Section 2

Characteristics of Pedestrians and the Pedestrian Environment

What Will Be Covered

- Characteristics of Pedestrians
- Pedestrian Environment
- Movement Barriers
- Information Barriers
- Pedestrian Facilities: Issues to Solve

Characteristics of Pedestrians

- Young children have:
  - Limited peripheral vision
  - Difficulty judging speed and distance
  - Difficulty localizing direction of sound
  - Inability to understand complex crossings

Characteristics of Pedestrians

- People who are elderly may have:
  - Limited mobility
  - Limited cognitive and sensory abilities

Characteristics of Pedestrians

- People with disabilities (20% of U.S. population):
  - At birth
  - Suddenly
  - Slowly over time

Characteristics of Pedestrians

- People with multiple disabilities
  - Will continue to increase with the aging population
- 70% of the population will have a permanent or temporary disability in their lifetime

Pedestrian Environment

- Important to design for persons' life span
- Accommodate assistive technologies and adaptations

Pedestrian Environment

- Factors that affect ability to negotiate sidewalks or trails include sensory processing capacity:
  - Hearing
  - Vision
  - Concentration ability

Pedestrian Environment

Factors that affect ability to negotiate sidewalks or trails include:

- Endurance
- Flexibility/agility/ balance
- Strength

Pedestrian Environment

Assistive Technologies and Adaptations

- Manual wheelchair
- Powered wheelchair or scooter
- Long white cane
- Guide dog
- Walkers
- Prosthesis

Pedestrian Environment

Assistive Technologies and Adaptations:
Powered wheelchair and guide dog

Pedestrian Environment

Assistive Technologies and Adaptations:

Long white cane

Pedestrian Environment

Assistive Technologies and Adaptations

- Crutches
- Sighted guide
- Hearing aids
- Support cane
- Small handheld telescopes and binoculars

Question

What are examples of movement barriers?

Movement Barriers

Definition:

Anything that restricts an individual's ability to physically move or progress along or within an environment.

Videotape: Movement Barriers

(US Access Board videotape)

This video depicts movement barriers encountered by people who use wheelchairs, crutches and walkers.

Movement Barriers

Various factors:

- Difficult terrain -- steep grades and cross slopes, soft surfaces, uneven surfaces
- Obstacles in pathway -- lampposts, benches, newspaper boxes
- Insufficient time to cross the street
- Too narrow facilities
- No ramps

Information Barriers

Definition:

Anything that restricts the individual's ability to use the information contained within the street, sidewalk and trail environment.

Videotape: Information Barriers

(U.S. Access Board)

This video depicts barriers encountered by people with low vision and who are blind.

Information Barriers

People with visual disabilities:

- Rely on sounds and textures
- Cannot use visual information from signs and signals (if they are blind)

Information Barriers

People with visual disabilities benefit from:

- Information in reliable and standardized tactile and audible formats
- Direct routes with defined edges

Information Barriers

High color contrasts on signs, signals, street markings, and curb ramps are beneficial to people with disabilities

Information Barriers

People with hearing disabilities:

- Rely on their vision
- Benefit from good sight lines for assessing street crossing conditions

Information Barriers

- People with cognitive disabilities:
  - Have limited processing and decision-making skills
- People with cognitive disabilities benefit from:
  - Straight forward, direct environments
  - Uncomplicated street crossings
  - Easy to understands symbols

Information Barriers

Caused by lack of:

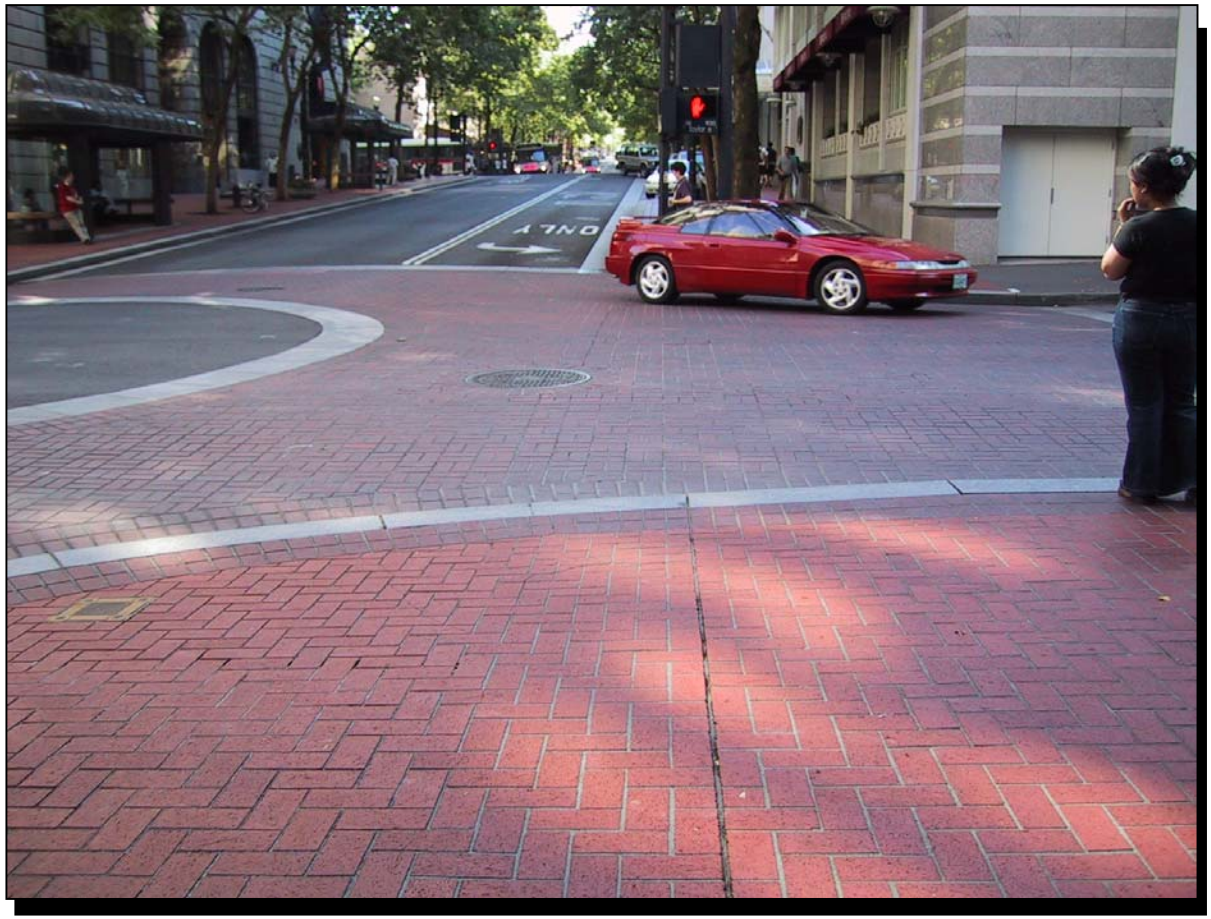
- Crossing information in accessible formats
- Tactile information indicating the boundary between the pedestrian and the vehicular way
- Locator tones at actuated pedestrian push buttons

Question

What are examples of designs that may facilitate smooth flow of traffic but affect pedestrians and compromise pedestrian safety?

Look at the following five photographs to help you understand some of the issues involved.

Information Barriers



Depressed corner, no detectable grade, all same surface texture

Information Barriers

Typical sidewalk construction, no way for blind pedestrian to understand the barrier or how to navigate around it

Information Barriers

Information Barriers

Information Barriers

Question

What are examples of information barriers?

Think of possible examples of where you work, the neighborhood you live in, and the places you shop

Pedestrian Facilities
Issues to Solve

- Lack of a pedestrian network
- People should not have to adapt to the environment. The environment must be usable to the full spectrum of users.

Pedestrian Facilities

Issues to solve as a result of being an afterthought:

- Not well designed for people with disabilities, young children, and elderly
- Unsafe or perceived unsafe highway environment

Pedestrian Facilities

Issues to solve as a result of being an afterthought:

- Land use and development patterns that discourage walking
- Independent travel severely compromised
- Lack of pedestrian interface with transit

Examples of Information Barriers

- Short sight lines/unable to judge traffic distance and speed
- Lack of sidewalk
- Obstacles in the pathway or overhead
- Complex traffic flow, right turn on red, and exclusive turn phases

Examples of Information Barriers

- Non-standard locations for pedestrian features (push buttons, crosswalks)
- Crosswalks and curb ramp nonalignment - usually at skewed intersections
- Unlit or dimly lit path of travel

Examples of Information Barriers

- Other environmental factors
  - Intersection too noisy to distinguish the directional and surging sounds of traffic
  - Traffic flow too intermittent
  - Surge of traffic too far away
  - Quieter cars and bicycles