

STREET CROSSINGS

Learning Outcomes

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At the end of this module, you will be able to:

- Describe how and why people cross the street
- Describe how drivers and pedestrians perceive each other
- Describe principles for users to cross a road safely
- Select midblock vs. intersection locations
- Identify how speed affects pedestrian safety

Why do people cross the street?

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Doylestown PA



Because there's someplace good on the other side



People shouldn't have to run to cross a street



Ideally, we'd always cross at locations with positive control



But we can't provide signals everywhere people cross



These people are not criminals...

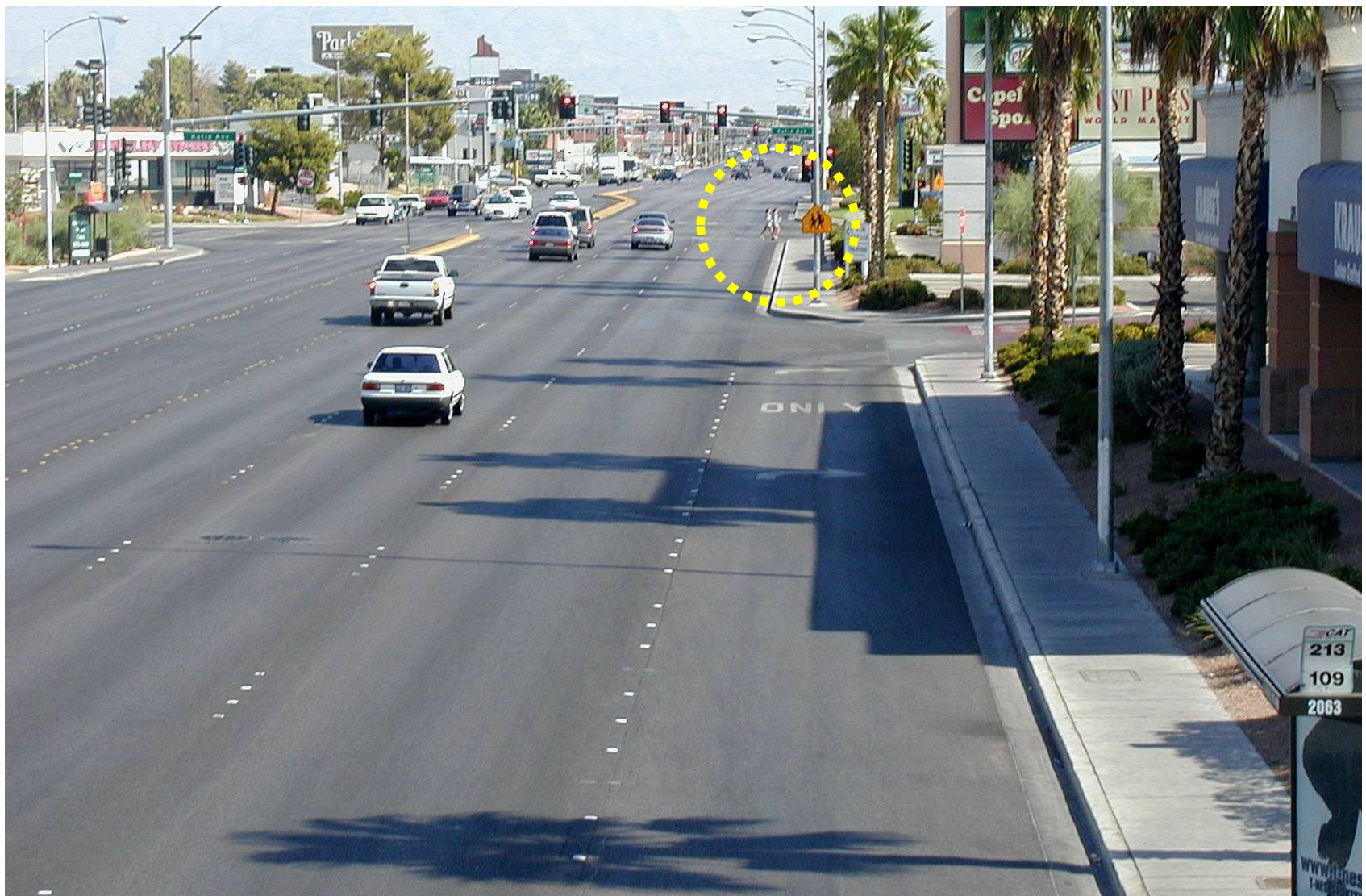
- They're simply trying to deal with a situation



Pedestrian behavior varies: Some use crosswalks, others don't



Ped behavior varies: some cross midblock
(and do so safely)



Ped behavior varies: others cross at signal
(and do so safely)

General Principles

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1. Pedestrians want & need to cross streets safely
 2. Drivers need to understand pedestrians' intent
 3. Keep crossings short
 4. Speed Matters
 5. Pedestrians will cross where it's convenient
-
- Good design makes use of these principles

Principle # 1

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Oyster Bay NY



Pedestrians want & need to cross the street safely

Principle # 2

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Depoe Bay OR



Drivers need to understand pedestrians' intent

Principle # 3

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Orlando FL

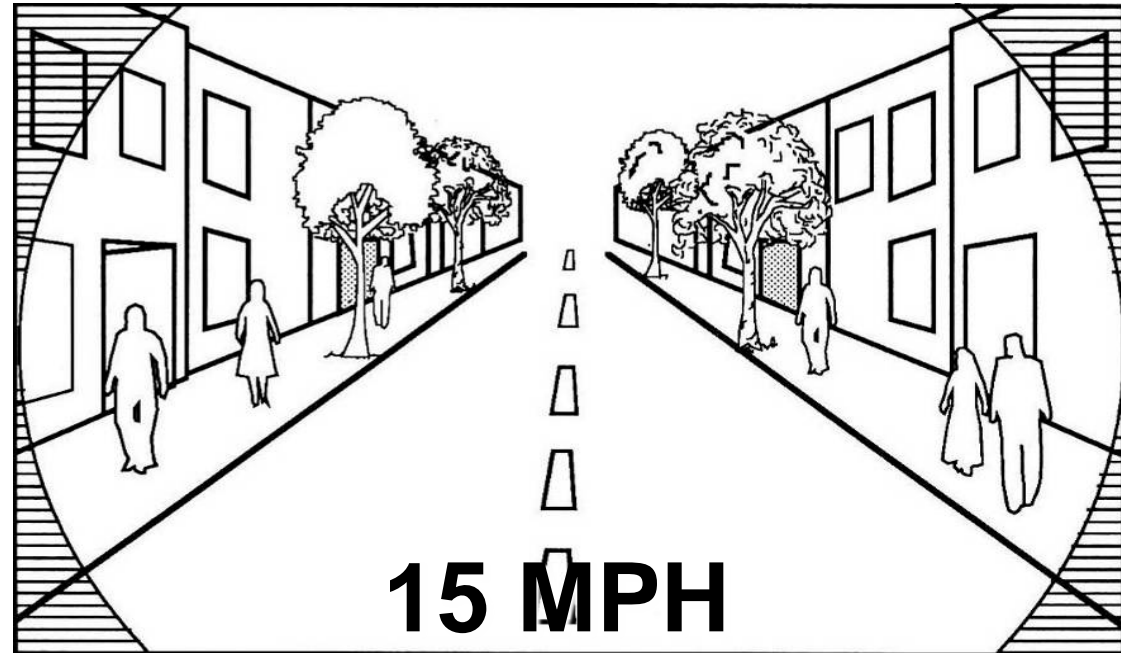
- Keep Crossings Short
- Impacts of long crossing distance:
 - ▣ Increases exposure time
 - ▣ Increases vehicle-pedestrian conflict
 - ▣ Increases vehicle delay
 - ▣ Decreases ability of slower pedestrians to cross



Principle # 4: Speed Matters

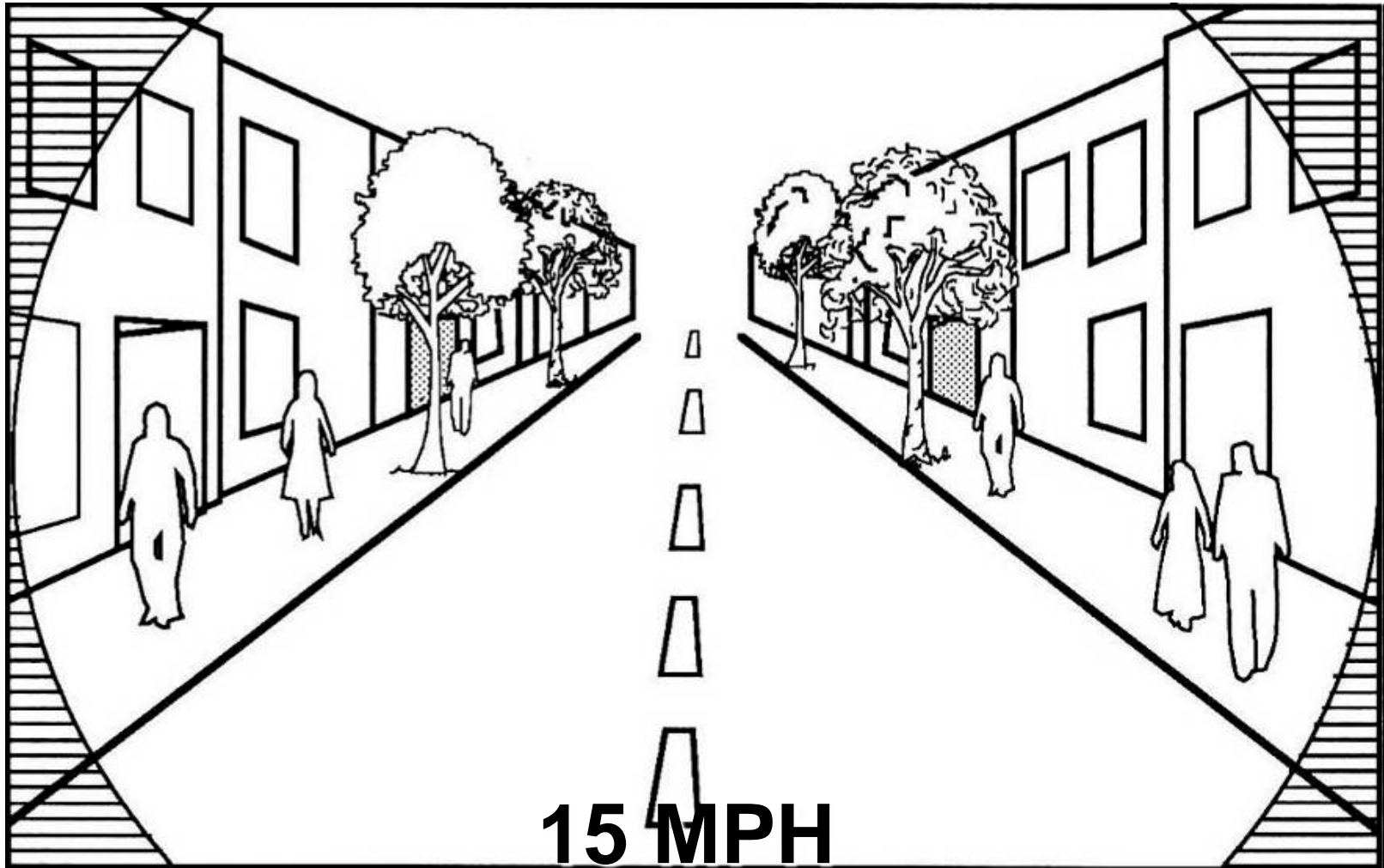
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- Drivers' field of vision & ability to see pedestrians
- Drivers' ability to react and avoid a crash
- Crash Severity



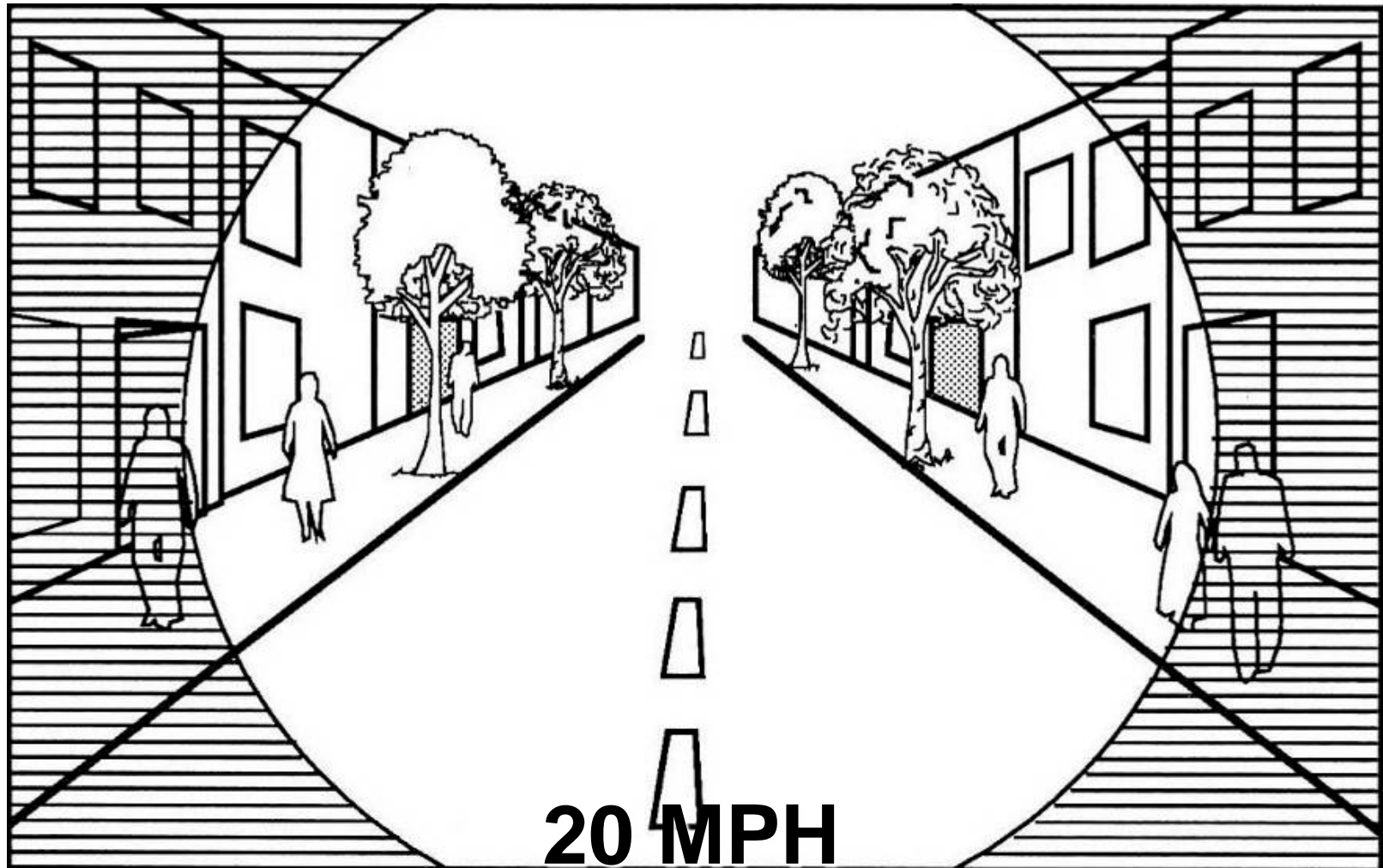
As speed increases, driver focuses less on surroundings

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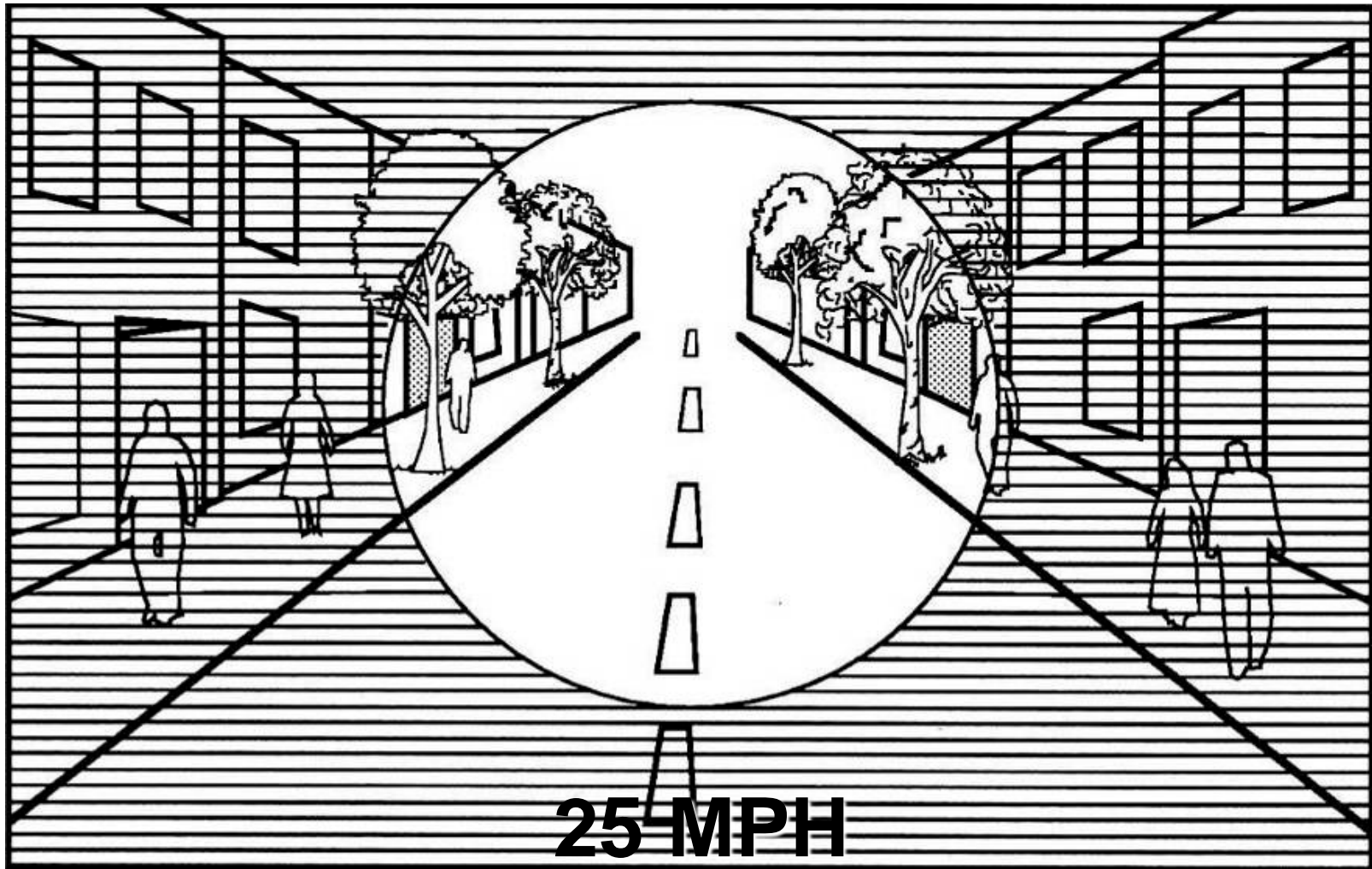
As speed increases, driver focuses less on surroundings

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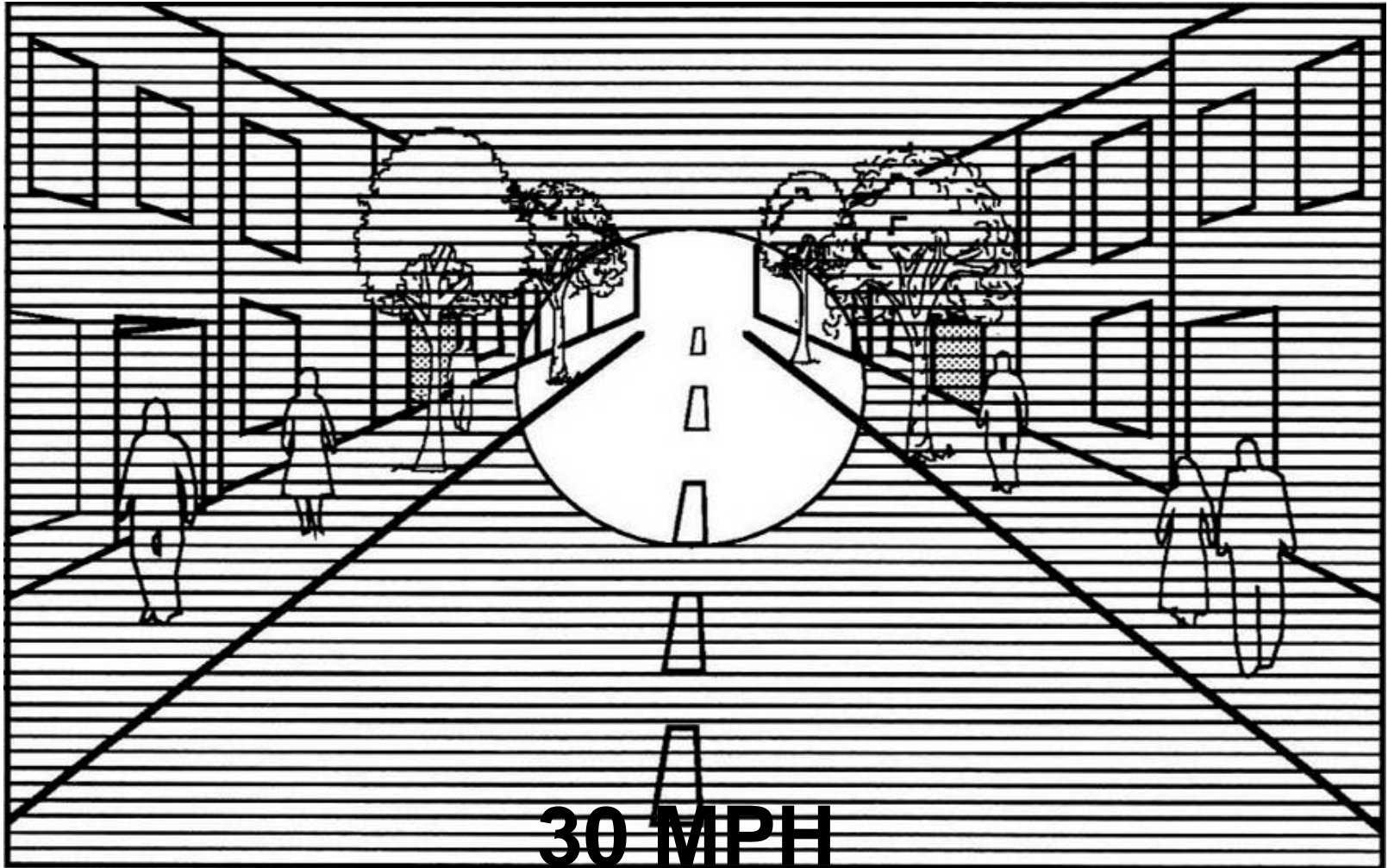
As speed increases, driver focuses less on surroundings

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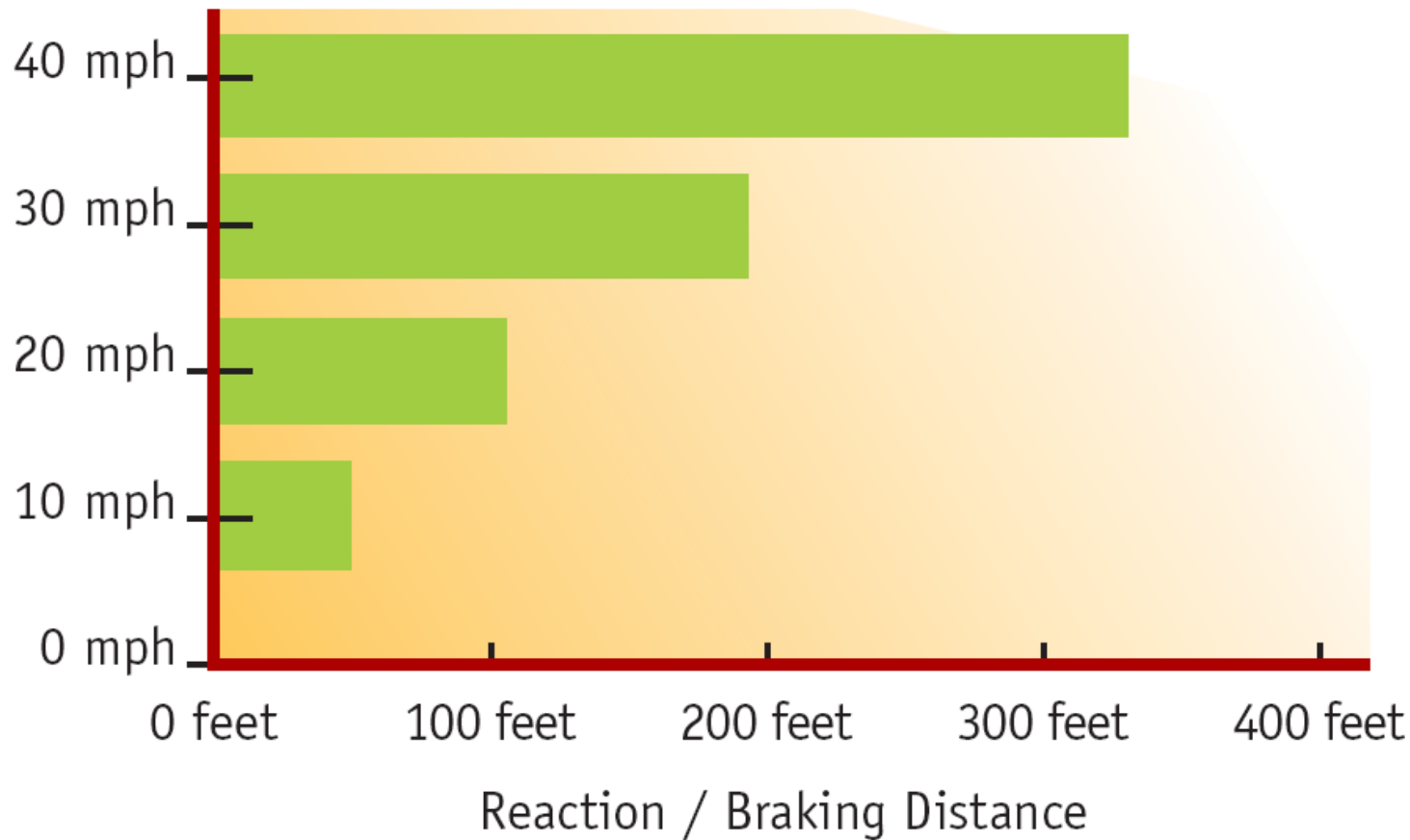
As speed increases, driver focuses less on surroundings

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Speed Affects Crash Avoidance

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High speeds equate to greater reaction and stopping distance

Australian PSA on Speed

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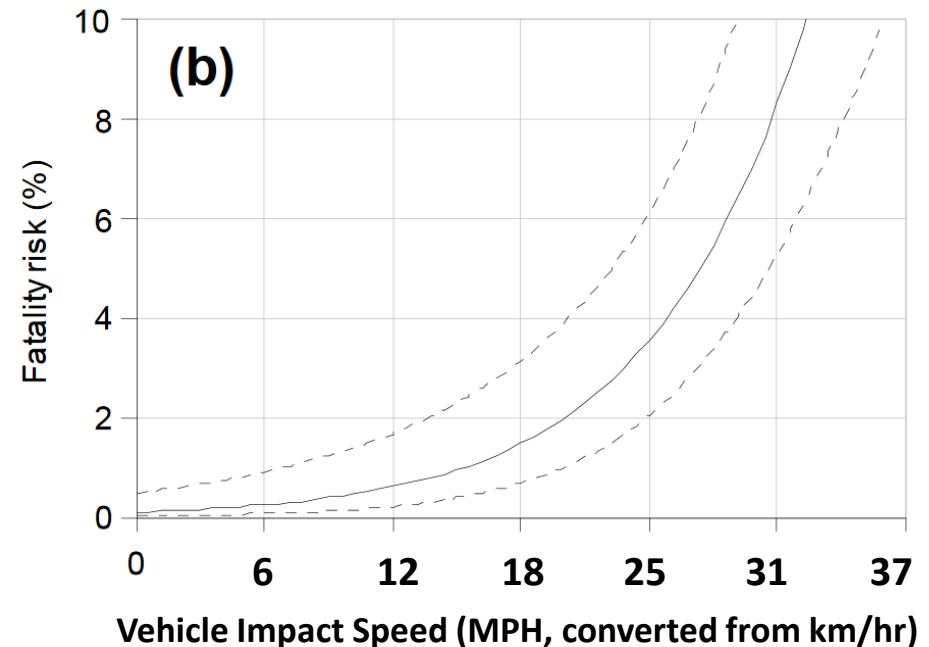
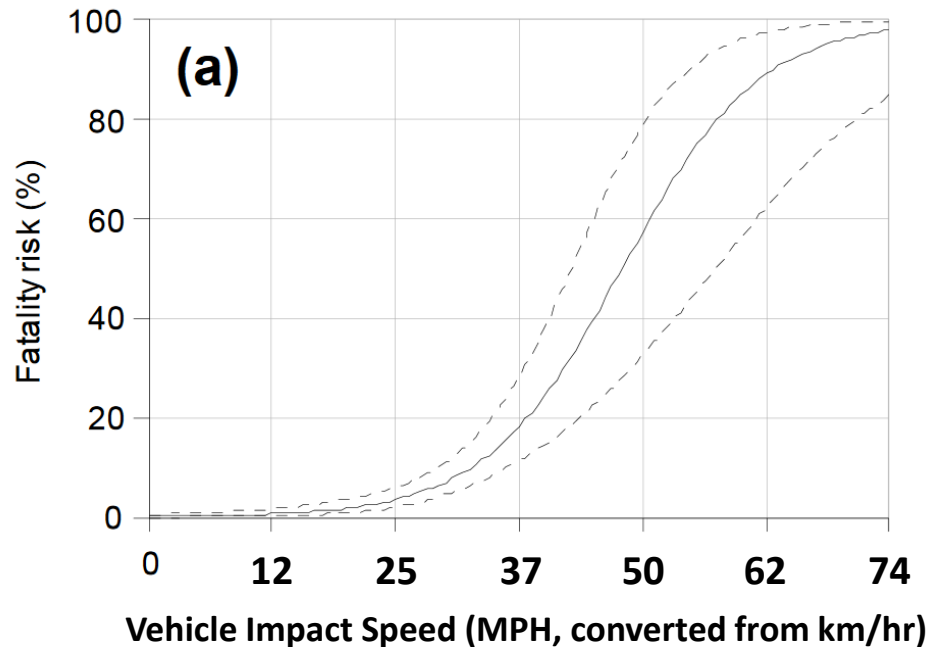
- 60 kph vs. 65 kph
- 37 mph vs. 40 mph



Speed Affects Crash Severity

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- High speeds lead to greater chance of serious injury & death



Adapted From:

Rosen and Sander (2009). *Pedestrian fatality risk as a function of car impact speed. Accident Analysis and Prevention*, 41, p. 536 – 542

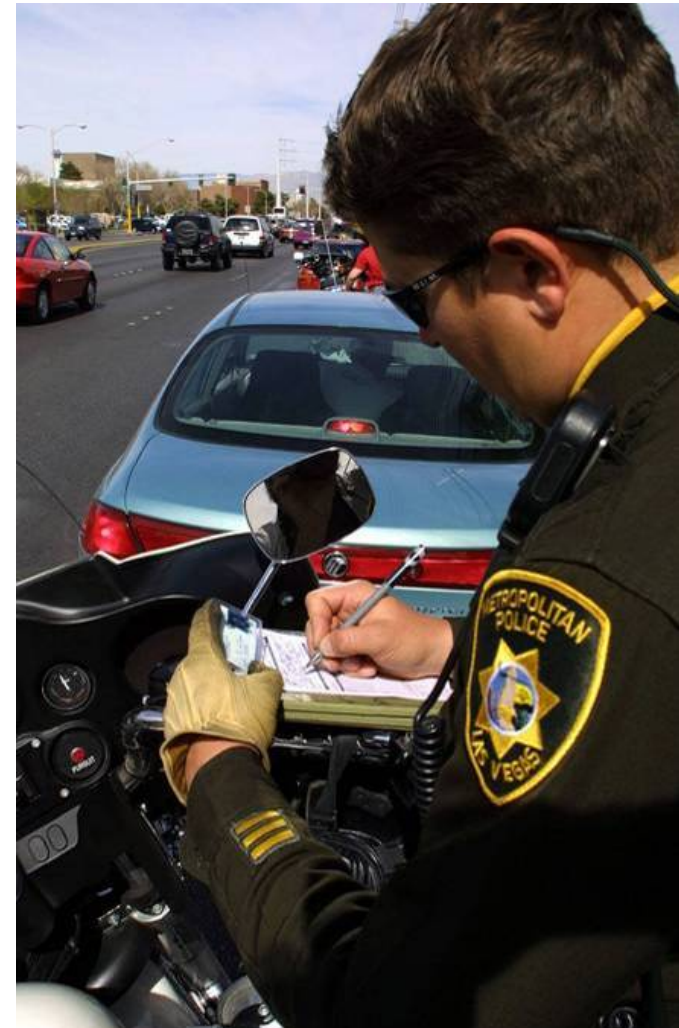


- Traffic-calming methods such as curb extensions help slow traffic
- Resources:
 - PEDSAFE <http://www.pedbikesafe.org/PEDSAFE/countermeasures.cfm>
 - ITE Traffic Calming Library <http://www.ite.org/traffic/>

Speed Management

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- Speed management is the single most effective way to increase safety for all modes
- Speed limits must be realistic, consistent, and enforceable and able to be adjudicated.



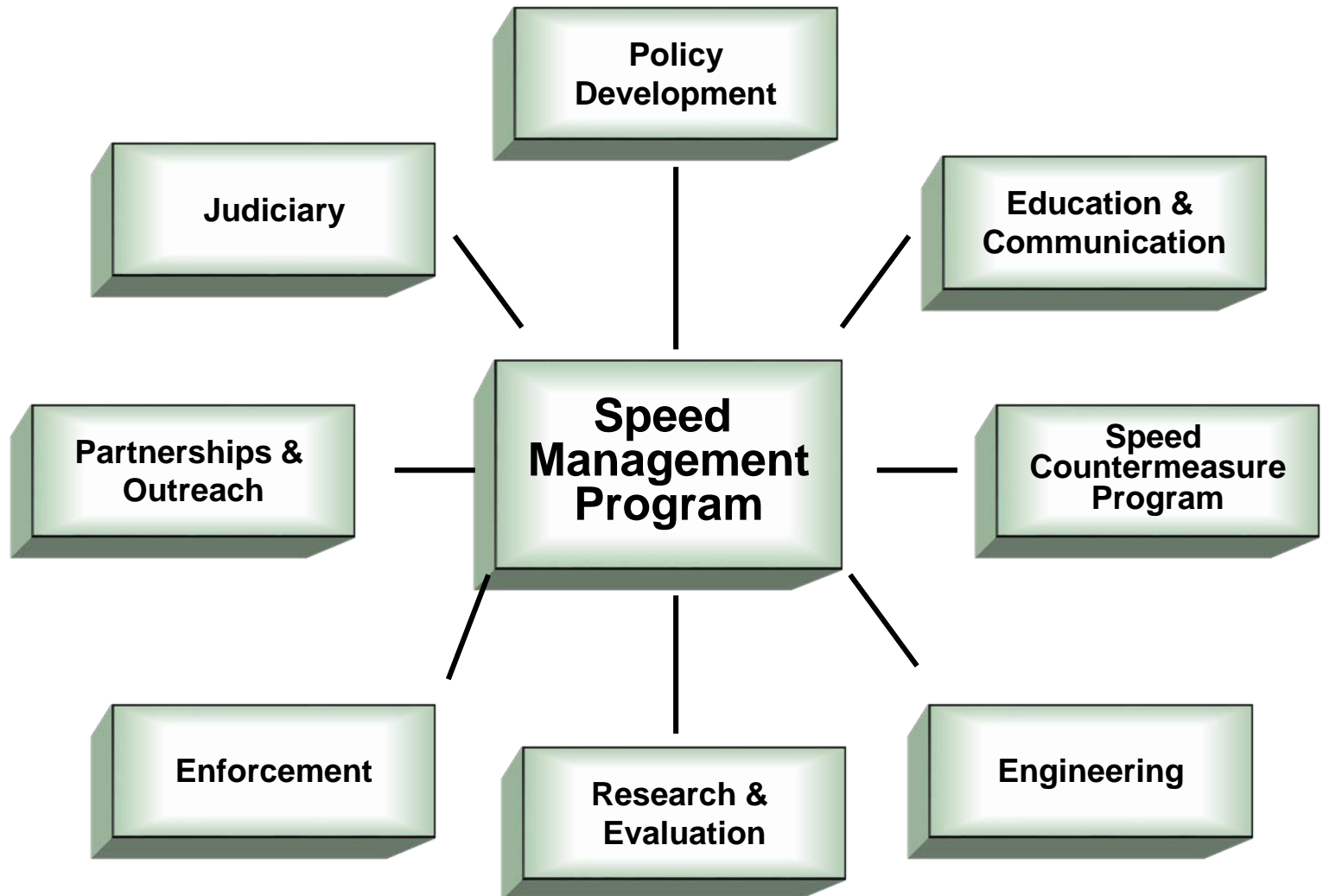
German Speed Management

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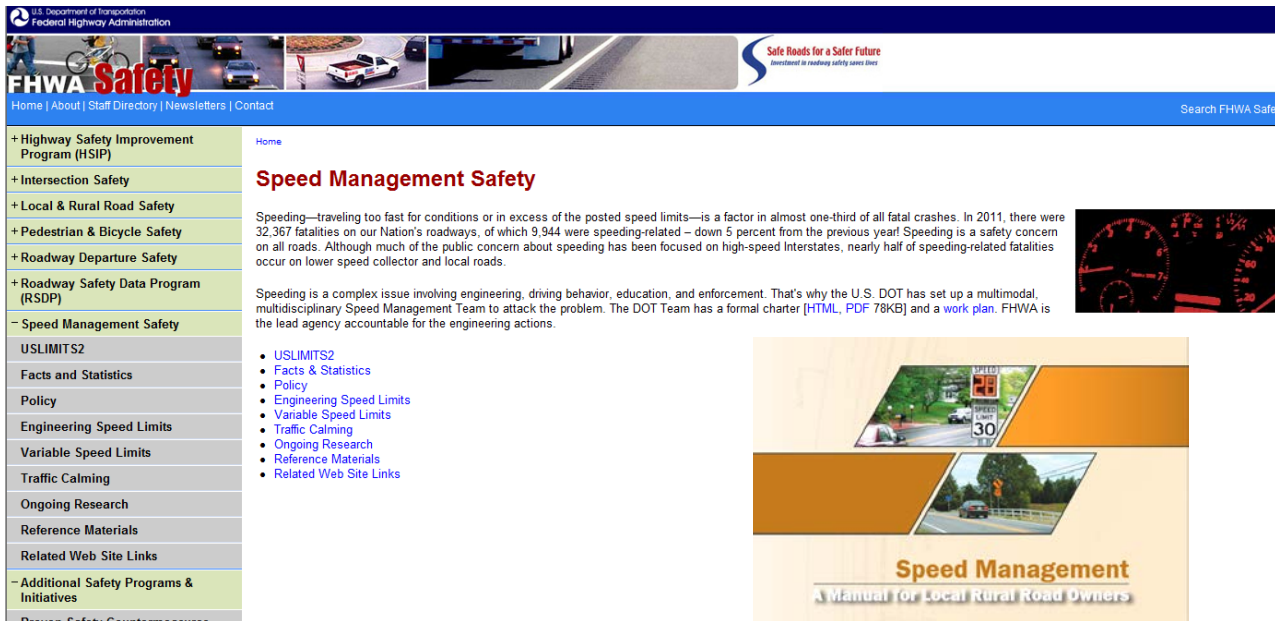
Comprehensive Speed Management Program

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Speed Management Guidance and Strategic Initiatives

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The screenshot shows the FHWA Safety website. The header includes the U.S. Department of Transportation Federal Highway Administration logo and the slogan "Safe Roads for a Safer Future". The main navigation bar contains links to Home, About, Staff Directory, Newsletters, and Contact. A search bar is located on the right. The left sidebar lists various safety programs: Highway Safety Improvement Program (HSIP), Intersection Safety, Local & Rural Road Safety, Pedestrian & Bicycle Safety, Roadway Departure Safety, Roadway Safety Data Program (RSDP), and Speed Management Safety. The Speed Management Safety section is expanded, showing a list of links: USLIMITS2, Facts and Statistics, Policy, Engineering Speed Limits, Variable Speed Limits, Traffic Calming, Ongoing Research, Reference Materials, and Related Web Site Links. The main content area is titled "Speed Management Safety" and contains two paragraphs of text. The first paragraph states that speeding is a factor in almost one-third of all fatal crashes and that there were 32,367 fatalities on U.S. roadways in 2011, with 9,944 being speeding-related. The second paragraph explains that speeding is a complex issue involving engineering, driving behavior, education, and enforcement, and that the U.S. DOT has set up a multimodal, multidisciplinary Speed Management Team to address the problem. A small image of a car's speedometer is visible on the right side of the main content area.

U.S. Department of Transportation
Federal Highway Administration

FHWA Safety

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Search FHWA Safety

- + Highway Safety Improvement Program (HSIP)
- + Intersection Safety
- + Local & Rural Road Safety
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- + Roadway Departure Safety
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- Speed Management Safety
 - USLIMITS2
 - Facts and Statistics
 - Policy
 - Engineering Speed Limits
 - Variable Speed Limits
 - Traffic Calming
 - Ongoing Research
 - Reference Materials
 - Related Web Site Links
- Additional Safety Programs & Initiatives

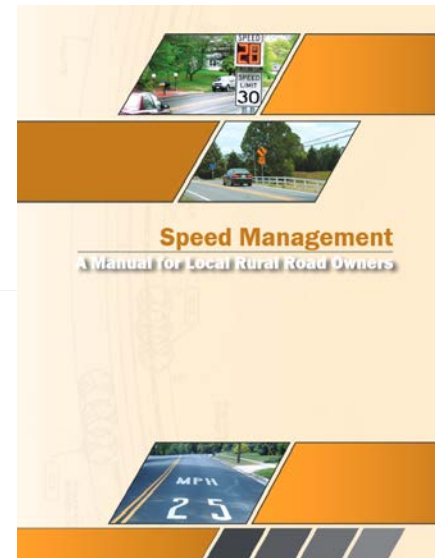
Speed Management Safety

Speeding—traveling too fast for conditions or in excess of the posted speed limits—is a factor in almost one-third of all fatal crashes. In 2011, there were 32,367 fatalities on our Nation's roadways, of which 9,944 were speeding-related – down 5 percent from the previous year! Speeding is a safety concern on all roads. Although much of the public concern about speeding has been focused on high-speed Interstates, nearly half of speeding-related fatalities occur on lower speed collector and local roads.

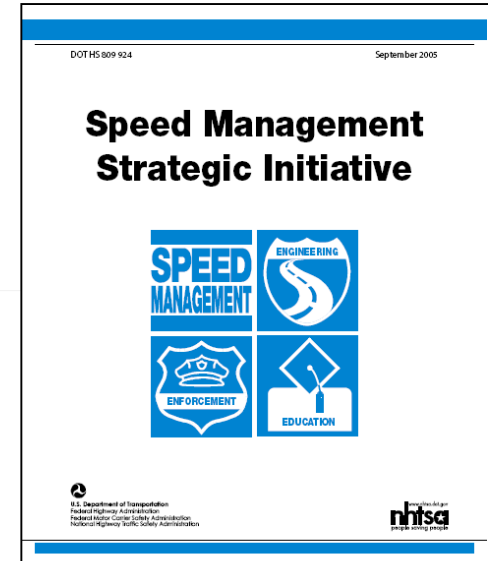
Speeding is a complex issue involving engineering, driving behavior, education, and enforcement. That's why the U.S. DOT has set up a multimodal, multidisciplinary Speed Management Team to attack the problem. The DOT Team has a formal charter [HTML, PDF 78KB] and a work plan. FHWA is the lead agency accountable for the engineering actions.

- USLIMITS2
- Facts & Statistics
- Policy
- Engineering Speed Limits
- Variable Speed Limits
- Traffic Calming
- Ongoing Research
- Reference Materials
- Related Web Site Links

<http://safety.fhwa.dot.gov/speedmgt/>



https://safety.fhwa.dot.gov/local_rural/training/fhwasa010413spmgmt/speedmanagementguide.pdf



<http://www.nhtsa.dot.gov/people/injury/enforce/SpeedManagement-content/>

USLIMITS

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- ❑ Web-based expert advisor system.
- ❑ User friendly, logical, and objective.
- ❑ Calculates speed limit based on site specific information.
- ❑ <https://safety.fhwa.dot.gov/uslimits/>

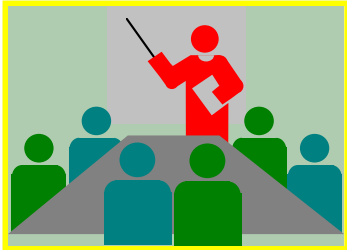
USLIMITS Benefits

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- ❑ Encourages consistent speed limits;
- ❑ Addresses Public and Political awareness acceptance and concern;
- ❑ Reduces speed differential;
- ❑ Supports the integrity of engineering, enforcement, and adjudication.

Discussion:

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- What are your policies & practices regarding setting, enforcing, and adjudicating speed limits?

Principle # 5

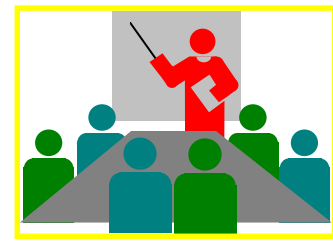
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Salem OR



Pedestrians will cross where it's most convenient

Discussion:



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Tampa FL

How far are you willing to go out of your way for an “improved” crossing?

Would you walk: 25' 50' 75' 100' 125'

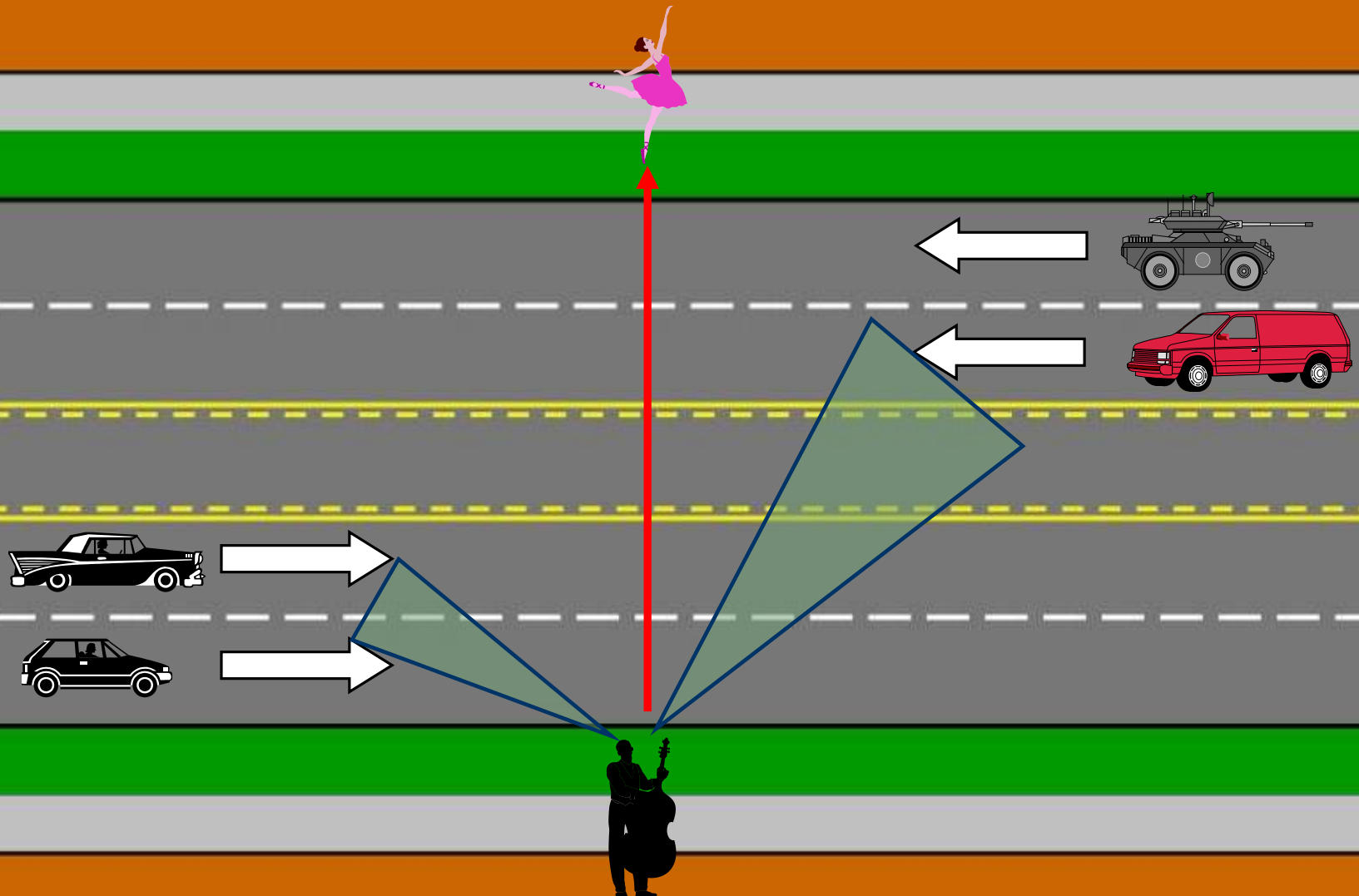


Midblock vs. Intersection

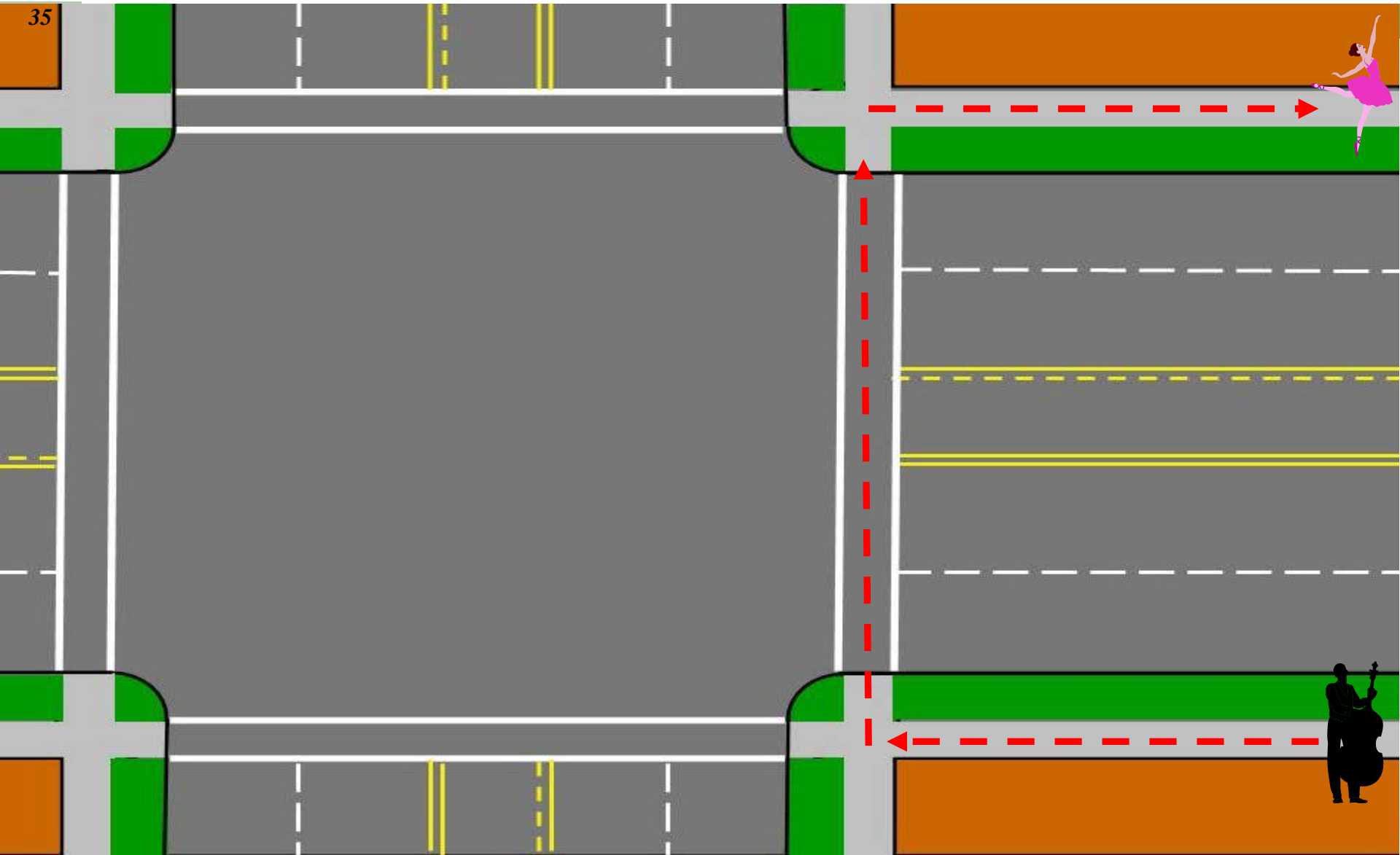
What is the relative risk of crossing midblock vs. crossing at an intersection?

Midblock: Pedestrian faces 2 directions of traffic

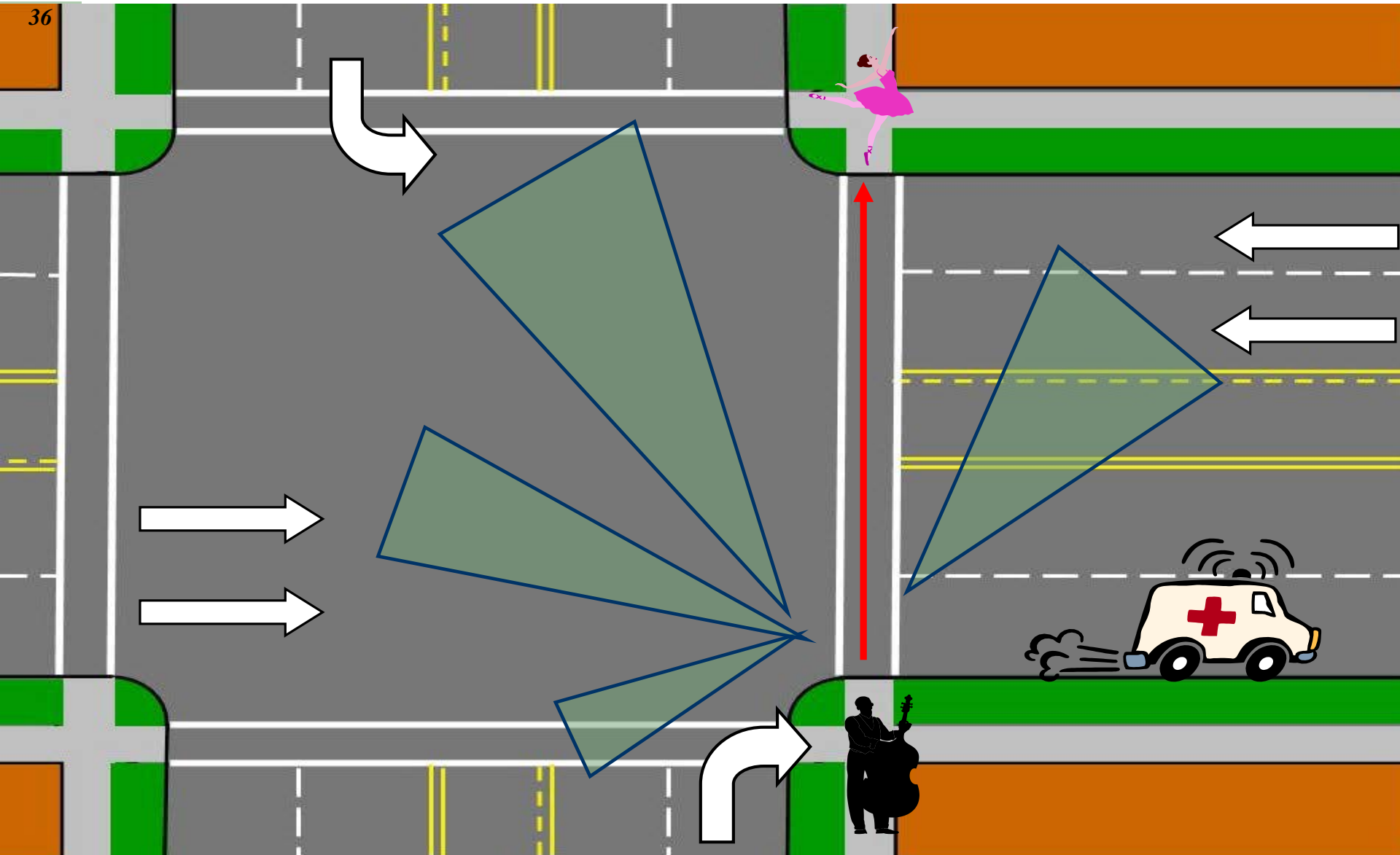
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Intersection: pedestrian must walk out-of-direction



Intersection: pedestrian faces other conflicts



Midblock vs. Intersection

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Tampa FL

- People choose based on their perceived risk
- The data is inconclusive



Let's look at the State laws

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- Duties of drivers toward pedestrians
- Duties of pedestrians
- Is crossing midblock illegal?

New Mexico laws governing pedestrian crossings

- Definition
- 12-1-13 CROSSWALK. “Crosswalk” means:
 - A. That part of a street at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the street measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway.
 - B. Any portion of a street at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface. (66-1-4.3 NMSA 1978)

New Mexico laws governing pedestrian crossings

- Definition
- 12-1-69 SIDEWALK
- “Sidewalk” means that portion of a street between the curb lines, or the lateral lines of a roadway, and the adjacent property lines, intended for use of pedestrians. (66-1-4.16 NMSA 1978)

New Mexico laws governing pedestrian crossings

- Definition
- 12-1-30 INTERSECTION
- A. “Intersection” means:
 - The area embraced within the prolongation or connection of the lateral curb lines, or, if none, then the lateral boundary lines of the roadways or two streets which join one another at, or approximately at, right angles, or the area within which vehicles travelling upon different streets joining at any other angle may come into conflict.
 - Where a street includes two roadways thirty feet or more apart, every crossing of each roadway of such divided street by an intersecting street shall be regarded as a separate intersection. . . .
- B. The junction of an alley with a roadway shall not constitute an intersection.

New Mexico laws governing pedestrian crossings

- 12-6-14.2 Pedestrians' right-of-way in crosswalks
- A. When traffic-control signals are not in place or not in operation the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling, or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger.
- B. No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield. <...>
- D. Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle. (Multiple-threat crash) (66-7-334 NMSA 1978)

New Mexico laws governing pedestrian crossings

- 12-6-14.4 Crossing at other than crosswalks
- A. Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway.
- <...>
- C. Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk. (66-7-335 NMSA 1978)

Where Can You Cross legally?



Can You Cross Legally?

Is it legal to cross Beach Boulevard in the middle of a block, like at A or B?

- It's only legal at A
- It's only legal at B
- A and B are both legal places to cross
- Neither A nor B is a legal place to cross

Are There Legal Crosswalks?



Let's look at the T-shaped intersection, where no crosswalk is marked.
Can you legally cross here?

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Questions?