1	9	8.7
Open Risers.			4	2							6	5.8

	Area A	() 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 II	(1) SCEUCEUFES)	(12 Structures)	Area J	(1) Structures)	(10) Structures)	1 4	% OI TOURT
Risers greater than 7" (too high). **					4		1				1		<b>.</b>					б	***************************************	5.8
Curb greater than 6"													<b>,</b>	. [						_
(too high). Step (settlement) between				_	_1	╄					-		<u> </u>	1	1	<b>!</b>	1_	4	-	3.9
approach and structure.**		1		7	2				ı		3				1		2	16	1,	1 K K
Dangerous stair	<b></b>	<u>.</u>				H	_				-1		<u> </u>		<u>_</u>	<del> </del>			-[	15.5
location.			1		1	1			ı					I		1		1		1.0
				-		t					٦		<u> </u>	7			~*******		<del> </del>	<u> </u>
RAMPS			<u> </u>					Į.											1	
Only ramps							i													
provided.		1	<u> </u>	8	4		1		1		5	2		5	9	L	14	50	1	48.5
Only ramps provided on			Ì			1					-									
one side of structure.		1	ļ		2	↓_	1	<u> </u>	_	ļ			<u> </u>			ļ	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 greater than 1:12).**		1	1	Û	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	1					1										Ī		İ	1	
too long and steep.**		1		5				<u> </u>	2		1	2	<b>↓</b>		5	_	13	29	Į,	28.2
No curb cuts.**	-	4		6	3		2				2	3		8	6		15	49		47.6
Helical						T							T			Ī	***********	•	1	
ramp.				1			1					1	<u> </u>		5	L	3	_ 11		10.7
Ramp Layout								1		ļ		•						Į		
inconvenient.	1		-		1	₽		-		<b>!</b>		<u> </u>	1	1	•	-	*********	1	1	1.9
Abrupt transition to connecting walkways.	1				1						1.					Ĭ	5		•	£ 6
Ramp exits directly into	<del>                                     </del>		-		<u> </u>	+		-		-	*	<u> </u>	<del> </del>			1		<del>}</del>	+-	6.8
street or parking area (less than 6'clearance at bottom of ramp).				5	7			· · · · · · · · · · · · · · · · · · ·			3	A JUL III III III III III III III III III I		4	3		9	3		30.1

	Area A (7 Structures)	Area B (18 Structures)	Area C (16 Structures)	Area D (5 Structures)	Area C (3 Structures)	Area F (11 Structures)	Area C (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	Ì			-				1	Š	4.9
Steps in the middle of the ramp.			1			1					2	1.9
HANDRAILS												
Handrails higher than 36" (too high).		5	11	2	2	4		7		2	33	32.0
Handrails lower than 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		б	***	1	4		7	3	6	29	<b>28.</b> 2
No handrails on ramps.	1	6	1			1	2	4	5	5	25	24.3
GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION	Welliam Control of the Control of th	***************************************				***************************************						
Barricades not detectable (blind came)	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 guardrails.	I		***		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 (Il Structures)	Area I (12 Structures)	Area J (17 Structures)	TOTAL (103 Structures)	% of Total
Inadequate guardrails.	1					2	1			ļ	3	2,9
Guardrail mesh	<b>-</b>		ļ							<del> </del>	<b> </b>	
hazardous.*	1	7	6	1		8	1	1	5	7	37	36.0
No detectable separation	<b></b>	<del> </del>	- <u>~</u>			¥					<del>  ~~</del>	20.5
between bikeway and	4	14	1	2	3	7	1	10	1	15	58	56.3
pedestrian way.		<b>**</b> "T	-			•	-		-			
No detectable separation	<del> </del>	<u>.                                    </u>								ļ	ļ.,	
between roadway and	1	1	10			1		2			15	14.6
walkway.		_					[			ļ		
No detectable separation	╁	<b></b>			<u></u>					<b></b>	<del> </del>	
between walkway and	l		<u> </u>						2		2	1.9
parking lot.	1									l		
Unprotected sidewalks (cars	1	<u> </u>	ļ	<b></b>	·····				<del></del>	<del> </del>		
edges, etc.).	2	1	]		1	1	1	5		•	11	10.7
ESCALATORS/ELEVATORS												
Escalators.	<u> </u>	2	<u> </u>	<u> </u>	<u></u>		ļ		ļ <u></u>	ļ	1 3	1.0
Elevators.	<b>!</b>				ļ	<u>_</u>	ļ	<b></b>	<u> </u>	<u> </u>	-3	2.9
REST AREAS/BENCHES Resting places not under	<u></u>											
cover (wind, rain, sun).	1	8	6			1	ĺ	1	2	2	21	20.4
Not enough places to stop	<b>†</b>				<b>—</b> —	<u> </u>	ļ	<b></b>	<b></b> -	<b></b>	<del> </del>	
and rest.	4	8	11	5	2	11	3	6	9	15	74	71.8
No provision for			Ī							1		
scenic overlook.	<u>L</u>		2			<u>L</u>		<u> </u>	<u></u>		2	1.9
Benches too high or low,										Ţ		
too deep or shallow, or	1	3	1					ĺ	1	1	7	6.8
with no armrest.		<u> </u>	<u> </u>	<u></u>	<u> </u>	<u> </u>				ļ		
EMERGENCY PROVISIONS												
No alternative route for	1	Į		<b>[</b>				3	,	Ī	5	ı n
flood condition structures.	<b>!</b>	<b> </b>	1	ļ	<b> </b>	<b> </b>	<b> </b>	<u> </u>	1	<del> </del>	<del>-</del> -	4.9
No pedestrian emergency	7	18	15	5	3	11	1	11	10	17	98	95.1
provisions.	<b>!</b>	15	13		<u> </u>	<u> </u>	<del>-</del>		<u> </u>	<u>  **</u>	1 70	77.1
LIGHTING, ILLUMINATION Glare and flashing lights		ļ		<b></b>			<u></u>	<u></u>		<u> </u>		
from vehicles.	1	10	11	1		9		8	8	7	57	55.3

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 1 (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									1			
No signage indicating		ļ			<u> </u>			<b></b>			<b></b>	
location of rest areas.	3	18	14	2		11	1	8	3	9	69	67.0
Street signs too high,						<del>                                     </del>					1	
too low, or too far.		ĺ	*				. 1	1	•		1	1.0
No special signage for				<u> </u>				``			]	
the visually impaired.	7	18	16	5	3	11	2	11	10	17	00	97.1
Complicated instructions		•						<u></u>	······································	<b>†</b>	1	
on signs.	1		į			]				# #	1	1.0
No warning of			1									
potential hazards.	3	İ	1	3			2	3		7	19	18.4
No orientation cue as					_					<u> </u>		
to start of approach.	6	18	16	5	2	11	2	11	12	16	99	96.1
Lack of orientation				Ī							į	
cues generally.	6	18	16	5	3	11	2	8	12	16	97	94.2
Pathway junctions which are 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.				1		, A			1			1.0
Walkway not channelized.	6	15	13	2	3	7	2	11	1	17	76	73.8
Traffic		1	_						}			
noise.	6	2	6	1	ļ	5	<u> </u>	8	<u> </u>	13	41	39.9
MICRO-CLIMATIC FACTORS				<u> </u>	ļ		ļ 	ļ		ļ	ļ	
High wind gusts	۱	1,,	4 4 2				•		,	4400	27	1 cc .
present.*	ļ <u> </u>	14	14	ļ	<b> </b>	8	1	9	4	14	67	65.0
Wind generated by traffic.*	1	1	-	1	ĺ		<u> </u>	2	I		4	3.9
Inadequate provision for		1 -	<del> </del> -	<del> </del>	<u> </u>	1	<b></b>		<del> </del>	<del> </del>	<del></del> _	
rain-water runoff.	Ī		2				l	İ		İ	2	1.9
Walkways and sidewalks		<b>†</b>	<del>                                     </del>	1	<del> </del>	<del>                                     </del>	1	<del> </del>	<u> </u>	<del> </del>	<b>†</b> ******	1
not kept clear of snow,			1	*		1	* *				‡ ‡	
ice and debris.	I	10	5	1		3		1		2	23	22.3
		الا	·		<del></del>	<del></del>	<del></del>	<del></del>	<u>~~~~~~~</u>		<del></del>	<del>*</del>

<sup>\*</sup>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.

<sup>\*\*</sup>Based on the 1961 ANSI Standards.

## CUMULATIVE MATRIX: UNDERCROSSINGS



	Area A	750777777777	(1 Structure)	Area C	(3 Structures)	Area D	(O Structures)	Area E	(3 Structures)	भू हुन म	(4 Structures)	Area G	(2 Structures)	Area H	(5 Structures)	Area I	(0 Structures)	Area J	(i Structure)	TOTAL	(21 Structures)	% of Total
LOCATION & END CONDITION		4		<u> </u>		_		<u> </u>		ļ				<u>L</u>		<u> </u>		_				
Portions of walkway are hidden from view (crime potential).			1		***						3				1				1		8	38.1
Undercrossing not close to public transportation stop.					**																1	4.8
No sidewalk at end condition.	<del></del>	1						<del>                                     </del>	•••••	-								-			1	4.8
Parked cars obstruct view of approach.*	.AA	1		<b>-</b>	•	 	·	<del> </del>	-	<del> </del>				<u> </u>	1	<del> </del>		<del>                                     </del>			1	4.8
No accessible		_		<u> </u>		<u> </u>		<u> </u>		<u> </u>				ļ 	<u></u>	-		<u> </u>		-		
parking.** No detectable pedestrian		4		<u> </u>	·····	<b>!</b>		├		<b>!</b>		<u> </u>	·······-	<u> </u>	:	<del> </del>	···········	<del> </del>	1	ļ	1	4.8
crosswalk to approach.		1			1	L.		ļ	1		2		1		5				1	1	12	57.1
Driver's view of pedes- trian blocked.*															2						2	9.5
WALKWAYS								P		† 					•							
Pedestrian walkway on only one side.		Ī									1		1								2	9.5
Walkway less than 48" (too narrow).**				<b>†</b>			×		1	<u> </u>											1	4.8
Headroom below 6'10".**									1												1	4,8
Walkway through "long" tunnel (over 40').			1		2			***************************************	1		3		2		5				1	1	.5	71.4
Abrasive or perforated material on vertical surface adjacent to walkway.			···········						1		1	**************************************			2						4	19.0
Objects project into walk- way (signs, trees, etc.)						-									1						1	4.8
SURFACE MATERIALS																						
Manhole covers and gratings in walkway.											i									444444	1	4.8
Large, deep expansion	<del>                                     </del>	1	······	1		<b>†</b>	<del>,</del>	1	A	1		<del> </del>	***************************************		1	Ì		†		Ī	1	<u> </u>
joints.** Uneven and irregular	<b> </b>			-	····	1	······	<u> </u>		-		-		-	1	╁		+	<u> </u>	-	Ţ	4,8
surfaces.											1										I	4.8

	Area A (2 Structures)	Area B (1 Structure)	Area C	Area D	(0 Structures)	Area E (3 Structures)	Area F	(4 Structures)	Area G (2 Structures)	Area H	Area I	(0 Structures)		(1 Structure)	TOTAL (21 Structures)	% of Total
Loose and soft surfaces (gravel, sand, etc.).	1	l	*								1		l	1	3	14.3
Discontinuous surface	-7	<u> </u>	-	<del></del>				j			+	nnn	ļ	-		<u> </u>
materials.	1		ļ	*			ļ	į			Ì		*	*	1	4.8
MAINTENANCE								-				~~~~				
Debris from erosion on walkway.					ļ			4							4	19.0
Disrepair (frost heaves, potholes).				l l					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			············			1	4.8
Disrepair from vandalism or accident (handrails, guardrails, etc.).					St. K. of L. Walletin, Mr. Wallack, Al-					1				1	2	9.5
STAIRWAYS Stairway is only means							<u> </u>		,		****					
of access to structure.**	. 1	<u> </u>							:						1	4.8
Poorly lighted steps, stairs, ramps.								1							1	4.8
Open risers.															1	4.8
Curb greater than 6" (too high).				***	7	·····					1				1	4,8
RAMPS				######################################								••••				
Only ramp provided.				-					1						1	4.8
Pathway leading to structure too long and steep.**	1					1		3							5	23.8
Ramp too long (exceeds 30').**													+		1	4.8
Ramp too steep (slope greater than 1:12).**											L		***************************************		1	4.8
Cross slope greater than 1:50 (too steep).	1												***************************************		2	9,5
No curb cuts.**	1								2		?	W-1-40-40-40-40-40-40-40-40-40-40-40-40-40-		1	6	28.6
Ramp exits directly into street or parking area (less than 6'clearance at bottom of ramp).			ما المال من المال من المال من المال من المال من المال من المال من المال من المال من المال من المال من المال من	***************************************			Andrea desperator terror desperator presentario	2				-			2	9.5

				<u> </u>	······································				- <del></del>				<u></u>	-			·········I		······································
	rea A		rea b 1 Structure)	reac	3 Structures)	rea D	ם סרומנותובת/	rea E 3 Srnictures)		4 Structures)	rea G	z Structures)	Area H (5 Structures)		O Structures)	rea J	I Structure)	TOTAL (21 Structures)	of Total
HANDRAILS	<del>                                     </del>	4	<u> </u>	<u> </u>	_	~ `	<u>-</u> -	<u> </u>	43	<u> </u>	<	4	<u> </u>		_	Å	$\preceq$		2/2
Handrails higher than 36" (too high).	]		·	ļ			1		+									1	4.8
No handrails.**	,		1		2		******************	1	İ	4		2	3	-				14	66.7
Handrails inadequate for comfortable grasp.	ļ	T					ĺ	<del>  </del>	1				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	4.8
No handrails on ramps.									l.	2			1					3	14.3
GUARDRAILS, BARRICADES, PEDESTRIAN/VEHICULAR SEPARATION									-										
Guardrails less than 42" (too low).					1		-											1	4.8
No pedestrian guardrails.		ı						1				1	2					5	23.8
No detectable separation between bikeway and pedestrian way.			1					Į		4		2	5				1	14	66.7
No detectable separation between roadway and walkwa	y				2								2					4	19.0
No detectable separation between walkway and parking lot.					1													1	4.8
Unprotected sidewalks (car edges, etc.).	s,		1					]					4					7	33.3
REST AREAS/BENCHES																			
Not enough places to stop and rest.		1	1		3			2	,	4		2	5				1	19	90.5

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

	Area A (2 Structures)	Area D	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	(O Structures)	Area J	(1 Structure)	70TAL (21 Structures)	% of Total
No detectable orientation cue as to start of channelization.	1																1	4.8
Walkway not channelized.	]		1	2			2		4		2	5				1	18	85.7
Traffic noise.	1			2					1		1	4					9	42.9
MICRO-CLIMATIC FACTORS																		i i
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							1	8	38.1

<sup>\*</sup>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.

<sup>\*\*</sup>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).

<b></b>	y		-		·····			Al
<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.	x		x	X	*	x	X	x
mental orientation.		•	А		*	A	A	**
Understanding deficit.	X	•	X	X			X	X
Limited attention span.	X	•	X	X	X	X	X	s
Memory deficit.	X	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.	X	X	X	X	X	X	5	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.	8	X	X	X	X	X	X	X
Swaying, shuffling, uneven, eratic or stag- gering gait.	<b>5</b>	X	S	X	X	S	S	S
Frequent need to rest during exercise.	X	X	X	X	S	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>	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 $40^{\circ}$ ).	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 <sub>.</sub>	Х	X	Х
limited ability to stand for long periods.	X	X	X	X	s	X	x	х
Impaired bladder control.	х	X	X	Х	Х	X	X	x
Extreme of size (dwarfism, siantism, obesity, etc.).	S	Х	S	S	Х	Х	X	х
Cardiac Pacemaker affected by electrical interference.	Х	X	Х	X	X	X	X	х
Uses powered or manual wheelchair.	S	S	S	X	x	X	S	s
Uses walker, crutches, orthopedic cane.	S	s	s	Х	s	X	S	s
Prosthesis (including braces) for lower extremities.	S	х	S	х	S	Х	S	S
Decreased ability to tole- mate smoke, dust, chemicals, mollens, cold winds.	x	X	х	X	<b>X</b>	x	х	х
dimited ability to grasp, malease or manipulate with apper extremities (arms, wrist, hands).	X	X	Σ	х	X	Х	х	X
:imited reach.	х	X	Х	Х	X	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>	Driver's view of pedestrian blocked.	Pedestrian walkway on only one side.	Walkway less than 48" (too narrow).	Readroom 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	Х	X	X	х	Х	X	x
Inability to turn head.	S	S	X	X	X	x	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	X	X	X
Limited vertical motion with legs and feet.	S	X	X	X	X	x	X	X
Limited horizontal motion with legs and feet.	<b>S</b>	x	x	Х	s	x	X	X
Decreased ability to tolerate heat and cold.	X	x	x	x	x	x	X	x
Speech disorder.	X	X	x	X	Х	x	X	х
Loss of normal speed in motor coordination/slowed reflexes.	S	X	x	X	x	X	X	S
Fear of crime.	X	X	X	X	•	X	X	x
Fear of heights (vertigo).	x	X	X	x	X	X	X	x
Agoraphobia.	x	X	x	X	x	X	x	x
Claustrophobia.	X	x	S	x	•	x	x	X
Fear of loud noises.	х	X.	X	X	X	X	X	X

<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.).
								Andreas and the state of the st
Uses white came for guidance (visually impaired).	s	•	S	•	X	x	S	S
Uses guide dog.	s	•	S	•	X	x	X	s
Limited ability to acquire or process visual stimuli.	S	•	S	•	•	x	\$	s
Limited ability to per- ceive or process auditory stimuli.	X	X	X	X	X	¥	X	Х

<b>(***</b>							<del></del>	······································
<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.	X	S	5	S	S	X	s	•
Limited attention span.		\$	S	S	S	X	S	•
Memory deficit.	x	S	S	s	S	x	\$	•
Decreased ability to sequence, judge time, direction, distance, size.	X	X	S	ene bod	S	X	s	X
Impaired night vision.	X	S	\$	S	s	X	s	•
Impaired cutaneous sensation detection.	X	s	X	S	S	X	X	X
Chronic stooped posture.	W X	S	S	S	s	X	X	X
Difficulty in main- taining equilibrium.	X	S	s	S	S	S	S	X
Moves at slow speed.	X	\$	S	s	S	S	S	X
Swaying, shuffling, uneven, eratic or stag- gering gait.	78877777777777777777777777777777777777	S	S	5	S	s	S	X
Frequent need to rest during exercise.	X	S	S	s	S	5	S	х

					A			
X = No Problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.	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 apptoach.	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).	X	X	S	<b>X</b>	X	X	Х	X
Limited ability to stand for long periods.	X	s	S	x	X	s	s	X
Impaired bladder control.	X	X	X	X	X	S	x	Х
Extreme of size (dwarfism, giantism, obesity, etc.).	X	X	S	S	X	Х	X	X
Cardiac Pacemaker affected by electrical interference.	<b>X</b>	X	X	X	X	X	x	X
Uses powered or manual wheelchair.	X	S	S	S	S	S	S	X
Uses walker, crutches, orthopedic cane.	X	S	S	s	S	\$	\$	X
Prosthesis (including braces) for lower extremities.		S	S	S	S	S	S	X
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	X	x	х	X	X	X	x
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	х	S	Х	х	X	x	X
Limited reach.	X	X	S	Х	X	X	X	X

	<del></del>			·····				Ça
<ul> <li>KEY</li> <li>X = No Problem for this group.</li> <li>S = Solution for this problem is known.</li> <li>Solution for this problem is not known.</li> </ul>	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	Х	X	X	X	X	Х
Inability to turn head.	X	X	x	S	S	X	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	X	x	x	X	X
Limited vertical motion with legs and feet.	X	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.	X	S	X	x	X	s	X	X
Speech disorder.	X	X	X	X	X	X	x	X
Loss of normal speed in motor coordination/slowed reflexes.	X	S	S	S	s	S	S	X
Fear of crime.	•	S	Х	S	S	X	X	•
Fear of heights (vertigo).	X	X	X	X	X	X	x	X
Agoraphobia.	X	X	X	X	x	X	X	X
Claustrophobia.	x	X	X	x	X	X	X	X
Fear of loud noises.	x	X	X	X	X	X	X	X

Limited ability to perceive or process auditory stimuli.	Limited ability to acquire or process visual stimuli.	Uses guide dog.	Uses white came for guestion (visually impaired).		X = No Problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.
ory	acquire stimuli.		guidance		or this nown. this
×	×	×	×		Portions of walkway are hidden from view (crime potential).
×	co.	တ	W		Overcrossing/under- crossing is not close to public transportation stop.
×	S	ဖ	S		No sidewalk at end condition.
×	s	တ	¢n.		Parked cars restrict approach.
×	S	Ø	co	· -	Parked cars obstruct view of approach.
<b>×</b>	×	×	×		No accessible parking.
×	co	×	တ		No detectable pedes- trian crosswalk to approach.
×	•	•	•		Crossing approach and entrance not easy to find (hidden from view).

	•					-		Cl
<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).	Gurb 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.	X	х	X	x	X	X	x	X
Understanding deficit.	X	X	X	X	•	X	X	X
Limited attention span.	X	X	X	X	•	X	X	S
Memory deficit.	x	x	x	Х	•	X	\$	5
Decreased ability to sequence, judge time, direction, distance, size.	X	Х	x	X	•	x	S	S
Impaired night vision.	Х	X	X	x	•	X	S	S
Impaired cutaneous sensation detection.	S	S	S	S	X	X	X	x
Chronic stooped posture.	X	X	X	X	s	х	S	•
Difficulty in main- taining equilibrium.	S	S	S	S	s	s	S	•
Moves at slow speed.	X	X	X	X	X	X	s	•
Swaying, shuffling, uneven, eratic or stag- gering gait.	s	S	S	s	s	х <sup>.</sup>	x	•
Frequent need to rest during exercise.	х	S	X	X	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>	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	***		X	S	•
Limited ability to stand for long periods.	X	X	X	X	S	¥	S	•
Impaired bladder control.	X	X	X	X	X	X	X	•
Extreme of size (dwarfism, giantism, obesity, etc.).	S	S	5	S	X	X	X	•
Cardiac Pacemaker affected by electrical interference.	X	X	x	x	x	х	x	•
Uses powered or manual wheelchair.	S	S	s	S	S	X	S	•
Uses walker, crutches, orthopedic cane.	S	s	S	S	S	S	S	
Prosthesis (including braces) for lower extremities.	S	S	S	yeld bog bog	S	S	S	Management of the state of the
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	X	X	X	X	X	X	The state of the s
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	Х	X	X.	S	X	X	X
Limited reach.	Х	x	х	x	S	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>	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	X	X	S	Х	X	X
Inability to turn head.	X	X	X	X	S	X	X	X
Decreased ability to stoop.	Х	X	X	X	X	X	x	X
Difficulty standing from sitting position, or in sitting down.	X	х	Х	x	x	x	X	X
Limited vertical motion with legs and feet.	X		S	X	S	X	s	•
Limited horizontal motion with legs and feet.	S	S	S	S	S	x	s	•
Decreased ability to tolerate heat and cold.	X	X	X	X	X	X	.х	x
Speech disorder.	x	X	x	X	x	X	x	x
Loss of normal speed in motor coordination/slowed reflexes.	X	x	X	Х	S	X	X	X
Fear of crime.	X	x	x	X	x	X	x	х
Fear of heights (vertigo).	•	•	X	X	X	X	x	х
Agoraphobia.	•	X	X	Х	x	X	X	X.
Claustrophobia.	X	X	X	x	x	х	x	х
Fear of loud noises.	X	X	Х	X	Х	X.	Х	х

-	
,	z.

<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).	x	X	х	X	•	X	s	X
Uses guide dog.	X	X	X	X	•	X	S	X
Limited ability to acquire or process visual stimuli.	X	X	X	X	•	X	S	Х
Limited ability to per- ceive or process auditory stimuli.	X	X	X	X	X	X	X	X

		·····	·		Tyw			*/ *
<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 (handralis, guardralis, 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.	x	X	X	X	x	8	х	X
Understanding deficit.	X	x	X	x	X	X	X	х
Limited attention span.	х	X	X	x	x	x	X	X
Memory deficit.	X	x	X	X	S	X	X	x
Decreased ability to sequence, judge time, direction, distance, size.	S	x	x	X	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	**************************************
Chronic stooped posture.	x	X	X	x	\$	X	X	X
Difficulty in main- taining equilibrium.	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.	Ś	S	S	S	X	S	S	S
Frequent need to rest during exercise.	<u> x</u>	X	X	s	Х	х	x	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).	X	X	X	s	\$	Х	X	Х
Limited ability to stand for long periods.	X	Х	X	s	X	Х	X	X
Impaired bladder control.	X	X	X	X	Х.	X	X	x
Extreme of size (dwarfism, giantism, obesity, etc.).	X	X	X	s	X	X	3	Х
Cardiac Pacemaker affected by electrical interference.	Х	X	X	X	x	X	X	X
Uses powered or manual wheelchair.	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	G.	S
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	X	X	X	X	X	x	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	х	x	Х	X	х	X	X.
Limited reach.	x	X	X	X	X	X	X	X

<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.	Misrepair (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.	1				X	X	X	Х
Inability to turn head.	X	X	X	X	Х.	\$	X	x
Decreased ability to stoop.	X	X	X	Х	х	X	X	X
Difficulty standing from sitting position, or in sitting down.	X	X	X	X	X	X	X	X
Limited vertical motion with legs and feet.	s	s	s	S	S	S	s	S
Limited horizontal motion with legs and feet.	Ş	S	S	S	X	S	S	\$
Decreased ability to tolerate heat and cold.	X	X	X	X	*	X	X	X
Speech disorder.	х	X	X	X	X	X	X	x
Loss of normal speed in motor coordination/slowed reflexes.	\$	S	S	S	X	S	S	S
Fear of crime.	X	X	X	X	X	•	X	X
Fear of heights (vertigo).	x	X	S	X	X	S	X	Х
Agoraphobia.	х	X	X	X	x	X	X	Х
Claustrophobia.	x	x	х	x	х	X	X	X
Fear of loud noises.	х	χ	х	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>	Debris from erosion on walkway,	Disrepair (Frost heaves, potholes, etc.).	Disrepair from vandalism or accident (handrails, guardralis, 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).	S	S	S	•	S	x	s	X
Uses guide dog.	S	S	S	S	\$	X	S	X
Limited ability to acquire or process visual stimuli.	S	S	S	•	S	S	S	X
Limited ability to per- ceive or process auditory stimuli.	X	X	Х	Х	X	X	X	X

<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.	X	X	X	X	X	X	X	X
Understanding deficit.	X	X	X	S	X	X	X	X
Limited attention span.	s	S	x	S	S	X	X	X
Memory deficit.	Х	X	<b>X</b> ·	X	X	X	X	X
Decreased ability to sequence, judge time, direction, distance, size.	<b>S</b>	X	X	\$	X	X	•	S
Impaired night vision.	S	S	S	S	S	o	•	S
Impaired cutaneous sensation detection.	X	x	х	Х	X	0	•	S.
Chronic stooped posture.	X	X	x	Ŝ	X	X	X	X
Difficulty in main- taining equilibrium.	S)	X	X		S	•	•	S
Moves at slow speed.	X	X	Х	**** ***	X	x	X	x
Swaying, shuffling, uneven, eratic or stag- gering galt.	S	X	X	S	S	•	•	S
Frequent need to rest during exercise.	X	X	X	S	X	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>	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 foints.	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	X	x	х
Limited ability to stand for long periods.	х	Х	Х	x	х	x	x	x
Impaired bladder control.	х	X	X	Х	Х	X	Х	x
Extreme of size (dwarfism, giantism, obesity, etc.).	Х	X	Х	\$	X	X	X	х
Cardiac Pacemaker affected by electrical interference.	Х	х	X	x	x	X	X	X.
Uses powered or manual wheelchair.	S	X	S	S	\$	•	•	S
Uses walker, crutches, orthopedic cane.		X	S	s	S	•	•	s
Prosthesis (including braces) for lower extremitles.	S	X	S	S	S	•	•	\$ ************************************
Decreased ability to tole- rate smoke, dust, chemicals, pellens, cold winds.	X	Х	X	X	X	X	X	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	Х	Х	S	X	X	X	***
Limited reach.	X	Х	X	S	Х	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>	Mahhole 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.	Х	X	Х	S	X	X	X	Х
Inability to turn head.	s	Х	X	S	X	X	X	х
Decreased ability to stoop.	x	x	х	Х	X	X	X	х
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	X	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	Х	. X	х
Speech disorder.	Х	X	X	X	X	X	X	х
Loss of normal speed in motor coordination/slowed reflexes.	s	X	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.	X	X	X	x	x	x	X	х
Claustrophobia.	х	x	X	x	х	x	X	х
Fear of loud noises.	х	X	Х	Х	Х	Х	Х	х

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<pre>X = No problem for     this group.  S = Solution for this     problem is known.  C = 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.	X	X	X	X	*	X	•	X
Understanding deficit.	х	x	X	X	Х	X	X	X
Limited attention span.	х	Х	x	x	X	x	X	х
Memory deficit.	х	Х	x	X	x	x	x	х
Decreased ability to sequence, judge time, direction, distance, size.	***************************************	X	Х	X	•	X	x	X
Impaired night vision.	X	X	X	X	x	X	X	x
Impaired cutaneous sensation detection.	X	•	X	•	X	X	X	x
Chronic stooped posture.	X	x	X	X	•	x	X	Х
Difficulty in main- taining equilibrium.	•	•	x	•	•	x	s	\$
Moves at slow speed.	х	x	x	x	0	X	Х	x
Swaying, shuffling, uneven, eratic or stag- gering gait.	•	•	X	•	•	Х	S	X
Frequent need to rest during exercise,	•	•	X	•	•	X	3	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	Х	X	X	Х	X	X

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Ramp foo long (exceeds 30 feat).	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.	Hellcal ramp.	Ramp layout inconvenient.
•	•	х	•	•	X	S	S
٠	x	X	X	•	X	s	s
X	X	X	X		X	X	X
X	•	S	•	•	X	Х	X
X	X	X	X	•	X	x	x
•	•	5	•	•	S	•	S
•	•	X	•	•	S	•	S
•	•	Х	•	•	x	•	s
X	X	X	x	X	X	X	X
x	х	Х	x	x	х	x	x
X	X	X	X	X	X	X	X
	X X X X X Samp too long 30 feet).	X X X X X 30 feet).  X X X X X Samp too steep greater than I	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 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	Ramp too long  X

X = No problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.	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	X	Х	X	X	X	Х	Х
Inability to turn head.	X	X	X	X	X,	X	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	x	X	X	X	X
Limited vertical motion with legs and feet.	٠	•	x	•	•	S	•	S
Limited horizontal motion with legs and feet.	X	•	X	٠	•	S	•	S
Decreased ability to tolerate heat and cold.	X	X	X	X	X	x	X	X
Speech disorder.	Х	X	x	Х	X	X	X	X
Loss of normal speed in motor coordination/slowed reflexes.	X	X	X	X	X	X	X	X
Fear of crime.	x	X	X	X	X	X	X	X
Fear of heights (vertigo).	х	х	X	X	X	x	•	X
Agoraphobia.	X	X	X	X	X	Х	X	x
Claustrophobia.	Х	X	•	X	X	X	X	X
Fear of loud noises.	x	Χ	X	Х	X	X	X	X

<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	х	х	•
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	Х	Х	x	X	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>	Handrail material metal or aluminum (hot in hot weather, cold in cold).	Handrails not continuous.	<pre>Handrails don't extend far enough (l' at top and bottom of stairs and ramps).</pre>	No handrails on ramps.	Barricades not detectable (blind cane).	Cuardrails not continuous.	Guardralls too low (Less than 42").	No pedestrian guardrails.
Difficulty with environ-								
mental orientation.	X	X	X	X	\$	x	X	X
Understanding deficit.	X	X	X	X	* S	X	X	x
Limited attention span.	X	X	X	X	X	X	X	x
Memory deficit.	X	X	X	X	X	X	X	X.
Decreased ability to sequence, judge time, direction, distance, size.	X	X	X	X	S	s	X	Was more than the second secon
Impaired night vision.	X	X	X	X	S	S	S	S
Impaired cutaneous sensation detection.	(S)	X	X	X	S	X	x	X
Chronic stooped posture.	X	X	X	X	X	X	X	X
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	X	S	•	X	X	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>	Handrall material metal or aluminum (hot in hot weather, cold in cold.	Handrails not continuous.	Nandrails don't extend far enough (l'at top ard 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).	X	X	\$	• .	X	X	X ·	X
Limited ability to stand for long periods.	S	S	S	•	x	X	х	X
Impaired bladder control.	X	X	X	X	X	X	X	X
Extreme of size (dwarfism, giantism, obesity, etc.).	S.	Х	X	•	X	X	X	X
Cardiac Pacemaker affected by electrical interference.	X	X	X	X	X	X	X	Х
Uses powered or manual wheelchair.	S	S	X	X	X	S	S	S
Uses walker, crutches, orthopedic cane.	######################################	5	S	•	X	X	x	X
Prosthesis (including braces) for lower extremities.	S	s	s	•	x	X	х	x
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	**************************************	X	X	X	X	X	X	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	S	S	S	•	x	x	X	x
Limited reach.	**************************************	S	S	Х	Х	X	X	X

<pre>KEY X = No problem for this group. S = Solution for this problem is known.</pre>	Handrall material metal or aluminum (hot in hot weather, cold in cold).	Handrails not continuous.	Handralls 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.	X	X	X	X	X,	X	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	X	х	X	x	X
Limited vertical motion with legs and feet.	S	S	X	٠	x	X	X	x
Limited horizontal motion with legs and feet.	X	X	s	•	X	X	x	Х
Decreased ability to tolerate heat and cold.	X	Х	X	X	χ,	X	x	X
Speech disorder.	х	x	X	Х	x	X	X	Х
Loss of normal speed in motor coordination/slowed reflexes.	5	S	S	•	X	S	9	S
Fear of crime.	X	X	X	X	X	X	X	X
Fear of heights (vertigo).	X	X	X	•	х	X	X	•
Agoraphobia.	X	X	X	X	X	x	X	x
Claustrophobia.	X	X	X	X	X	X	X	X
Fear of loud noises.	X	X	X	Х	X	X	X	X

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<ul> <li>X = No problem for this group.</li> <li>S = Solution for this problem is known.</li> <li>• = Solution for this problem is not known.</li> </ul>	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 came for guidance (visually impaired).	s	S	s	•	s	s	x	s
Uses guide dog.	s	S	x	X	x	x	x	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	X	X	Х	X	X	X	Х

<pre>X = No problem for     this group.  S = Solution for this     problem is known.  C = 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 handralls.	Nandrall inadequate for confortable grasp.
Difficulty with environ- mental orientation.	X	•	X	s	X	X	x	х
Understanding deficit.	X	X	S	$\mathbf{S}^{i}$	X	X	X	Х
Limited attention span.	Х	x	X	s	X	x	x	X
Memory deficit.	X	X	X	X	X	X	X	X
Decreased ability to sequence, judge time, direction, distance, size.	**************************************	X	X	S	х	Х	x	<b>*</b> .
Impaired night vision.	s	•	S	S	X	X	X	X
Impaired cutaneous sensation detection.	X	X	X	X	Х	X	X	X
Chronic stooped posture.	X	X	X	X	X	Х	X	X
Difficulty in main- taining equilibrium.	s	S	X	S	•	•	•	\$
Moves at slow speed.	Х	X	X	X	X	X	•	x
Swaying, shuffling, uneven, eratic or stag- gering gait.	X	X	X	X	X	X	•	X
Frequent need to rest during exercise.	X	X	X	X	X	Х	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>	Abrupt transition to connecting walkways.	Ramp exits directly ists street or parking area (less than 6' clearnnee 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).	X	X	X	X	X	X	Х	X
Limited ability to stand for long periods.	<b></b>	х	Х	X	•	•	•	<b>\$</b>
Impaired bladder control.	X	X	X	X	Х	X	х	X
Extreme of size (dwarfism, giantism, obesity, etc.).	X	X	X	X	•	•	•	8
Cardiac Pacemaker affected by electrical interference.	X	X	X	X	X	Х	Х	X
Uses powered or manual wheelchair.	S	S	X	ŝ	0	0	0	S
Uses walker, crutches, orthopedic cane.	S	X	X	s	•	•	•	s
Prosthesis (including braces) for lower extremities.		X	x	X	•	٠	•	S
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	X	X	X	X	Х	X	x
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	X	x	5	•	•	•	5
Limited reach.	X	X	X	S	•	•	X	X.

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X = No problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.	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.
Limited manual dexterity.	Х	X	X	X	•		•	S
Inability to turn head.	X	X	X	X	X	X	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	X	X	X	X	X
Limited vertical motion with legs and feet.	s	S	X	s	0	o	0	S
Limited horizontal motion with legs and feet.	S	s	X	S	X	Х	X	x
Decreased ability to tolerate heat and cold.	X	X	x	x	x	x	x	X
Speech disorder.	X	X	X	X	X	X	X	X
Loss of normal speed in motor coordination/slowed reflexes.	5	S	X	S	•	•	•	S
Fear of crime.	Х	X	x	X	X	X	x	x
Fear of heights (vertigo).	X	x	Х	X	X	X	X	X
Agoraphobia.	X	X	X	X	X	X	x	Х
Claustrophobia.	X	x	X	X	X	X	X	х
Fear of loud noises.	X	X	Х	X	X	X	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>	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 handralls,	Mandrall inadequate for comfortable grasp.
Uses white cane for guidance (visually impaired).	•	•	S	\$	Х	Х	x	X
Uses guide dog.	•	•	S	s	x	X	X	X
Limited ability to acquire or process Visual stimuli.	•	•	s	S	x	x	X	x
Limited ability to per- ceive or process auditory stimuli.	х	X	х	х	Х	Х	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>	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	X	X	S	x	х
Memory deficit.	S	X	x	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	x
Impaired cutaneous sensation detection.	х	•	X	X	X	s	x	х
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	х
Frequent need to rest during exercise.	х	х	x	X	x	Х	х	Х

Reduced tolerance to brisk exercise (need to move slowly).  Limited ability to stand for long periods.  Impaired bladder control.  Extreme of size (dwarfism, giantism, obesity, etc.).  Cardiac Pacemaker affected	***************************************
exercise (need to move slowly).  Limited ability to stand for long periods.  Impaired bladder control.  Extreme of size (dwarfism, giantism, obesity, etc.).  Cardiac Pacemaker affected	Elevators.
for long periods.	Х
Extreme of size (dwarfism, giantism, obesity, etc.). X X X X X X S  Cardiac Pacemaker affected	X
Extreme of size (dwarfism, giantism, obesity, etc.). X X X X X X X X X X X X X X X X X X	х
77 77 84 64	s
by electrical interference. X X X X X X X	x
Uses powered or manual s • S S S S S	S
Uses walker, crutches, orthopedic cane. S X • S S S S	X
Prosthesis (including braces) for lower S X X X X S S extremities.	х
Decreased ability to tole- rate smoke, dust, chemicals pollens, cold winds.	x
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	S
Limited reach. S X X X X S	S

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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.	Guardrall 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	X	X	S	S
Inability to turn head.	s	X	•	S	S	S	X	x
Decreased ability to stoop.	X	х	x	X	х	X	X	x
Difficulty standing from sitting position, or in sitting down.	X	X	х	Х	X	X	X	X
Limited vertical motion with legs and feet.	x	X	X	X	x	Š	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	X	X	X	X	x	X
Speech disorder.	X	X	X	X	X	x	X	х
Loss of normal speed in motor coordination/slowed reflexes.	X	•	X	X	X	S	\$	S
Fear of crime.	x	X	x	X	X	X	X	•
Fear of heights (vertigo).	s	•	.Х	X	x	S	S	•
Agoraphobia.	x	X	X	•		S	X	х.
Claustrophobia.	X	X	x	Х	x	X	X	S
Fear of loud noises.	x	X	X	•	•	•	X	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>	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 sidwalks (cars, edges, etc.).	Escalators.	Elevators,
Uses white came for guidance (visually impaired).	S	•	•	s	•	s	S	х
Uses guide dog.	S	•	•	S	•	S	S	X
Limited ability to acquire or process visual stimuli.	S	*	•	S	•	S	S	X
Limited ability to per- ceive or process auditory stimuli.	X	X	•	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 prvislons.	Significant change of light level in tunnel at entrance.	Interior lighting not adjusted to outside light conditions.
Difficulty with environ-								
mental orientation.	X	X	S	Х	S	X	S	S
Understanding deficit.	X	X	X	X	S	X	S	x
Limited attention span.	X	X	X	X	S	X	X	x
Memory deficit.	X	x	x	X	S	•	s	X
Decreased ability to sequence, judge time, direction, distance, size.	X	\$	X	x	s	•	S	S
Impaired night vision.	X	x	X	X	S	X	5	S
Impaired cutaneous sensation detection.	3	X	X	Х	X	X	x	Х
Chronic stooped posture.	X	s	X	S	S	X	\$	X
Difficulty in main- taining equilibrium.	x	S	x	s	S	•	8	S
Moves at slow speed.	X	S	X	S	S	•	X	X
Swaying, shuffling, uneven, eratic or stag- gering gait.	X	S	X	s	S	X	S	S
Frequent need to rest during exercise.	s	S	X	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 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	X.	Х	X
Limited ability to stand for long periods.	S	s	X	S	S	•	х	x
Impaired bladder control.	S	S	X	X	X	•	x	X
Extreme of size (dwarfism, giantism, obesity, etc.).	X	S	X	S	X	Х	X	X Constitution
Cardiac Pacemaker affected by electrical interference.	S	S	X	S	х	•	x	x
Uses powered or manual wheelchair.		S	X	X	\$	•	X	X
Uses walker, crutches, orthopedic cane.	S	S	X	\$	S	•	X	X
Prosthesis (including braces) for lower extremities.	s	S	x	S	s	•	x	X
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.		S	X	X	X	•	Х	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	X	х	X	х	x	Х	x
Limited reach.	X	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>	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.	X	X	X	Х	Х	Х	X	х
Inability to turn head.	X	X	X	x	X .	X	X	x
Decreased ability to stoop.	X	X	X	S	x	X	X	х
Difficulty standing from sitting position, or in sitting down.	S	S	x	\$	X	X	X	x
Limited vertical motion with legs and feet.	X	S	X	S	X	X	x	x
Limited horizontal motion with legs and feet.	X		X	X	S	X	X	X
Decreased ability to tolerate heat and cold.	S	S	Х	x	x	•	X	х
Speech disorder.	X	X	X	X	X	X	X	X
Loss of normal speed in motor coordination/slowed reflexes.	X	X	X	S	S	•	S	S
Fear of crime.	X	X	X	X	х	X	•	•
Fear of heights (vertigo).	X	X	X	X	X	X	X	X
Agoraphobía.	X	X	X	X	X	X	X	X
Claustrophobia.	X	X	X	x	X	X	•	•
Fear of loud noises-	X	X	X	X	Х	X	Х	X

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Limited ability to perceive or process auditory stimuli.	Limited ability to acquire or process visual stimuli.	Uses guide dog.	Uses white came for guidance (visually impaired).	KEY  X = No problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.
×	×	×	×	Resting places not under cover (wind, rain, sun).
×	×	×	×	Not enough places to stop and rest.
Þ¢	<b>54</b>	×	×	No provision for scenic overlook.
×	Ø	¢χ	ξn	Benches too high or low, too deep or shallow, or with no armrest.
×	ţ <b>v</b>	Ç3	w	No alternative route for flood condition structures.
×	Þ⊄	×	•	No pedestrian emergency provisions.
<b>×</b>	Ø	×	*	Significant change of light level in tunnel at entrance.
×	W	×	>4	Interior lighting not adjusted to outside light conditions.

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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>	Glare at end of tunnel.	Tunnel too dark.	Glare and flashing lights from vehicles.	Poor filumination.	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	X	•	
Understanding deficit.	X	S	•	X	•	S	X	X	•
Limited attention span.	X	S	•	S	٠	S	X	X	•
Memory deficit.	X	S	•	Š	•	S	X	X	•
Decreased ability to sequence, judge time, direction, distance, size.	S	S	•	S	<b>S</b>	Ś	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	X	X	X	•	S
Moves at slow speed.	X	X	X	X	S	S	X	•	S
Swaying, shuffling, uneven, eratic or stag- gering gait.	S	\$	•	S	S	8	x	•	S
Frequent need to rest during exercise.	X	S	X	S	S	S	X	•	S

<b></b>	<del>,</del>			<del></del>		· · · · · · · · · · · · · · · · · · ·	······································		<u>K2</u>
<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 11lumination.	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).	X	S	X	S	\$	S	X	•	S
Limited ability to stand for long periods.	5	s	X	S	S	S	x	•	s į
Impaired bladder control.	X	Х	Х	X	S	S	X	X	X
Extreme of size (dwarfism, giantism, obesity, etc.).	X	s	X	S	X	5	X	•	x
Cardiac Pacemaker affected by electrical interference.	X	s	•	S	S	S	X	•	x
Uses powered or manual wheelchair.	X	s	•	S	5	S	X	•	S
Uses walker, crutches, orthopedic cane.	tonorous of April of the April	S		5	S	S	X	•	S
Prosthesis (including braces) for lower extremities.	X	S	•	S	S	S	X	•	\$
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	<b>X</b>	X	x	X	S	S	X	X	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	X	S	x	s	x	x	x	X	x
Limited reach.	x	S	X	S	Х	Х	X	X	Х

	<b></b>		····				·		K.3
<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	Х	Х	Х	X	х
Inability to turn head.	X	S	•	S	X	S	X	•	S
Decreased ability to stoop.	X	5	•	s	s	X	x	X	x
Difficulty standing from sitting position, or in sitting down.	X	X	X	X	X	X	X	X	X
Limited vertical motion with legs and feet.	X	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.	X	X	X	X	X	X	Х	x	•
Loss of normal speed in motor coordination/slowed reflexes.	S	S	•	S	s	S	X	•	5
Fear of crime.	•	•	•	•	X	x	X	x	S
Fear of heights (vertigo).	X	x	X	X	X	X	X	X	•
Agoraphobía.	Х	X	X	X	Х	X	X	X	•
Claustrophobia.	X	•	X	•	X	x	X	X	•
Fear of loud noises.	Х	X	X	X	X	X	X	X	X

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Limited ability to perceive or process auditory stimuli.	Dimited ability to acquire or process visual stimuli.	Uses guide dog.	Uses white cane for guidance (visually impaired).	KEY  X = No problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.
>4	S	×	×	Glare at end of tunnel.
w	t/o	×	×	Tunnel too dark.
*	•	•	*	Glare and flashing lights from vehicles.
\$	co	(%	S	Poor illumination.
\$ so	•	•	•	No signage indicating location of rest areas.
•	•	•	•	Street signs too high, too low or far.
<b>₽</b>	•	•	•	No special signage for the visually impaired.
×	**		•	Traffic lights with short green cycle.
(n	•	•	•	Complicated instructions on signs.

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<pre>KEY  X = No problem for this group.  S = Solution for this problem is 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 channellzed,	Traffic noise,
Difficulty with environ- mental orientation.	•	•	•	•	•	•	•
Understanding deficit.	•	•	•	•	•		•
Limited attention span.	•	•	•	X	X	•	•
Memory deficit.		•	•	•	•	•	X
Decreased ability to sequence, judge time, direction, distance, size.		•	•	S	•	S	X
Impaired night vision.		•	•	X	•	•	X
Impaired cutaneous sensation detection.	X	X	X	X	X	X	X
Chronic stooped posture.	•	S	S	s	S	S	X
Difficulty in main- taining equilibrium.	S	S	S	X	x	X	X
Moves at slow speed.	S	S	S	x	S	S	X
Swaying, shuffling, uneven, eratic or stag- gering gait.		S	S	X	S	S	x
Frequent need to rest during exercise.	s	s	s	x	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>	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	<b>X</b> .	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	X
Extreme of size (dwarfism, giantism, obesity, etc.).	S	X	X	X	X	X	X
Cardiac Pacemaker affected by electrical interference.	S	X	ŝ	X	X	X	A straight and a stra
Uses powered or manual wheelchair.	<b>S</b>	s	S	S	S	X	X
Uses walker, crutches, orthopedic cane.	S	S	\$	X	S	X	X
Prosthesis (including braces) for lower extremities.	S	S	S	X	S	X	Х
Decreased ability to tole- rate smoke, dust, chemicals, pollens, cold winds.	X	X	s	X	x	Х	X
Limited ability to grasp, release or manipulate with upper extremities (arms, wrist, hands).	5	Х	S	x	х	x	X
Limited reach.	5	X	S	X	Х	X	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>	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	X	X	Х	Х
Inability to turn head.	s	S	S	x	<b>X</b> .	X	•
Decreased ability to stoop.	5	X	s	x	X	X	x
Difficulty standing from sitting position, or in sitting down.	s	X	S	x	X	X	X
Limited vertical motion with legs and feet.	S	s	S	X	S	X	x
Limited horizontal motion with legs and feet.	S	S	s	X	S	x	X
Decreased ability to tolerate heat and cold.	X	X	x	X	X	x	X
Speech disorder.	X	S	S	x	X	X	X
Loss of normal speed in motor coordination/slowed reflexes.	S	S	S	X	S	X	X
Fear of crime.	S	•	•	X	\$	Х	х
Fear of heights (vertigo).	S	•	S	X	X	X	X
Agoraphobia.	ន	•	S	X	X	X	x
Claustrophobia.	S	•	S	X	x	X	х
Fear of loud noises.	s	S	•	\$	X	х	•

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X = No problem for this group.  S = Solution for this problem is known.  • = Solution for this problem is not known.	No warning of potential harards.	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 came for guidance (visually impaired).			•	•	•	•	•
Uses guide dog.	•	•	•	•	•	•	•
Limited ability to acquire or process visual stimuli.	•	•	•		•	•	•
Limited ability to per- ceive or process auditory stimuli.	8	S	ş	X	.5	x	•

<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.		•	5	s
Limited attention span.		•	8	S
Memory deficit.	х	X	S	S
Decreased ability to sequence, judge time, direction, distance, size.		•	S	C)
Impaired night vision.	•	•	s	\$
Impaired cutaneous sensation detection.	X	X	2	5
Chronic stooped posture.	•	•	S	S
Difficulty in main- taining equilibrium.		•	S	S
Moves at slow speed.	•	•	s	5
Swaying, shuffling, uneven, eratic or stag- gering gait.		•	S	23
Frequent need to rest during exercise.	•	•	S	S

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<ul> <li>X = No problem for this group.</li> <li>S = Solution for this problem is known.</li> <li>• = Solution for this problem is not known.</li> </ul>	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.	X	X	X	\$
Extreme of size (dwarfism, giantism, obesity, etc.).		•	S	S
Cardiac Pacemaker affected by electrical interference.	X	х	x	S
Uses powered or manual wheelchair.		٠	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	S	S

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<ul> <li>KEY</li> <li>X = No problem for this group.</li> <li>S = Solution for this problem is known.</li> <li>• = Solution for this problem is not known.</li> </ul>	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.	X	X	S	S
Inability to turn head.	•	•	S	s
Decreased ability to stoop.	X	Х	Х	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.	x	X	X	X
Loss of normal speed in motor coordination/slowed reflexes.	**	•	S	S
Fear of crime.	X	X	X	X
Fear of heights (vertigo).	X	X	X	X
Agoraphobía.	X	X	Х	X
Claustrophobia.	X	X	X	Х
Fear of loud noises.	X	X	X	X
**************************************	Ann. nr. n	•••		

	<u> </u>			
<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	\$
Limited ability to per- ceive or process auditory stimuli.	innertischen von Marken er in sensor	X	X	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.	\$ .09/1.f.	\$ 4			
Curb cuts	2 68.	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	- Automotive Control of the Control	\$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

		Unit		
Item	Quantity	<u>Price</u>	<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	
		a	<b>\$159,53</b> 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

2

## Alternative 1-Construct new ramp with rest areas

COST ESTIMATE		Unit	
<u>Item</u>	Quantity	Price	<u>Total</u>
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.	15.50/1.f.	5,580
Handrail along existing 8.33% grade ramp	170 l.f.	15.50/l.f.	2,635
,	Contingencies	<b>1</b>	\$13,695 3,405
	TOTAL		\$17,100
s.f. = square feet	l.f. = lineal fee	Ť.	· · · · · · · · · · · · · · · · · · ·

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

Will Will Washington (1997)			<u> </u>
<u>Item</u>	Quantity	Unit <u>Price</u>	Total
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 1.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			
s.f. = square feet l.f. = lineal fee	t c.y. = cubic	yaros	

## Alternative 3 - Install an elevator

Item	Quantity	Unit Price	Total
#\$ 111	*ZAGITULY	11100	- LOTAL
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 с.у.	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)	l ea.	15,000 ea.	15,000
Equipment enclosure	lump sum		2,000
Power hook-up	lump sum		500
		<u> </u>	\$40,658
	Contingencies	10,342	
	Total 1979 Cost , \$51		
l.f. = lineal feet	o.y. = cubic yards	s.f square fee	t

## 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.

Item	Quantity	Unit Price	Total	
Mobilization	Lump sum		\$ 4,500	
Cleaning	1,500 s.f.	.50/s.f.	750	
Excavation	50 e.y.	12.00/c.y.	600	
Backfill	32 e.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.	15.00/1.f.	7,500	
Sidewalk	400 s.f.	1.20/s.f.	480	
Landscaping/drainage	1,500 s.f.	.50/s.f.	750	
***************************************	79	A COMMINGUE DE COMMUNICATION DE COMMUNIC	\$ 91,764	
	Contingencies		19,736	
	Total 1979 Cos	st	\$111,500	
l.f. = lineal feet c.y. = cubic yards s.f. = square feet				

## Alternative 2 - Install elevators to supplement stairs

<u>Item</u>	Quantity	Unit <u>Price</u>	Total			
Mobilization	Lump sum		\$ 5,000			
Drillling	40 l.f.	\$ 15.00/1.f.	600			
Excavation	54 c.y.	8.00/e.y.	432			
Backfill	32 c.y.	12.00/e.y.	384			
Concrete	6 е.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	<u> </u>	81,316 19,684			
	Total 1979 C	\$101,000				
I.f. = lineal feet s.f. = square	I.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

Item	Quantity	Unit <u>Price</u>	<u>Total</u>	
Curb removal	60 l. f.	\$ 3/1.f.	\$ 180	
Sidewalk (remove/replace)	150 s.f.	2.50/1.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.	116/1.f.	16,000	
•	Contingencies		\$20,860 5,240	
	TOTAL 1979 cost \$26,1			
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

5

### 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 <u>Price</u>	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			<b>\$</b> 65,000
s.f. = square feet l.f. = lineal feet c.y. = cubic yards			

## Alternative 2 - Install elevator to supplement stairs

Item	Quantity	Unit Price	Total
		11100	-
Mobilization	Lump sum		\$ 2,500
Drilling	20 l.f.	\$ 15.00/1.f.	300
Excavation	27 e.y.	8.00/c.y.	216
Backfill	16 c.y.	12.00/e.y.	192
Concrete	3 c.y.	400.00/e.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
		I	\$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

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

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

Item	Quantity	Unit Price	Total	
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	
- the table	400000000000000000000000000000000000000	1	\$19,205	
	Contingencies		4,795	
	TOTAL 1979 cost			
s.f. = square feet l.f. = lin	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
			\$20,200
Deduct most of embankment			-3,800
which was a substitute of the		*	\$16,400
	Contingenci	es	4,100
	TOTAL 197	1 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
l.f. = lineal feet s.f.	= square feet	Address of the second of the s	

## Alternative 2 - Construct new ramp M Pattern

Item Same cost as Problem 7 (Alt. 1) Additional Length	Quantity 20 ft.	Unit Price  * \$13.00/ft.	Total \$10,850
	Contingencies TOTAL 1979 o	ost	\$11,110 2,790 \$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

Item	Quentity	Unit <u>Price</u>	Total
Remove Existing Railing	80 l.f.	\$ 5/1.f.	\$ 400
New Railing	140 l.f.	15.50/1.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
	<u></u>	,	<b>\$6,200</b>
	Contingencies	i	1,100
	Total 1979 ce	ost	\$7,300
l.f. = lineal feet c.y. =	cubic feet		

## Alternative 2 - Demolish existing ramp and construct new ramp

Item	Quentity	Unit Price	Total	
Demolish Existing Ramp		Lump sum	\$ 500	
Construct Sidewall	90 1.f.	\$115/1.f.	5,800	
Paving	910 s.f.	2/s.f.	1,200	
Railing	140 l.f.	15.50/l.f.	2,200	
Grading Allowance	makin infinite distriction of the control of the co	Lump sum	800	
A Supplied to the supplied to			\$10,500	
	Contingencie	98	2,600	
	TOTAL 1979	eost	\$13,100	
l.f. = lineal feet s. f. square feet				

## Alternative 1 - Construct off-ramp rest areas

#### COST ESTIMATE

<u>Item</u>	Quantity	Unit Price	<u>Total</u>
Rest Areas	5 ea	\$500/ea.	\$2,500
Railing	264/1.f.	15.50/1.f.	4,100
NE (A AAANIHIIIIII UUUUUUUUUUUU KAAAA AAAAA AAAAAAAAAA		<u> Е</u>	\$6,600
	Contingencies		1,600
	TOTAL 1979 c	ost	\$8,200
l.f. = lineal feet			

## Alternative 2 - Overlay existing ramp to create rest areas

Item	Quantity	Unit Price	Total
Rest Areas	5 ea	<b>\$</b> 150/ea	\$ 750
Railing	318/1.f.	. 15.50/l.f.	4,929
		***************************************	\$5,679
	Contingencies		1,421
	TOTAL 1979 e	ost	\$7,100
i.f. = lineal feet			

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

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

# 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	Total
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 e.y.	12.00/c.y.	2,040
Fin	10 c.y.	25.00/c.y.	250
Reinforcing	74,000 lbs.	.40/15.	29,600
Concrete	300 с.у.	300.00/c.y.	90,000
Finishes	7,000 s.f.	.30/s.f.	2,100
Railings	270 s.f.	15.00/1.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	Contingencies .  TOTAL 1979 Cost	
	TOTAL 1979 C		
c.y. = cubic yards s	.f. = square feet 1.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 ESIIMATE	· · · · · · · · · · · · · · · · · · ·		
<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 C	Cost	\$86,000
c.y. = cubic yards	s.f. = square feet 1	.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 (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

COLESIDATE		<del>2'&gt;''''</del>	
<u>Item</u>	Quantity	Unit <u>Price</u>	Total
Mobilization	Lump sum	,	\$ 9,000
Demolition	200 c.y.	\$ 70.00/c.y.	14,000
Excavation	260 c.y.	10.00/e.y.	2,600
Backfill	170 c.y.	12.00/c.y.	2,040
Pill	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
Reilings	270 1.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
		<b></b>	\$155,120
	Contingencies		38,880
	Total 1979 cost		\$194,000
l.f. = lineal feet s.f. =	square feet c.y.	- eubic yards	and the state of t

## Alternative 2 - Install an elevator

<u>Item</u>	Quantity	Unit Price	<u>Total</u>
Mobilization	Lump sum	Andrews	\$ 2,500
Drilling	20 1.f.	\$ 15.00/1.f.	300
Excavation	27 c.y.	8.00/c.y	. 216
Backfill	16 c.y.	12.00/e.y	. 192
Concrete	3 с.у.	400.00/e.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
	a marine		\$40,658
	Contingencie	<b>!S</b>	10,342
	Total 1979 (	eost	\$51,000

# 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
<b>Demolition</b>	Lump sum		\$ 1,000
Grading allowance	Lump sum		1,000
Concrete overlay	11 e.y.	\$300.00/c.y.	3,300
Ramp extension	19 c.y.	200.00/e.y.	3,800
Railing	360 l.f.	15.50/1.f.	5,600
And the state of t			\$14,760
	Contingencies		3,700
	Total 1979 cost		\$18,400
I.f. = lineal feet c.y. = cubic y	ards.		

## 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> </u>			
<u>Item</u>	Quantity	Unit <u>Price</u>	<u>Total</u>	
Mobilization	Lump sum		\$ 10,000	
Demolition	200 c.y.	\$ 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 c.y.	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 C	ost	\$221,000	
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 (1.15 \times $51,000 = $59,000)$ .

## Alternative 3 - Construct 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 Price	Total
Grading allowance	Lump sum		
Demolition	. Lump sum		500
Concrete (side ramp)	4.5 c.y.	\$200.00/e.y.	900
Concrete (overlay)	5.5 e.y.	200.00/c.y.	1,100
Railing	50.0 1.f.	15.50/l.f.	775
			\$3,475
	Contingencies	\$	825
	Total 1979 c	ost	\$4,300
1.f. = lineal feet c.y. =	cubic yards		

## STAIRS ONLY ON APPROACH TO UNDERCROSSING (RESTRICTED SPACE)



## Alternative 1 Install elevator to supplement stairs

OOT BIMITE			**************************************	
Item	Quantity	Unit <u>Quantity</u> <u>Price</u>		
Mobilization	Lump sum		\$ 3,000	
Demolition	6 c.y.	6 c.y. \$100.00/c.y.		
Drilling	20 l.f.	30.00/l.f.	600	
Shoring	900 8.00/s.f		7,200	
Excavation	215 e.y.	12.00/c.y.	2,580	
Backfill	149c.y.	20.00/c.y.	2,800	
Concrete	65 c.y.	250.00/c.y.	16,250	
Reinforcing	12,400 lbs.	.40/lb	4,960	
Finishes	2,000 s.f.	.50/s.f.	1,000	
Elevator (1) complete	Lump sum	‡ 	15,000	
Equipment enclosure	Lump sum	<del>L</del> -111111111111111111111111111111111111	3,000	
Power hook-up	Lump sum		1,000	
		*	\$57,990	
	Contingencies		15,010	
	TOTAL 1979 cos		<b>\$73,0</b> 00	
c.y. = cubic yards 1.1	f. = lineal feet s.f	. = square fe	et	

## Alternative 2 - Replace stairs with new ramp

COST	<b>ESTIM</b>	A1	'n
	E		-

COST ESTIMATE		Unit	· · · · · · · · · · · · · · · · · · ·	
Item	Quantity	Price	Total	
Mobilization	Lump sum		\$ 7,000	
Demolition	6 c.y.	\$100.00/c.y.	600	
Exeavation	1,900 c.y.	8.00/c.y.	15,200	
Backfill	715 c.y.	10.00/c.y.	7,150	
Concrete	210 c.y.	250.00/c.y.	52,500	
Reinforcing	52,000 lbs	.40/16	20,800	
Shoring	3,200 s.f.	8.00/s.f.	25,600	
Pinishes	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	
M. William	**************************************		\$138,940	
	Contingencies		35,060	
TOTAL 1979 Cost \$174				
e.y. = cubic yards	s.f. = square feet l.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.

RAMP ONLY ON APPROACH

## Alternative 1 - Construct stairs to supplement ramp

<u>Item</u>	Quantity	Unit <u>Price</u>	<u>Total</u>
Mobilization	Lump sum	·	\$ 2,000
Excavation	50 e.y.	\$ 10.00/c.y.	500
Backfill	16 c.y.	12.00/c.y.	192
Concrete	60 c.y.	350.00/c.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
paramanananananananananananananananananan		ле ее до <b>х</b> улопе оудополополополопонинининининининин	<b>\$34,</b> 582
	Contingencies	i	9,418
	TOTAL 1979	Cost	\$44,000
c.y. = cubic yards s.f. = s	quare feet	l.f. = lineal feet	



## Alternative 1 - Widen sidewalk within original structure

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

	Total 1979 co	Total 1979 cost \$7,30		
	Contingencies		\$5,750 1,550	
Restripe	200 l.f.	2.00/1.f.	400	
New barrier rail	100 l.f.	25.00/l.f.	2,500	
Concrete/finish	20 e.y.	75.00/e.y.	1,500	
Bonding agent	500 s.f.	.70/s.f.	350	
Prepare concrete surface	500 s.f.	\$ 1.00/s.f.	500	
Mobilization	Lump sum	i va vanomento del constitución del cons	\$ 500	
<u>Item</u>	Quantity	Unit Price	Total	

Lf. = lineal feet s.f. = square feet c.y. = cubic yards.

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

<u>Item</u>	Quantity	Unit <u>Price</u>	<u>Total</u>
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
The state of the s			\$7,600
	Contingencies		1,900
	TOTAL 1979	eost	\$9,500
	Equivalent to	\$95.00/lineal foot	t of structure
l.f. = lineal feet s.f. = sq	uare 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	The second secon	\$ 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.	25.00/1.f.	2,500	
Finishes	800 s.f.	2.00/s.f.	1,600	
			\$ 26,900	
	Contingencies		3,700	
	Total 1979 Cost		\$ 30,600	
	Equivalent to \$306/lineal foot of structure			
l.f. = lineal feet s.f. =	square feet			

## 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



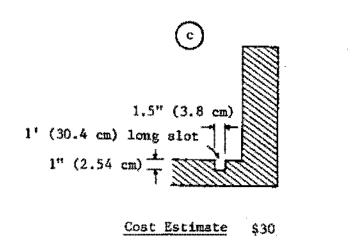
Holding
Bar

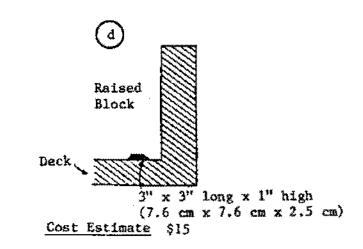
36" (91.4 cm)

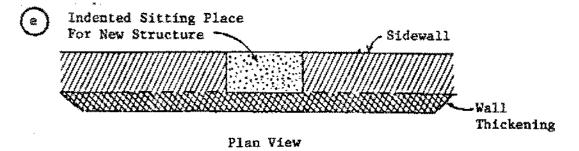
Deck

Cost Estimate \$50

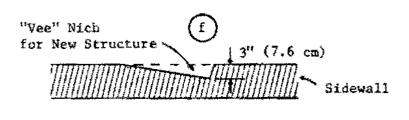
Cost Estimate \$70







No Estimate

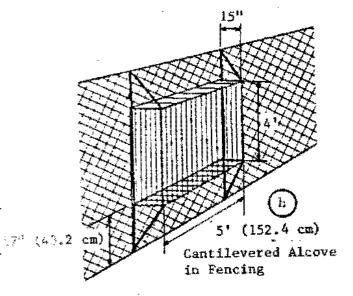


Folding Seat 15" (38.1 cm)

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 fails 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.

#### 8. 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.

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

