

Crash-Type Manual for Pedestrians

FOREWORD

Approximately one out of six highway fatalities in the United States is a bicyclist or pedestrian each year. Estimates for 1995 indicate that 61,000 bicyclists were injured and 830 were killed in traffic crashes. These crashes can be classified or "typed" by their precipitating actions, predisposing factors, and characteristic populations and/or location that can be targeted for intervention.

The information provided in the following guide is the result of a Federal Highway Administration (FHWA) research study that applied the basic National Highway Traffic Safety Administration (NHTSA) bicycle and pedestrian typologies to a sample of bicycle-and pedestrian-motor vehicle crashes from six States with the purpose of refining and updating the crash type distributions. Particular attention was given to roadway and locational factors in order to identify situations where engineering, educational, and/or regulatory countermeasures might be effectively implemented to reduce the frequency of the crashes.

This informational guide should be of interest to State and local bicycle and pedestrian coordinators, transportation planners, and transportation engineers involved in safety and risk management. Other interested parties include those in education, enforcement, and the medical profession.

Pub No. FHWA-RD-96-104

This work was done by the University of North Carolina Highway Safety Research Center.

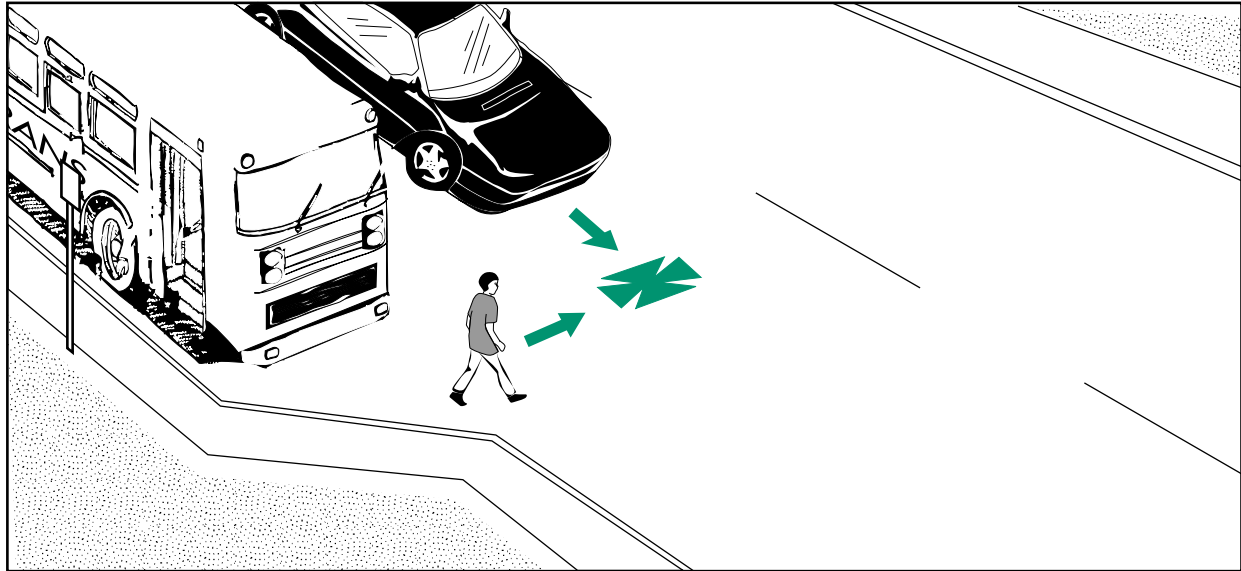
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- Walking Into Vehicle Intersection _____
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- Midblock Dash
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- Midblock - Other
- Weird
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- Suicide
- Assault w/ Vehicle
- Domestic/Dispute Related
- Pedestrian on Vehicle
- Vehicle - Vehicle Crash
- Vehicle - Object Crash
- Inadequate Information

Commercial Bus Related

Frequency: 22 cases; 0.4% of all crashes
Severity: 23% resulted in serious or fatal injuries



Description: The pedestrian was struck by another vehicle while crossing in front of a commercial bus stopped at a marked bus stop.

Summary: In comparison to all crashes, this crash was more likely to involve youth (age 10 to 14) and especially teen (age 15 to 19) pedestrians who accounted for almost half of these events.

This was largely an urban event (77%). Eighty percent occurred on roads with a speed limit of 50 to 60 km/h (30 to 35 mi/h), and more than 40 percent occurred under dark, lighted conditions.

Alcohol involvement was lower than the average for pedestrians, but higher than the average for the motorist. This crash tended to be less severe than the average.

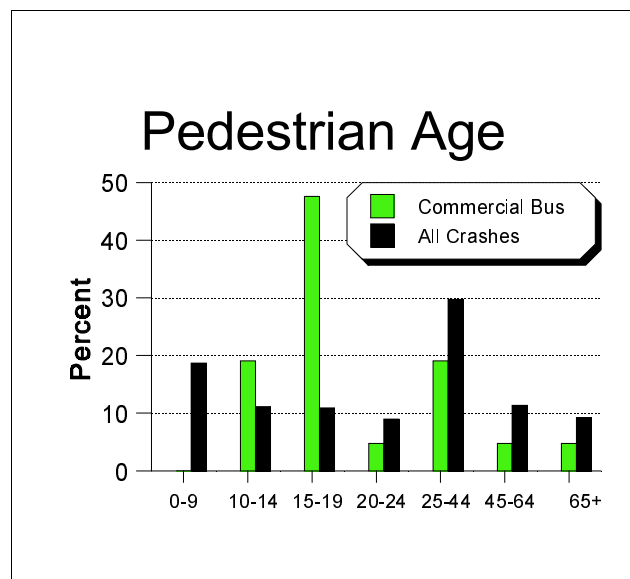
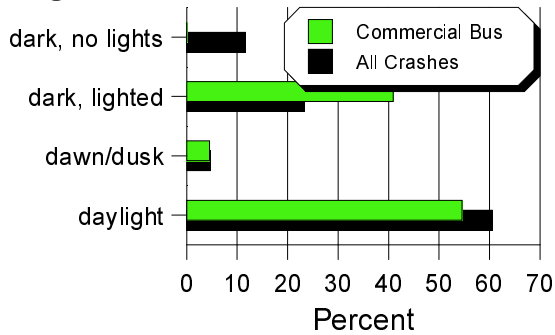


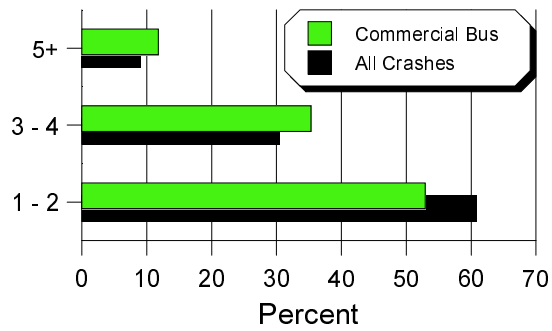
Figure 1. Pedestrian age in “Commercial Bus Related.”

Commercial Bus Related

Light Condition



Number of Lanes



Speed Limit (km/h)

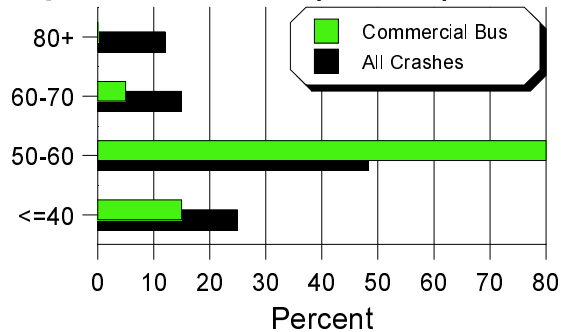


Figure 2. Light condition, number of lanes, and speed limit in “Commercial Bus Related.”

Alcohol use

- ▶ Pedestrian 5%
- ▶ Driver 9%

Development Character

- ▶ Urban 77%
- ▶ Rural 23%

Day of Week

- ▶ Weekday 68%
- ▶ Weekend 32%

Road Feature

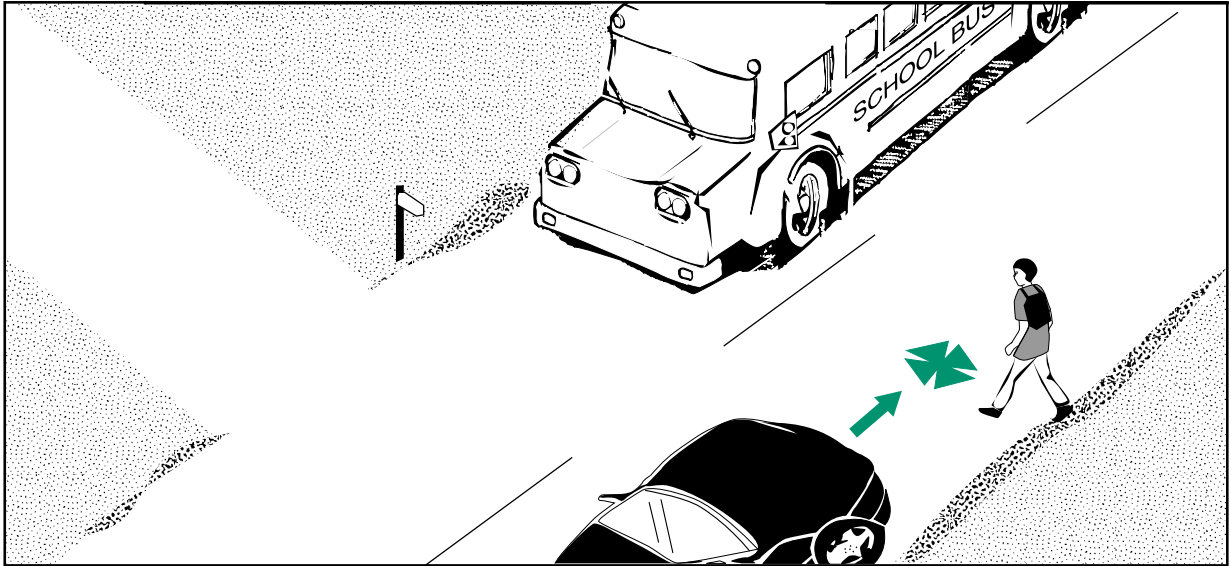
- ▶ No special feature 56%
- ▶ Intersection 44%

Pedestrian Location

- ▶ Travel lane 100%

School Bus Related

Frequency: 22 cases; 0.4% of all crashes
Severity: 32% resulted in serious or fatal injuries



Description: The pedestrian was struck going to or from a school bus or school bus stop.

Summary: This crash involved only child (age 0 to 9), youth (age 10 to 14) and teen (age 15 to 19) pedestrians.

The vast majority of these crashes occurred during daylight hours. Most occurred on 1 to 2 lane roads and on roads with speed limits of 60 km/h or less.

More than 40 percent occurred in rural areas. None involved alcohol.

“School Bus Related” crashes were of average severity.

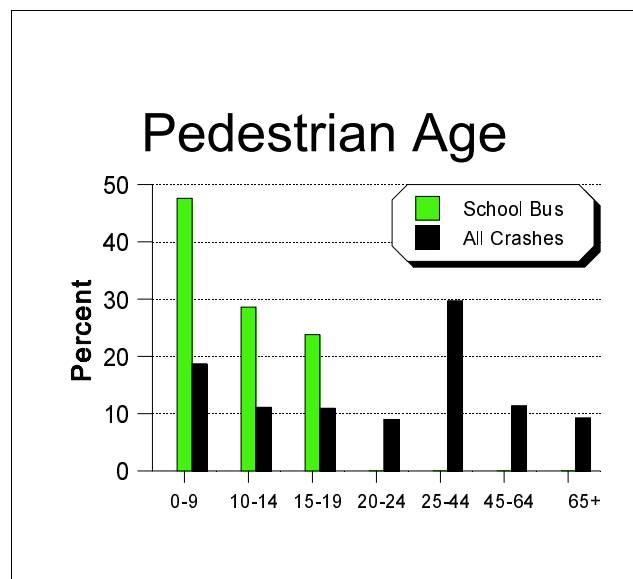
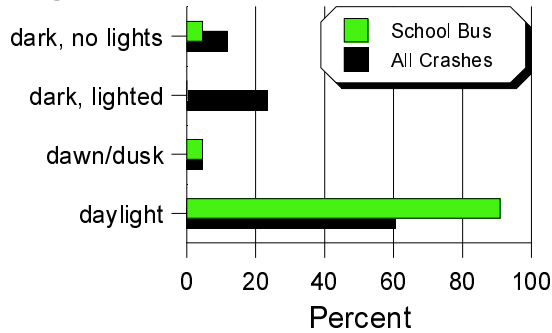


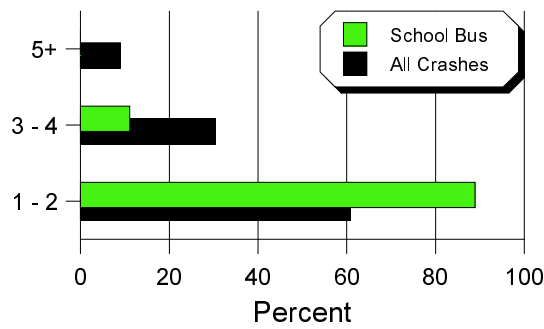
Figure 3. Pedestrian age in “School Bus Related.”

School Bus Related

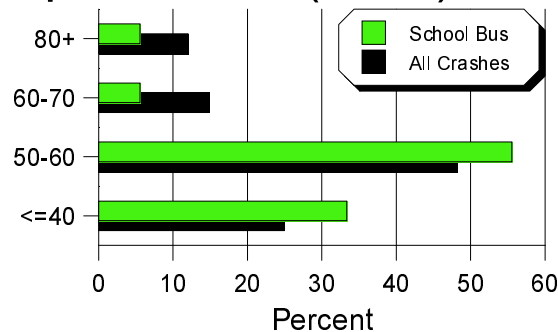
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 0%

Development Character

- ▶ Urban 59%
- ▶ Rural 41%

Day of Week

- ▶ Weekday 86%
- ▶ Weekend 14%

Road Feature

- ▶ No special feature 52%
- ▶ Intersection 38%
- ▶ Public driveway . . 5%
- ▶ Other 5%

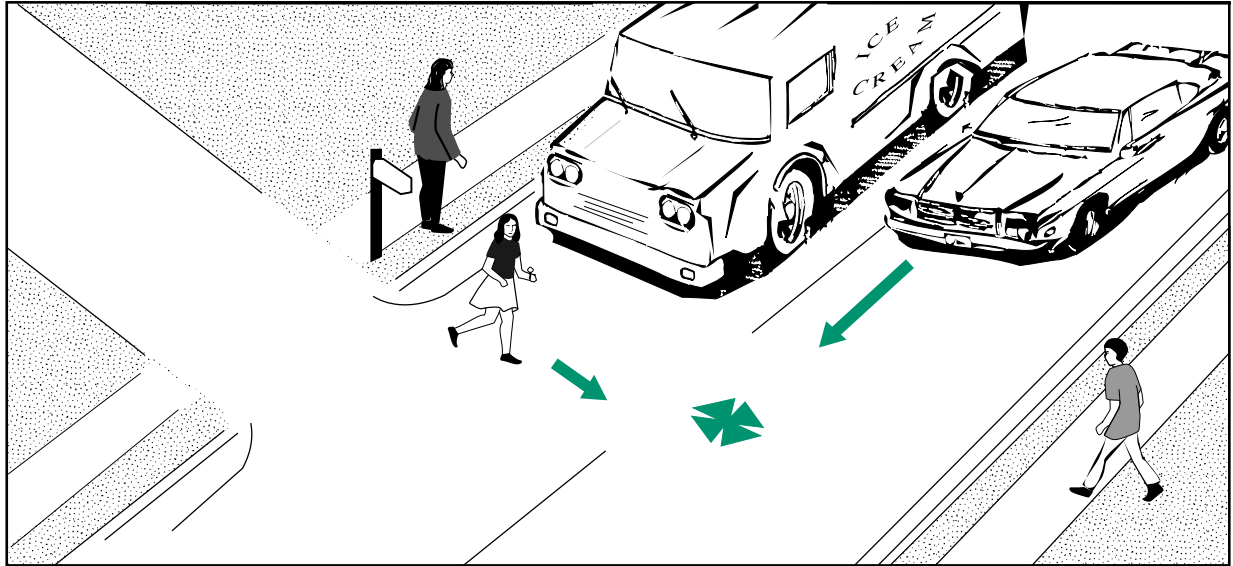
Pedestrian Location

- ▶ Travel lane 95%
- ▶ Shoulder 5%

Figure 4. Light condition, number of lanes, and speed limit in “School Bus Related.”

Ice Cream Vendor

Frequency: 40 cases; 0.8% of all crashes
Severity: 21% resulted in serious or fatal injuries



Description: The pedestrian was struck while going to or from an ice cream vendor and the striking vehicle was on the same street as the vendor.

Summary: In comparison to all crashes, this crash was more likely to involve child (age 0 to 9) and youth (age 10 to 14) pedestrians.

Daylight, 1 to 2 lane roads, and roads with a speed limit less than or equal to 40 km/h were strongly overrepresented. Urban areas were also overrepresented.

None of the pedestrians and only 5 percent of the motorists had been drinking.

“Ice Cream Vendor” crashes tended to be less severe than the average.

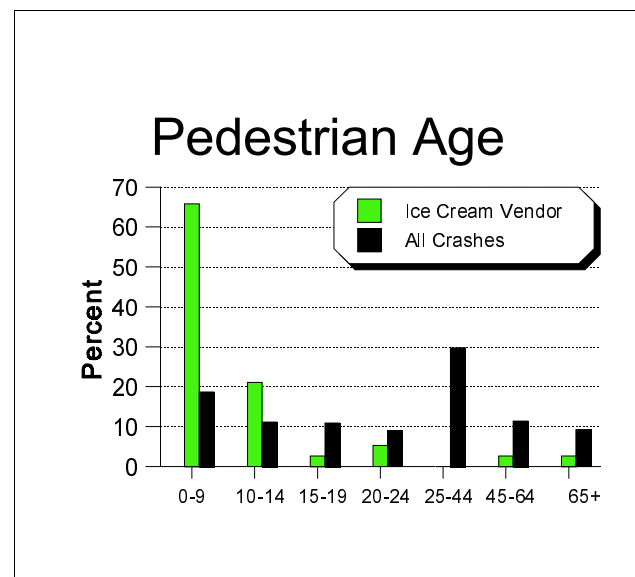
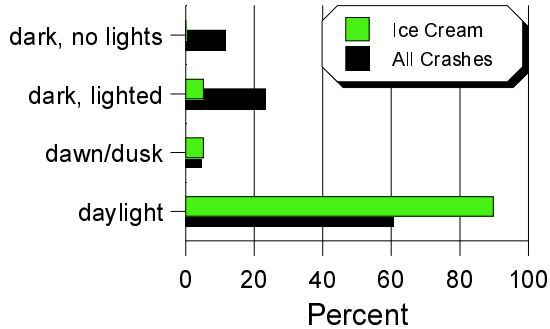


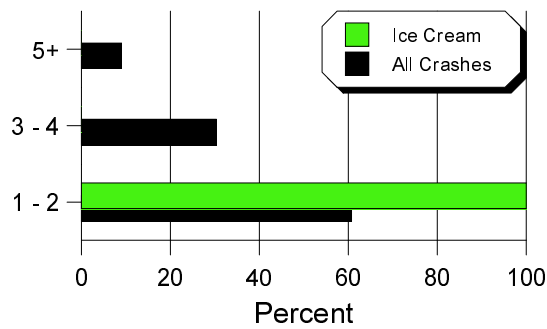
Figure 5. Pedestrian age in “Ice Cream Vendor.”

Ice Cream Vendor

Light Condition



Number of Lanes



Speed Limit (km/h)

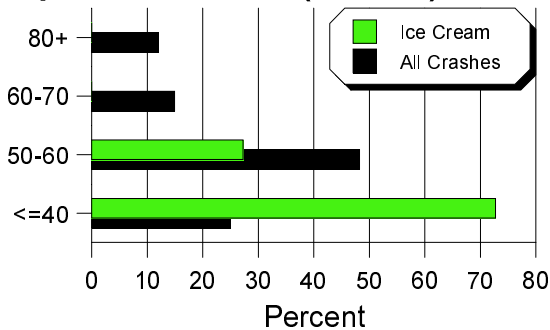


Figure 6. Light condition, number of lanes, and speed limit in “Ice Cream Vendor.”

Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 5%

Development Character

- ▶ Urban 79%
- ▶ Rural 21%

Day of Week

- ▶ Weekday 64%
- ▶ Weekend 36%

Road Feature

- ▶ No special feature 82%
- ▶ Intersection 6%
- ▶ Private driveway 6%
- ▶ Public driveway 3%
- ▶ Other 3%

Pedestrian Location

- ▶ Travel lane 95%
- ▶ Parking lot lanes 3%
- ▶ Parking lot unknown 3%

Mailbox Related

Frequency: 16 cases; 0.3% of all crashes
Severity: 50% resulted in serious or fatal injuries



Description: The pedestrian was struck while going to or from a private residence mailbox or newspaper box.

Summary: In comparison to all crashes, this crash was more likely to involve child (age 0 to 9) and elderly (age 65+) pedestrians.

This was largely a rural event (63%). All took place on 1 to 2 lane roads, and higher speed roads were strongly overrepresented. Forty percent took place on roads with a speed limit of 80 km/h or greater.

Alcohol was generally not a factor in these crashes. Although the number of cases was small, this crash was much more likely than average to result in a serious or fatal injury.

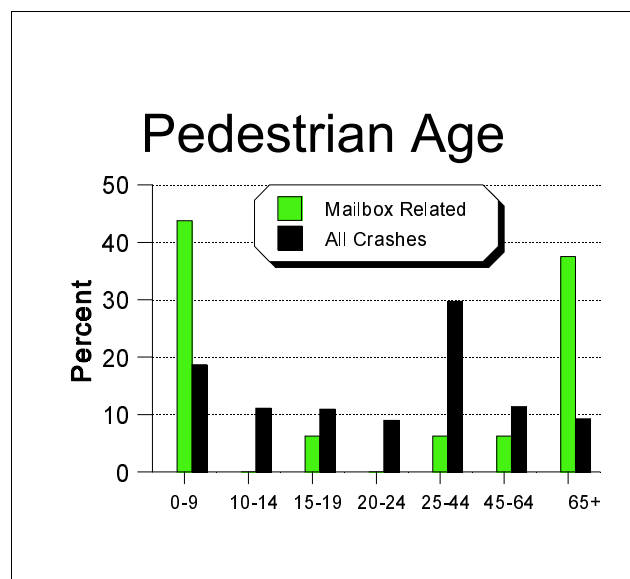
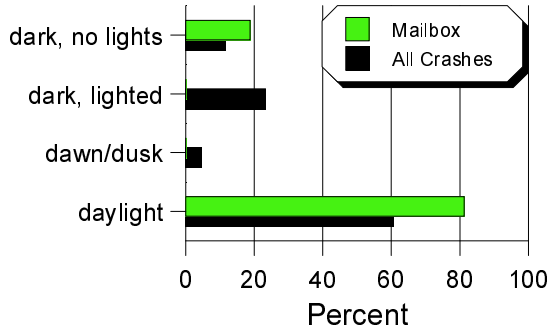
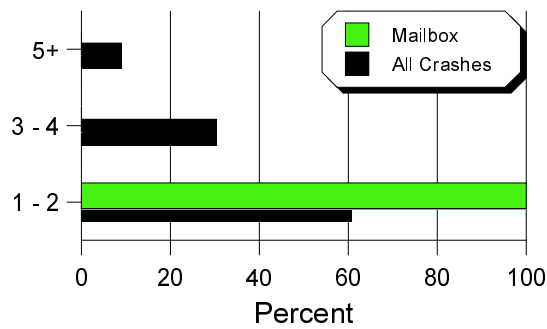


Figure 7. Pedestrian age in "Mailbox Related."

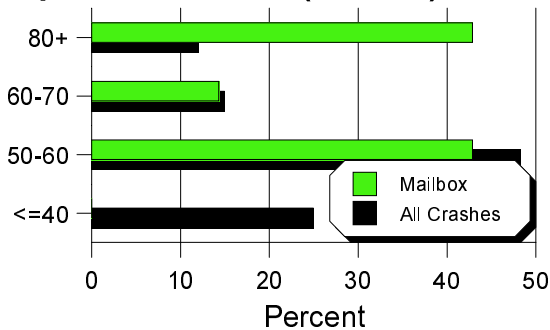
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 0%

Development Character

- ▶ Urban 38%
- ▶ Rural 63%

Day of Week

- ▶ Weekday 69%
- ▶ Weekend 31%

Road Feature

- ▶ No special feature 62%
- ▶ Private driveway . 31%
- ▶ Intersection 8%

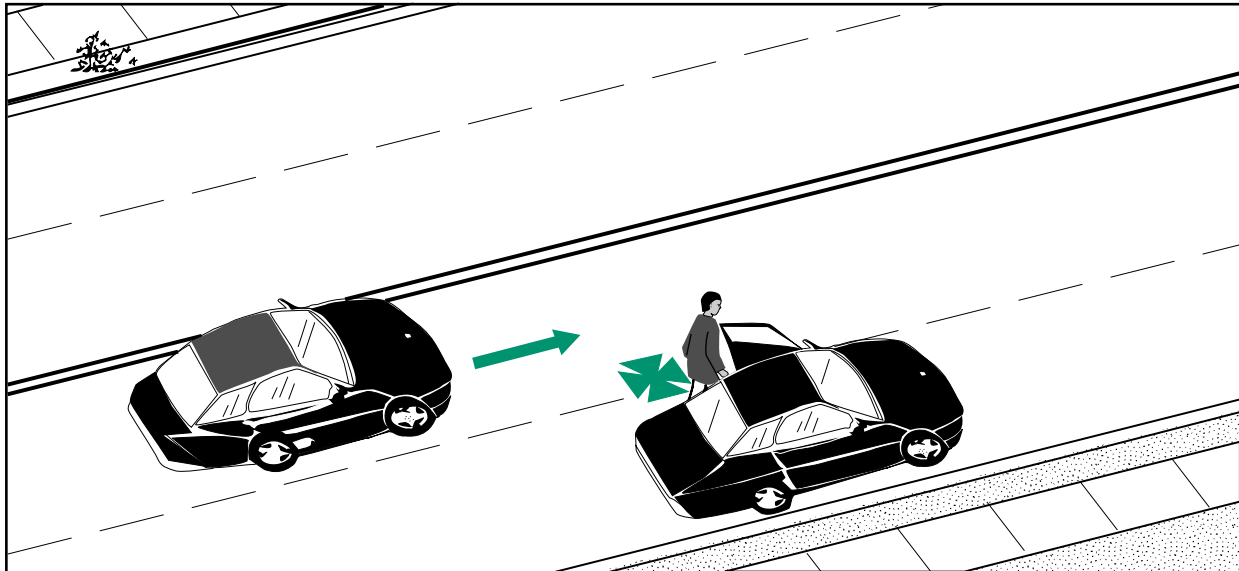
Pedestrian Location

- ▶ Travel lane 100%

Figure 8. Light condition, number of lanes, and speed limit in “Mailbox Related.”

Exiting Or Entering Parked Vehicle

Frequency: 33 cases; 0.7% of all crashes
Severity: 31% resulted in serious or fatal injuries



Description: The pedestrian was in the process of exiting or entering a parked or stopped vehicle and was struck in the adjacent traffic lane.

Summary: In comparison to all crashes, this crash was more likely to involve adult (age 25 to 44) and middle adult (age 45 to 64) pedestrians.

Almost half occurred on the weekend as compared to 35 percent for all crashes combined.

Fifteen percent of the drivers had been drinking but only 4 percent of pedestrians.

This crash type was of average severity.

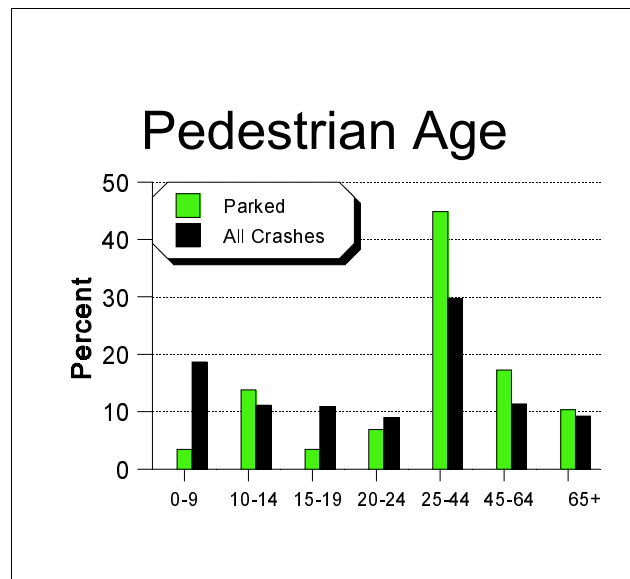
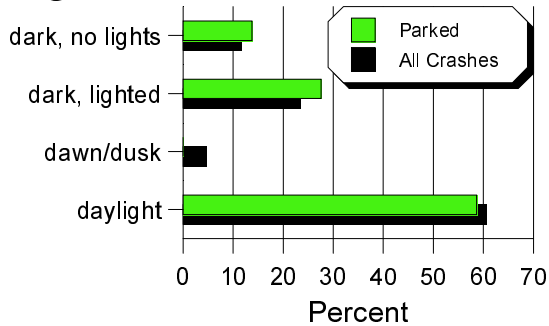


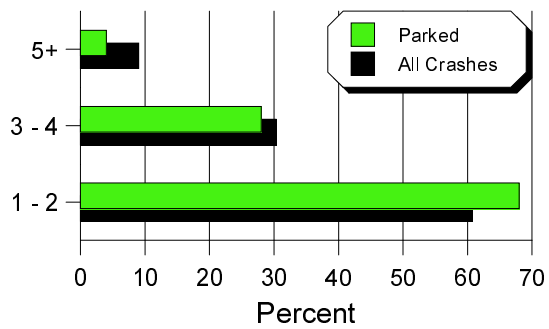
Figure 9. Pedestrian age in “Exiting Or Entering Parked Vehicle.”

Exiting Or Entering Parked Vehicle

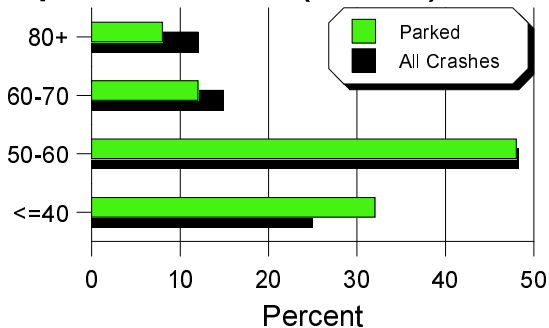
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 4%
- ▶ Driver 15%

Development Character

- ▶ Urban 72%
- ▶ Rural 28%

Day of Week

- ▶ Weekday 52%
- ▶ Weekend 48%

Road Feature

- ▶ No special feature 78%
- ▶ Intersection 19%
- ▶ Other 3%

Pedestrian Location

- ▶ Travel lane 70%
- ▶ On-street parking . 18%
- ▶ Parking lot lanes . . 3%
- ▶ Shoulder 3%
- ▶ Other 6%

Figure 10. Light condition, number of lanes, and speed limit in “Exiting Or Entering Parked Vehicle.”

Driverless Vehicle

Frequency: 104 cases; 2.1% of all crashes
Severity: 38% resulted in serious or fatal injuries



Description: The pedestrian was struck by a vehicle that was moving without a driver at the controls or was set into motion by the actions of a child.

Summary: In comparison to all crashes, this event was more likely to involve pedestrians age 25 and older.

In 77 percent of these crashes the struck pedestrian was **not** the original driver of the vehicle.

Thirty-seven percent happened in a parking lot, and an additional 20 percent in a driveway or alley.

More than 80 percent occurred during daylight.

“Driverless Vehicle” crashes were slightly more severe than average.

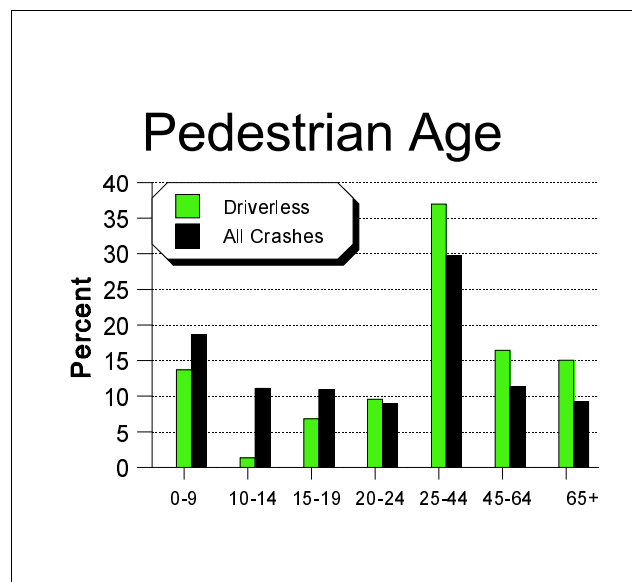
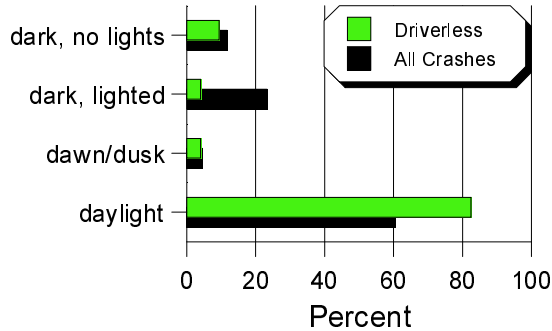


Figure 11. Pedestrian age in “Driverless Vehicle.”

Light Condition



Number of Lanes and Speed Limit graphs are not shown because this crash type most often occurs off-road.

Alcohol use

- ▶ Pedestrian 2%
- ▶ Driver 0%

Development Character

- ▶ Urban 61%
- ▶ Rural 39%

Day of Week

- ▶ Weekday 69%
- ▶ Weekend 31%

Road Feature

- ▶ No special feature 35%
- ▶ Private driveway . 17%
- ▶ Public driveway . . 6%
- ▶ Intersection 5%
- ▶ Alley 1%
- ▶ All other 37%

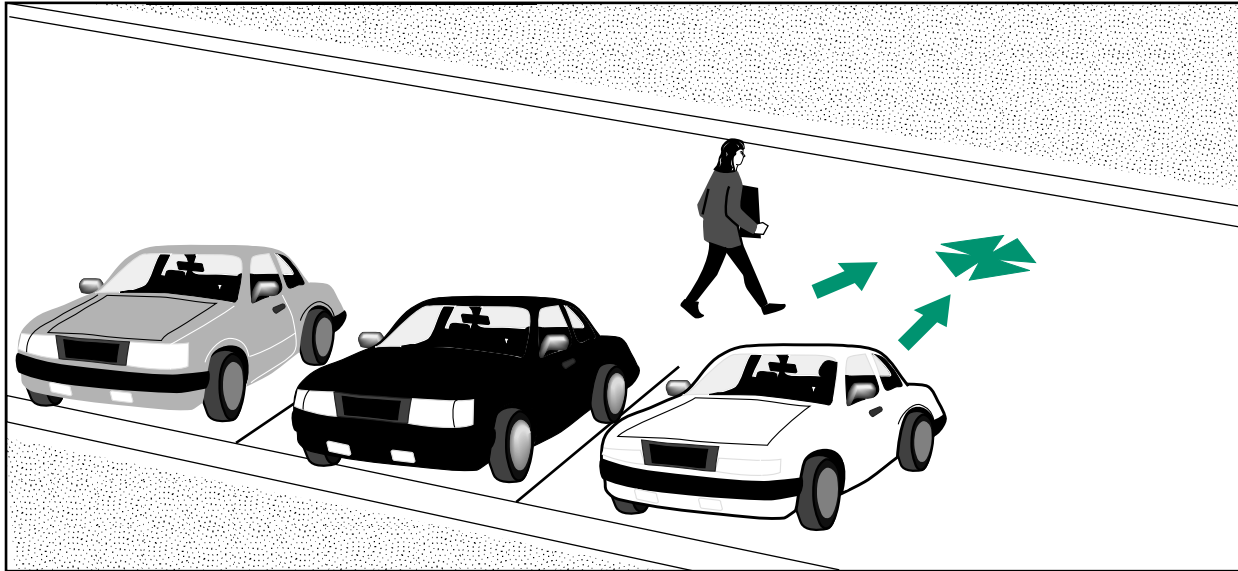
Pedestrian Location

- ▶ Travel lane 26%
- ▶ Parking lot space . 25%
- ▶ Alley/Driveway . . 20%
- ▶ Parking lot lanes . . 8%
- ▶ Parking lot, other . 4%
- ▶ All other 18%

Figure 12. Light condition in “Driverless Vehicle.”

Backing Vehicle

Frequency: 351 cases; 6.9% of all crashes
Severity: 23% resulted in serious or fatal injuries



Description: The pedestrian was struck by a vehicle that was backing.

Summary: In comparison to all crashes, this crash was more likely to involve elderly (age 65+) pedestrians.

Forty-four percent occurred in a parking lot location, and 13 percent in a driveway or alley.

Overall, 11 percent of pedestrians had been drinking, and 19 percent of those ages 20 to 44.

“Backing” crashes were less severe than the average.

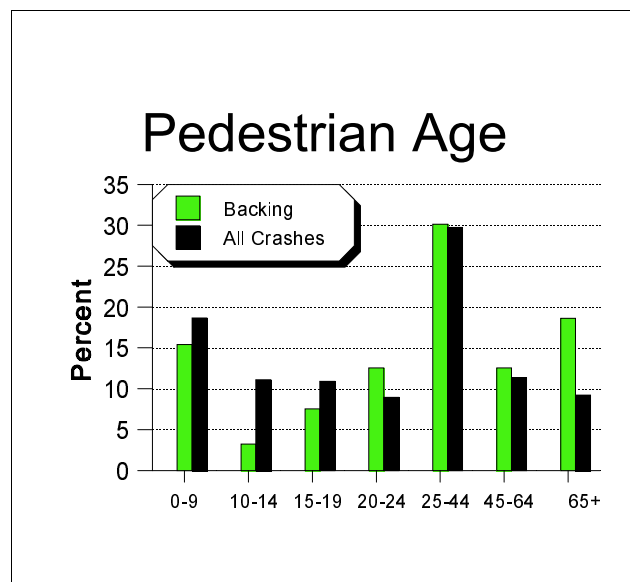
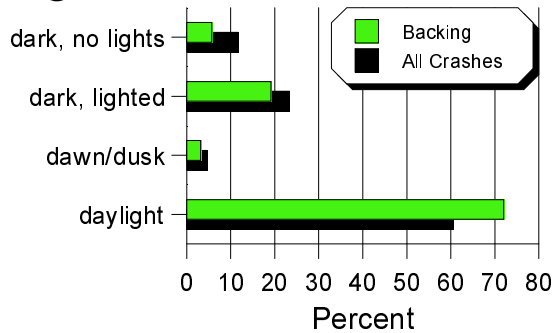


Figure 13. Pedestrian age in “Backing Vehicle.”

Backing Vehicle

Light Condition



Number of Lanes and Speed Limit graphs are not shown because these variables are not relevant to this crash type.

Alcohol use

- ▶ Pedestrian 11%
- ▶ Driver 6%

Development Character

- ▶ Urban 62%
- ▶ Rural 38%

Day of Week

- ▶ Weekday 68%
- ▶ Weekend 32%

Road Feature

- ▶ No special feature 19%
- ▶ Private driveway . 15%
- ▶ Intersection 9%
- ▶ Public driveway . . 9%
- ▶ Alley <1%
- ▶ All other 48%

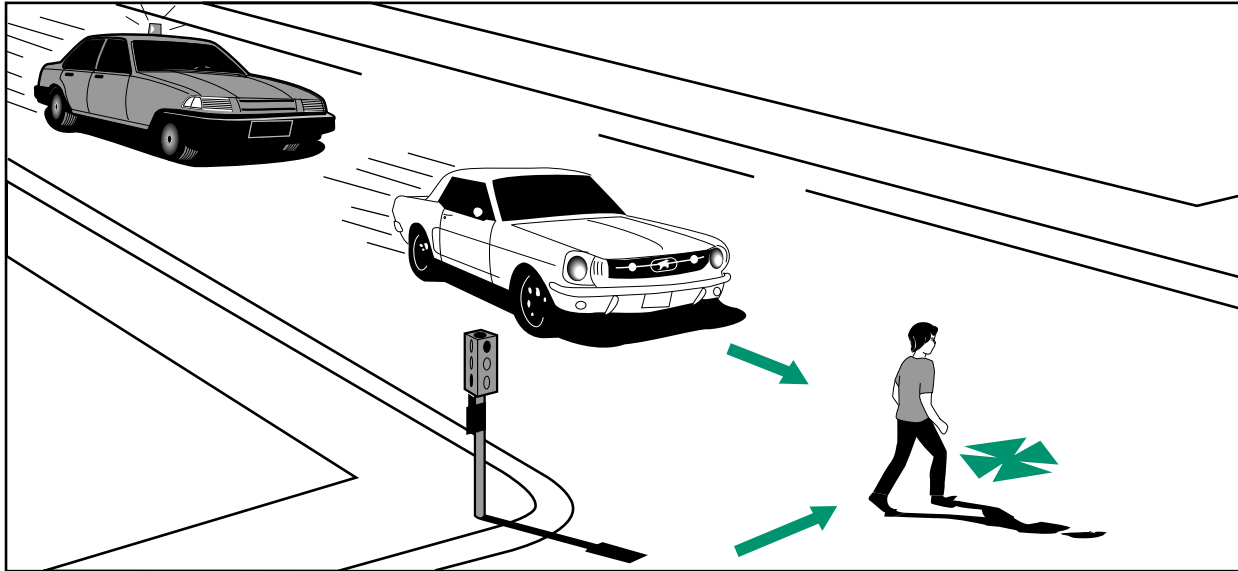
Pedestrian Location

- ▶ Parking lot space . 31%
- ▶ Travel lane 23%
- ▶ Alley/Driveway . . 13%
- ▶ Parking lot lanes . . 8%
- ▶ Parking lot unknown 5%
- ▶ All other 20%

Figure 14. Light condition in “Backing Vehicle.”

Hot Pursuit

Frequency: 5 cases; 0.1% of all crashes
Severity: 60% resulted in serious or fatal injuries



Description: The pedestrian was struck by a vehicle on an emergency/police mission, or by a vehicle being pursued.

Summary: These few crashes happened exclusively to adult (age 25 to 44) pedestrians.

Four of the five cases occurred in an urban area, on a weekday, and during conditions of darkness. Three of the pedestrians had been drinking.

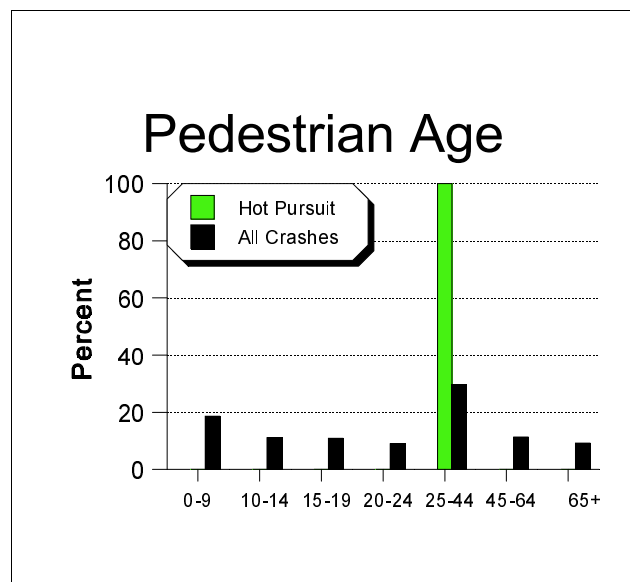
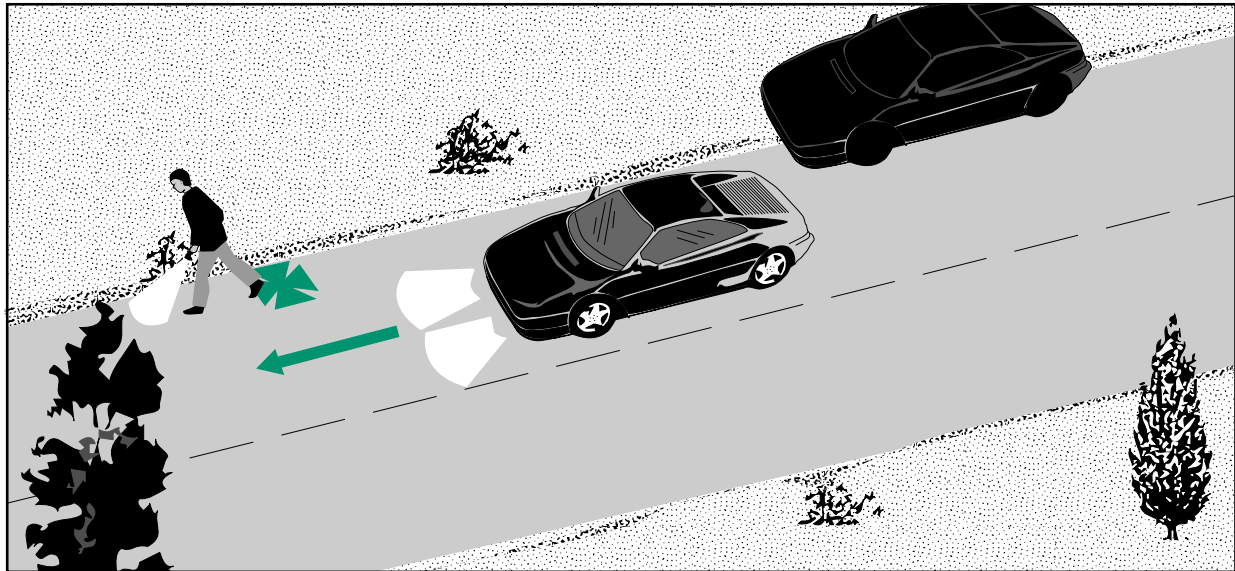


Figure 15. Pedestrian age in "Hot Pursuit."

Disabled Vehicle Related

Frequency: 124 cases; 2.5% of all crashes
Severity: 42% resulted in serious or fatal injuries



Description: The pedestrian was struck while walking to or from (9 cases) or while near or next to (105 cases) a disabled vehicle (no emergency vehicle present), or while near an active police or emergency vehicle (10 cases).

Summary: In comparison to all crashes, this crash was more likely to involve adult (age 25 to 44) pedestrians.

Almost 40 percent occurred during dark, no lights conditions, and almost 20 percent took place on roads with 5 to 10 lanes. More than 50 percent happened on roads with a speed limit of 80+ km/h, and in 27 percent of the cases the pedestrian was on the shoulder.

Almost half occurred on the weekend.

Twelve percent of drivers had been drinking.

This crash type tended to more serious than the average.

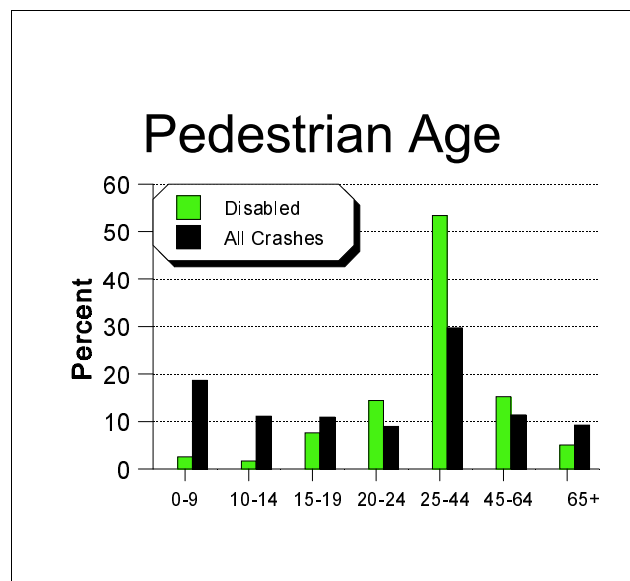
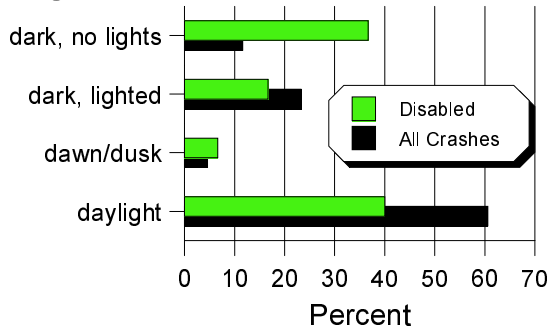


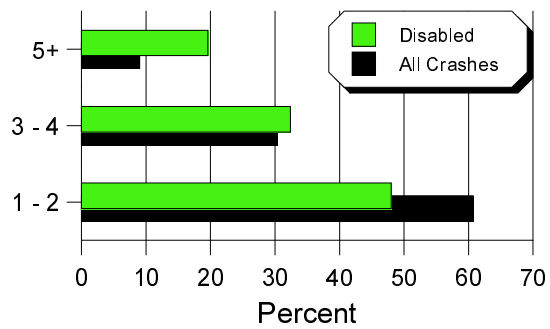
Figure 16. Pedestrian age in “Disabled Vehicle Related.”

Disabled Vehicle Related

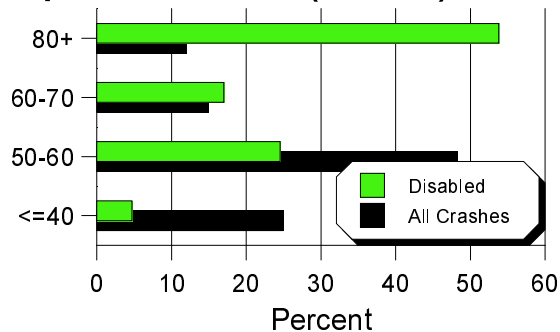
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 7%
- ▶ Driver 12%

Development Character

- ▶ Urban 56%
- ▶ Rural 44%

Day of Week

- ▶ Weekday 55%
- ▶ Weekend 45%

Road Feature

- ▶ No special feature 72%
- ▶ Intersection 15%
- ▶ Private driveway . <1%
- ▶ Public driveway . <1%
- ▶ Alley 0%
- ▶ All other 12%

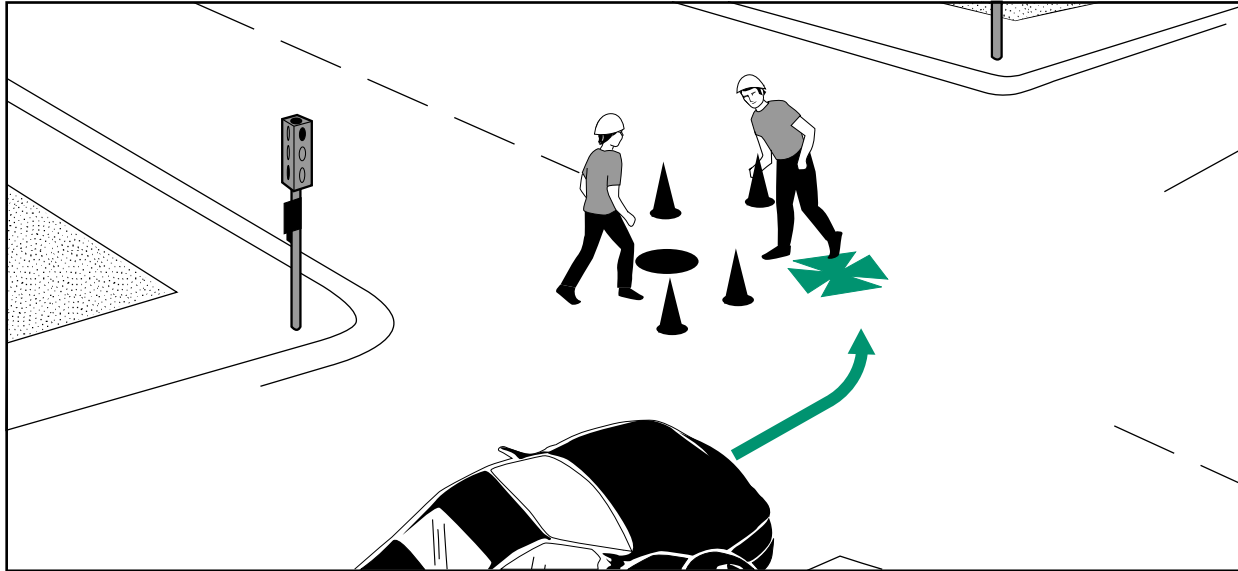
Pedestrian Location

- ▶ Travel lane 61%
- ▶ Shoulder 27%
- ▶ Median 4%
- ▶ All other 8%

Figure 17. Light condition, number of lanes, and speed limit in “Disabled Vehicle Related.”

Working On Roadway

Frequency: 69 cases; 1.4% of all crashes
Severity: 20% resulted in serious or fatal injuries



Description: The pedestrian (e.g., police/emergency personnel, flagman, road maintenance crew, etc.) was struck while working on, in, over, or under the roadway.

Summary: In comparison to all crashes, this crash was more likely to involve adult (age 25 to 44) and middle adult (age 45 to 64) pedestrians.

Eighty percent occurred during daylight conditions, and more than 25 percent happened on roads with a speed limit of 80+ km/h.

None of the pedestrians had been drinking.

This crash was less severe than the average.

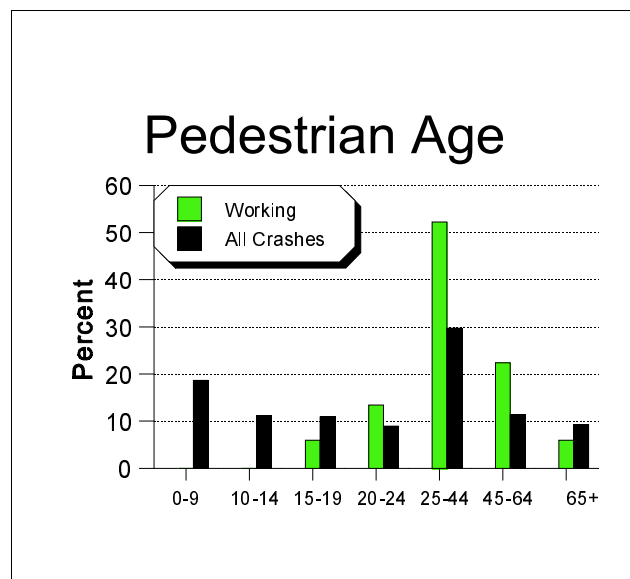
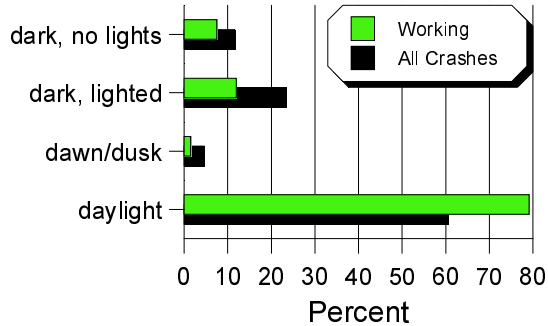
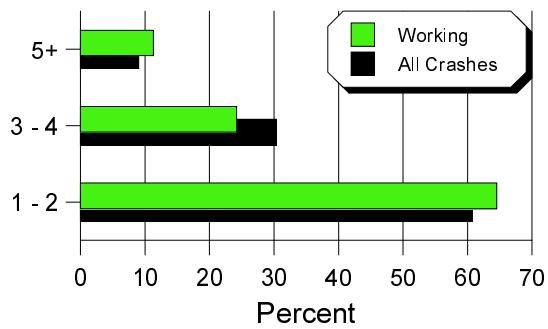


Figure 18. Pedestrian age in “Working On Roadway.”

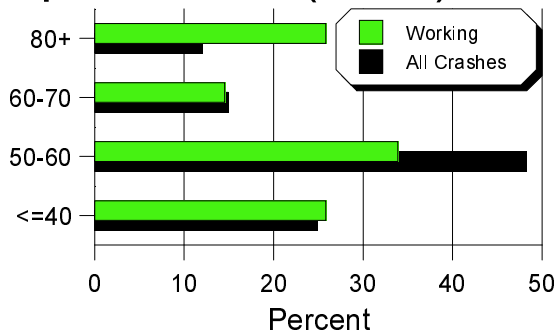
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 7%

Development Character

- ▶ Urban 60%
- ▶ Rural 40%

Day of Week

- ▶ Weekday 76%
- ▶ Weekend 24%

Road Feature

- ▶ No special feature 60%
- ▶ Intersection 29%
- ▶ All other 10%

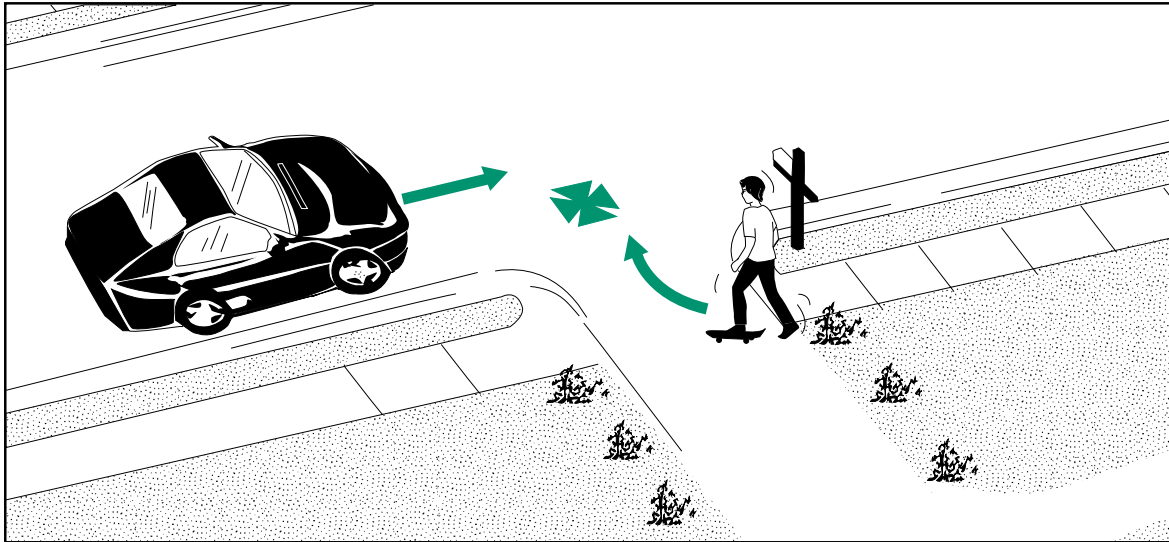
Pedestrian Location

- ▶ Travel lane 71%
- ▶ Shoulder 10%
- ▶ Roadway, unknown 6%
- ▶ All other 13%

Figure 19. Light condition, number of lanes, and speed limit in “Working On Roadway.”

Play Vehicle Related

Frequency: 35 cases; 0.7% of all crashes
Severity: 38% resulted in serious or fatal injuries



Description: The pedestrian was struck while riding a play vehicle (e.g. wagon, sled, skateboard, skates, “big wheel” type tricycle, or tricycle).

Summary: In comparison to all crashes, this crash was more likely to involve child (ages 0 to 9) and youth (ages 10 to 14) pedestrians.

Eighty percent occurred during daylight conditions, and 11 percent during dawn/dusk. Almost all took place on roads with 1 to 2 lanes, and roads with a speed limit ≤ 40 km/h were strongly represented.

None of the pedestrians or drivers had been drinking.

This type of crash was slightly more severe than the average.

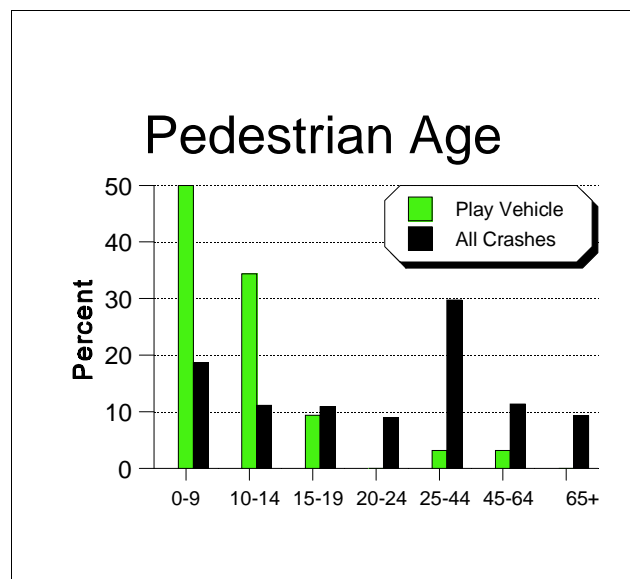
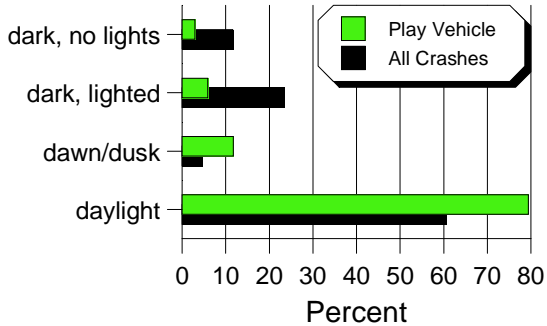


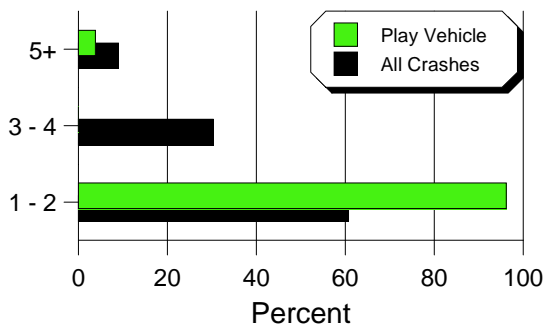
Figure 20. Pedestrian age in “Play Vehicle Related.”

Play Vehicle Related

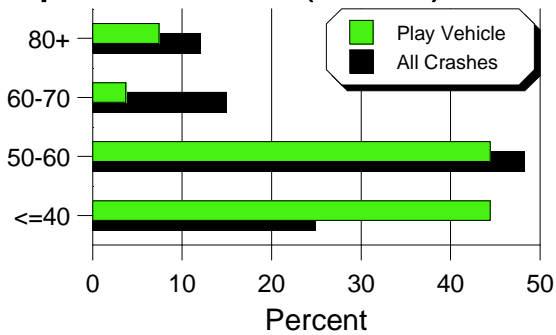
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 0%

Development Character

- ▶ Urban 53%
- ▶ Rural 47%

Day of Week

- ▶ Weekday 68%
- ▶ Weekend 32%

Road Feature

- ▶ No special feature 47%
- ▶ Intersection 24%
- ▶ Private driveway . 15%
- ▶ Alley 6%
- ▶ All other 9%

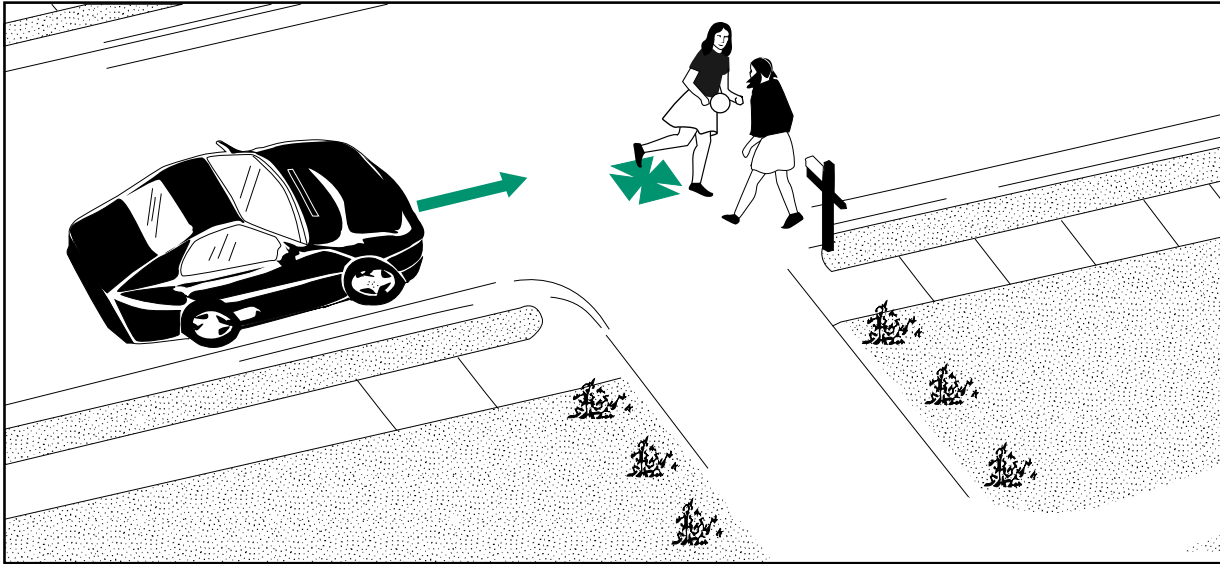
Pedestrian Location

- ▶ Travel lane 91%
- ▶ Alley/Driveway . . . 3%
- ▶ Parking lot lanes . . 3%
- ▶ Ped/Multi-use path . 3%

Figure 21. Light condition, number of lanes, and speed limit in “Play Vehicle Related.”

Playing In Roadway

Frequency: 48 cases; 0.9% of all crashes
Severity: 30% resulted in serious or fatal injuries



Description: The pedestrian was struck while playing on foot in the roadway prior to the vehicle's appearance.

Summary: In comparison to all crashes, this crash was more likely to involve child (age 0 to 9) and youth (age 10 to 14) pedestrians.

Dawn/dusk was overrepresented with 15 percent of occurrences. Almost all took place on roads with 1 to 2 lanes, and roads with a speed limit ≤ 40 km/h were strongly overrepresented.

Alcohol was generally not a factor in these crashes.

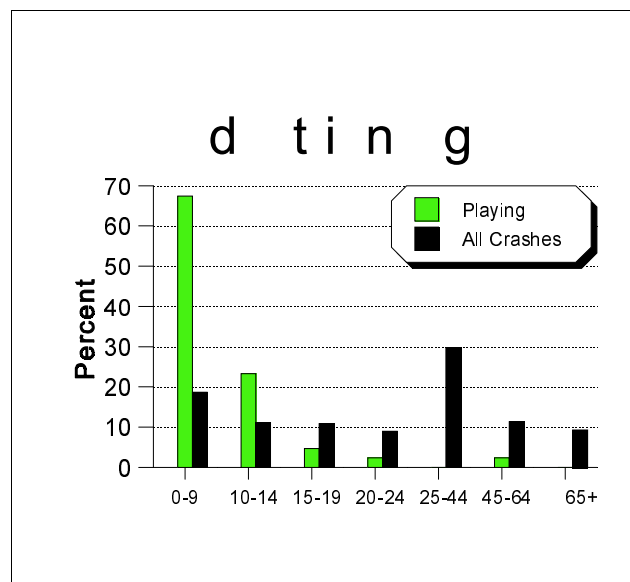
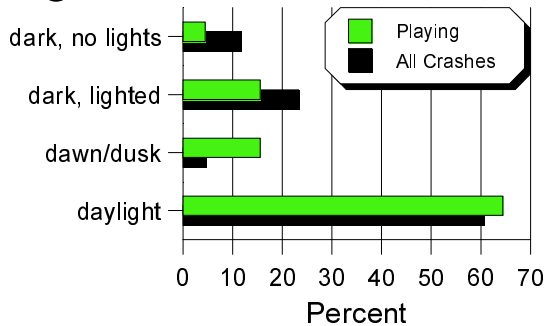
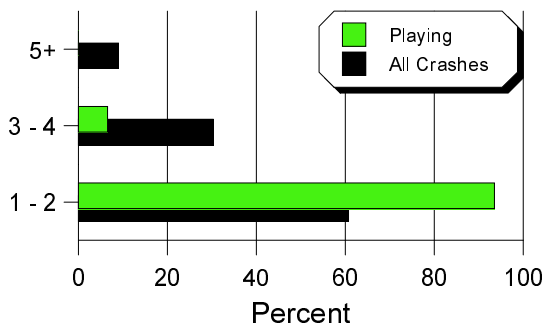


Figure 22. Pedestrian age in "Playing In Roadway."

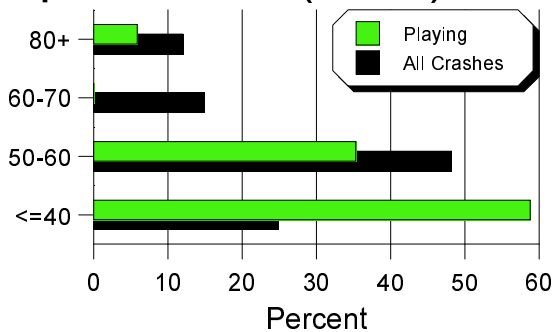
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 3%
- ▶ Driver 2%

Development Character

- ▶ Urban 69%
- ▶ Rural 31%

Day of Week

- ▶ Weekday 68%
- ▶ Weekend 32%

Road Feature

- ▶ No special feature 71%
- ▶ Intersection 24%
- ▶ Private driveway . . . 5%

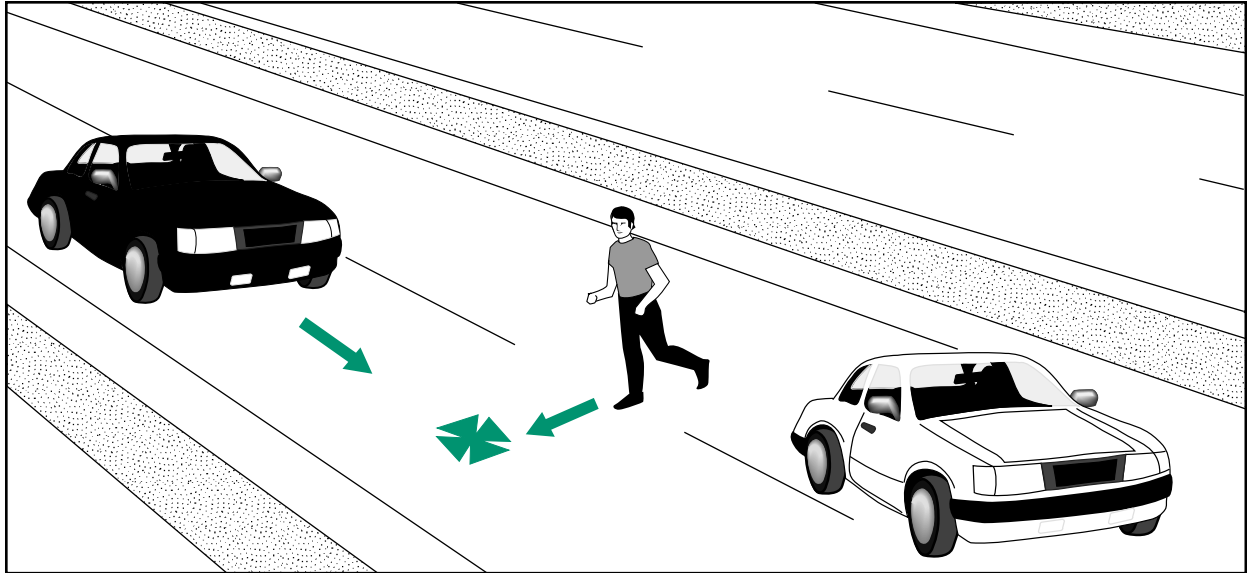
Pedestrian Location

- ▶ Travel lane 90%
- ▶ All other 10%

Figure 23. Light condition, number of lanes, and speed limit in “Playing In Roadway.”

Expressway Crossing

Frequency: 25 cases; 0.5% of all crashes
Severity: 84% resulted in serious or fatal injuries



Description: The pedestrian was struck while attempting to cross a limited access expressway.

Summary: This crash did not involve child (ages 0 to 9) or youth (age 10 to 14) pedestrians. Adult (age 25 to 44) and middle adult (age 45 to 64) pedestrians were strongly overrepresented in this crash type.

More than 80 percent occurred under dark conditions and on roads with a speed limit of 80+ km/h. Almost all occurred on multilane roads.

Almost half of the pedestrians had been drinking.

“Expressway Crossing” crashes were much more severe than the average.

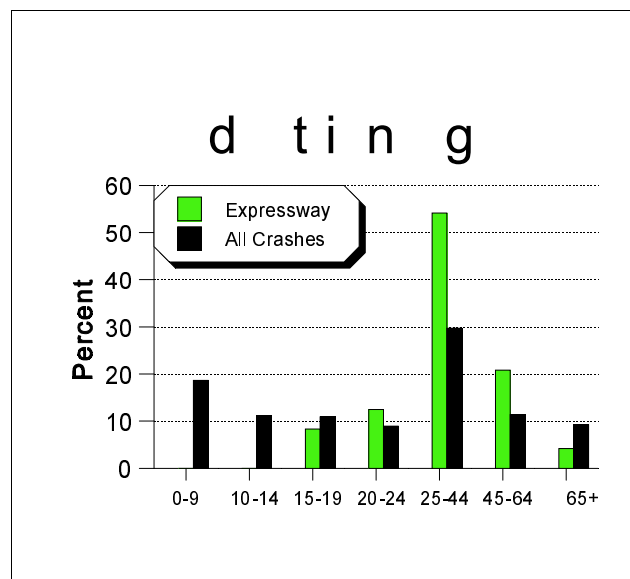
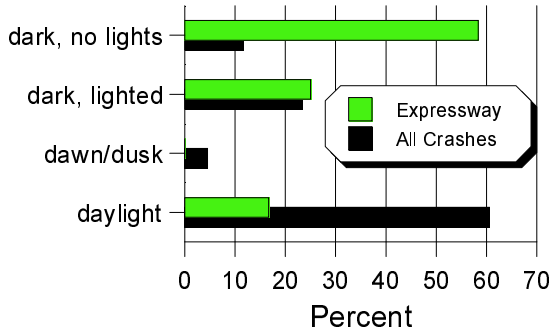
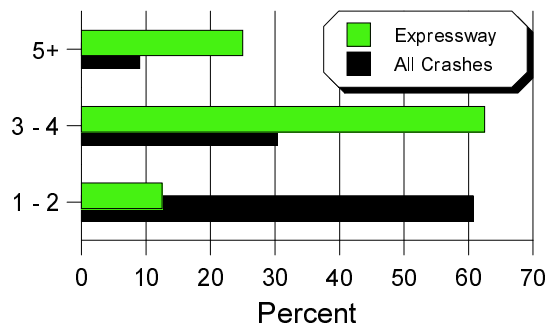


Figure 26. Pedestrian age in “Expressway Crossing.”

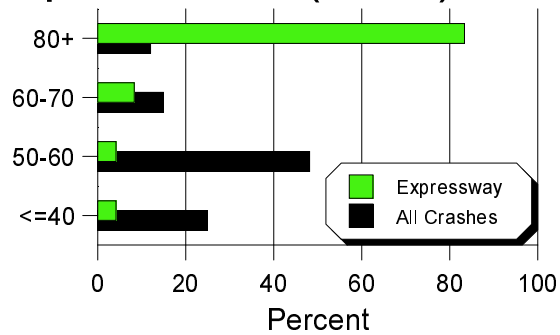
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 48%
- ▶ Driver 4%

Development Character

- ▶ Urban 64%
- ▶ Rural 36%

Day of Week

- ▶ Weekday 56%
- ▶ Weekend 44%

Road Feature

- ▶ No special feature 94%
- ▶ All other 6%

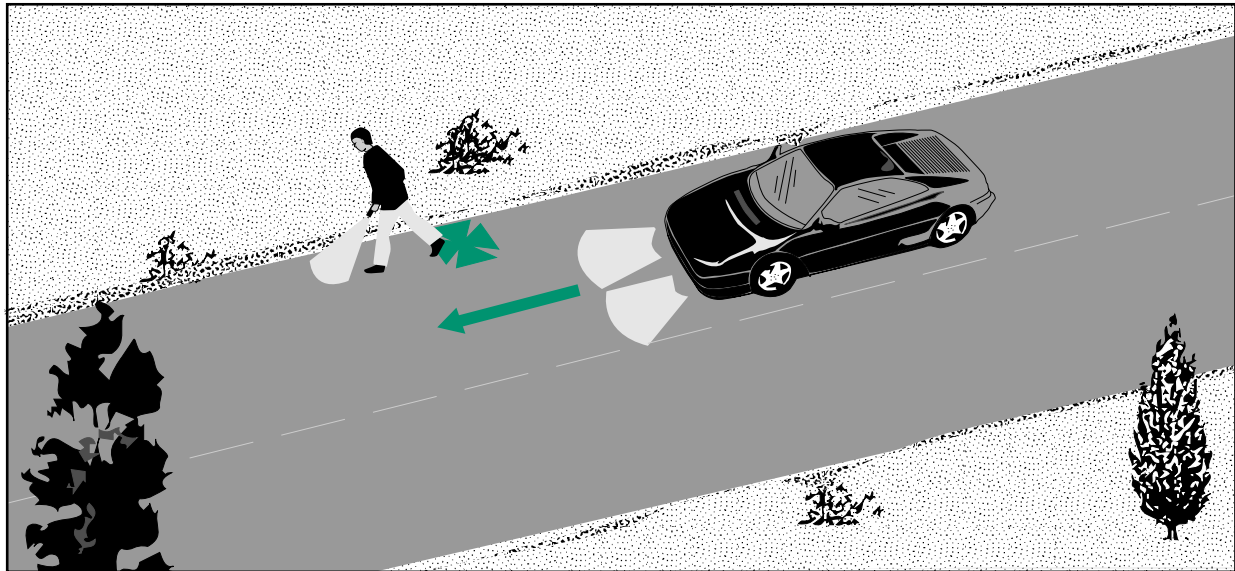
Pedestrian Location

- ▶ Travel lane 96%
- ▶ Median 4%

Figure 27. Light condition, number of lanes, and speed limit in “Expressway Crossing.”

Walking Along Road

Frequency: 375 cases; 7.4% of all crashes
Severity: 37% resulted in serious or fatal injuries



Description: The pedestrian was struck while walking (or running) along a road without sidewalks. The pedestrian may have been:

- ▶ noted as hitchhiking (15 cases)
- ▶ walking **with** traffic and struck from behind (257 cases) or from the front (5 cases)
- ▶ walking **against** traffic and struck from behind (76 cases) or from the front (7 cases)
- ▶ walking along a road, but the details are unknown (15 cases).

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19), young adult (age 20 to 24), and adult (age 25 to 44) pedestrians.

About 40 percent occurred during dark, no lights conditions. Almost 80 percent were on 1 to 2 lane roads and more than 30 percent on

roads with a speed limit of 80+ km/h. Twenty-eight percent of pedestrians had been drinking.

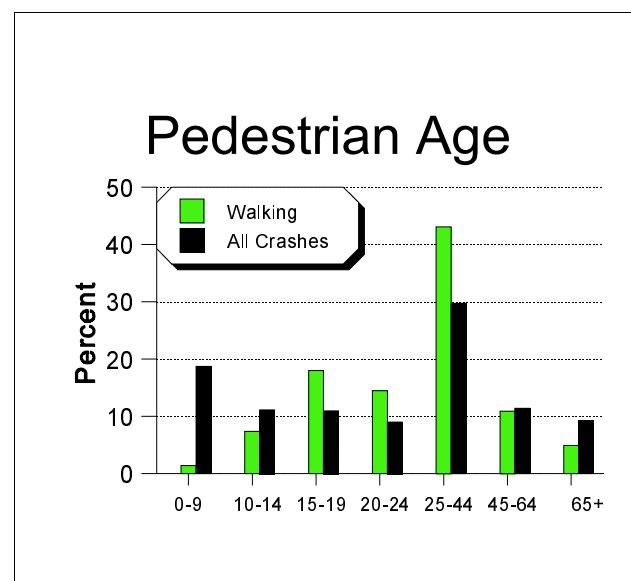
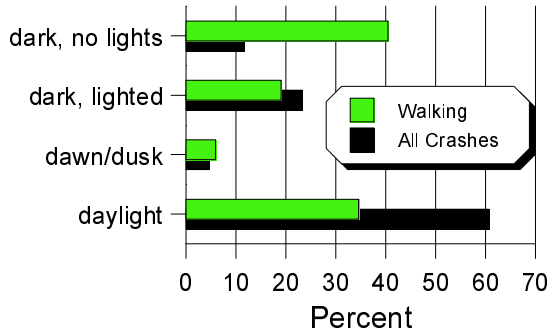


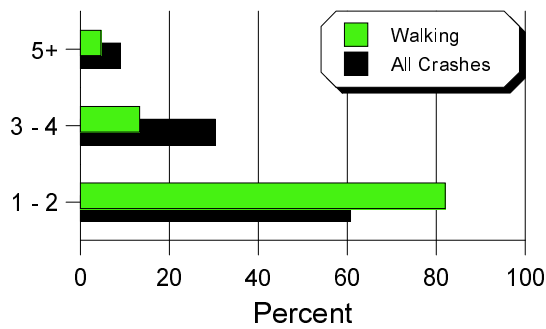
Figure 24. Pedestrian age in “Walking Along Road.”

Walking Along Road

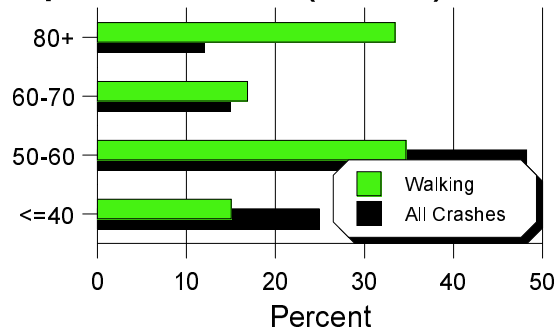
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 28%
- ▶ Driver 9%

Development Character

- ▶ Urban 56%
- ▶ Rural 44%

Day of Week

- ▶ Weekday 56%
- ▶ Weekend 44%

Road Feature

- ▶ No special feature 87%
- ▶ Intersection 8%
- ▶ Public driveway . . . 2%
- ▶ Private driveway . . . 1%
- ▶ Alley 0%
- ▶ All other 2%

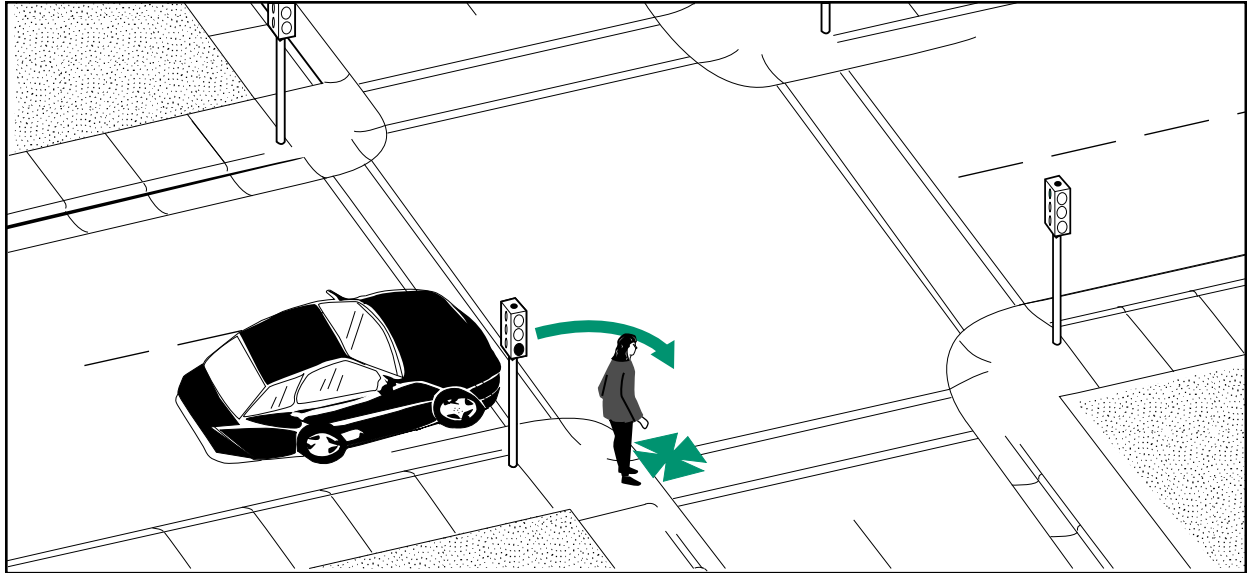
Pedestrian Location

- ▶ Travel lane 50%
- ▶ Edge of lane 23%
- ▶ Shoulder 21%
- ▶ All other 6%

Figure 25. Light condition, number of lanes, and speed limit in “Walking Along Road.”

Waiting To Cross

Frequency: 32 cases; 0.7% of all crashes
Severity: 32% resulted in serious or fatal injuries



Description: The pedestrian was struck while standing at or near the curb or roadway edge waiting to cross.

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19), adult (age 25 to 44), and middle adult (age 45-64) pedestrians.

Fifty-six percent of the striking vehicles were turning.

This crash tended to occur on lower speed roads and on 1 to 2 lane roads. The pedestrian was most often standing on a sidewalk (38 percent) or shoulder (31 percent).

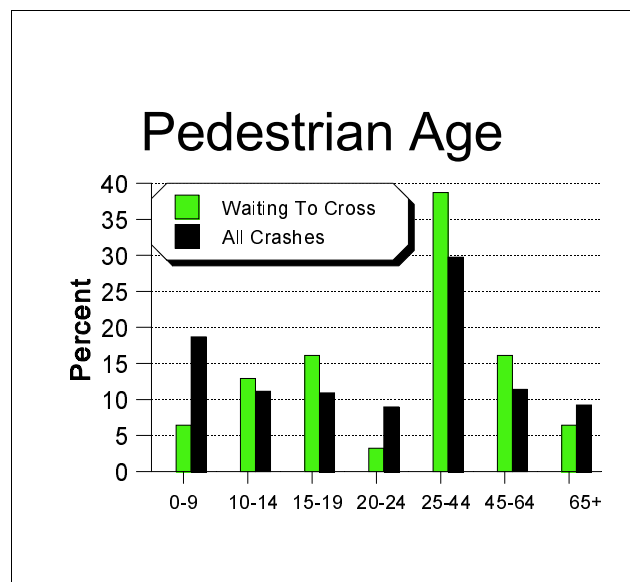
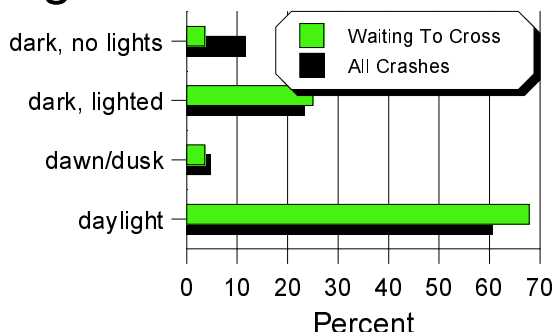
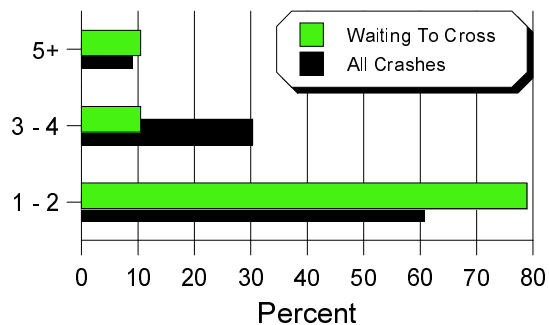


Figure 28. Pedestrian age in “Waiting To Cross.”

Light Condition



Number of Lanes



Speed Limit (km/h)

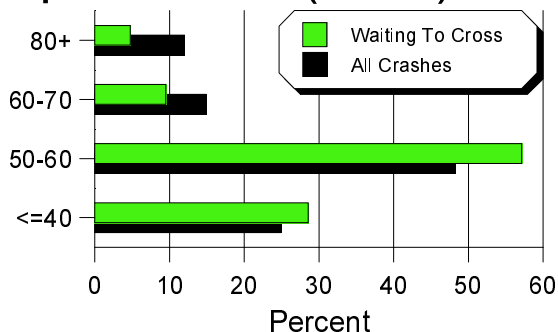


Figure 29. Light condition, number of lanes, and speed limit in “Waiting To Cross.”

Alcohol use

- ▶ Pedestrian 12%
- ▶ Driver 8%

Development Character

- ▶ Urban 68%
- ▶ Rural 32%

Day of Week

- ▶ Weekday 55%
- ▶ Weekend 45%

Road Feature

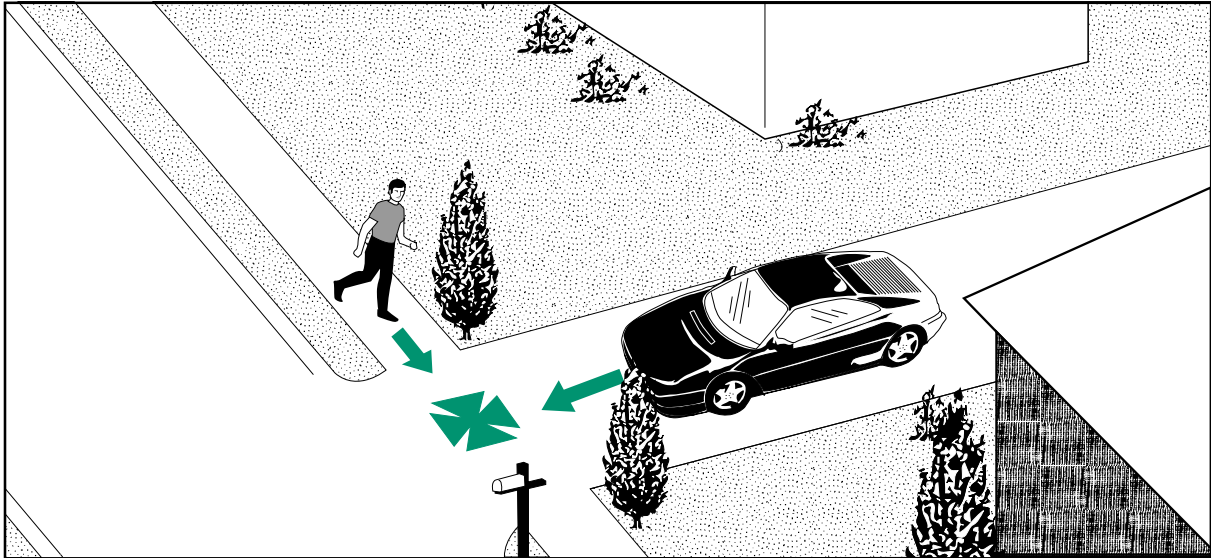
- ▶ Intersection 59%
- ▶ No special feature 11%
- ▶ Public driveway 11%
- ▶ Alley 4%
- ▶ All other 15%

Pedestrian Location

- ▶ Sidewalk 38%
- ▶ Shoulder 31%
- ▶ Travel lane 18%
- ▶ All other 13%

Not In Roadway

Frequency: 404 cases; 7.9% of all crashes
Severity: 28% resulted in serious or fatal injuries



Description: The pedestrian was struck when not in the roadway. Areas included parking lots, driveways, private roads, sidewalks, service stations, yards, etc.

Summary: The pedestrian age profile for this crash closely followed that of all crashes.

In 84 percent of the cases, both the pedestrian and the vehicle were not initially in the roadway. The other 16 percent involved a vehicle that was on the roadway, but left it and struck the pedestrian. *Note: The Road Feature bullet box depicts data for these “left the roadway” events.*

More than half of the pedestrians were in a parking lot location. *Note: Other crash types, in particular “Driverless Vehicle” and “Backing,” may also have occurred in an off-road location.*

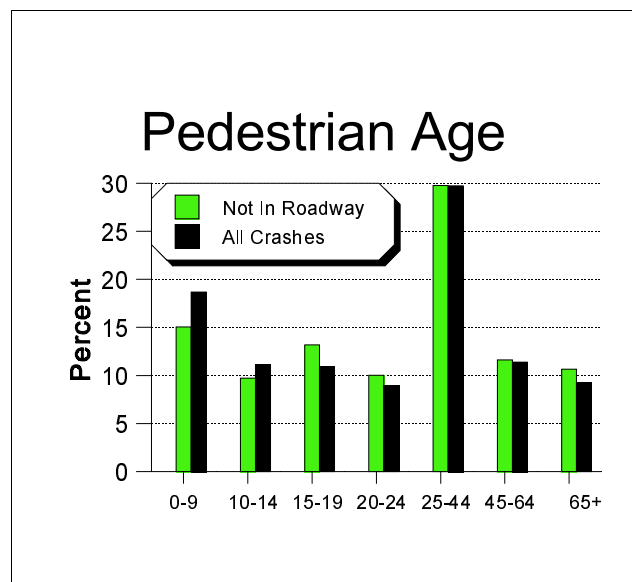
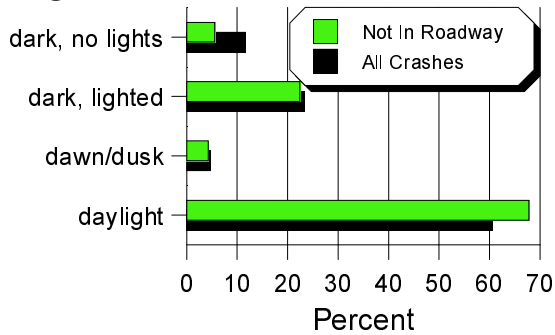


Figure 30. Pedestrian age in “Not In Roadway.”

Light Condition



Number of Lanes and Speed Limit graphs are not shown because these variables are not relevant to this crash type.

Alcohol use

- ▶ Pedestrian 11%
 - ▶ Driver 7%
-

Development Character

- ▶ Urban 63%
 - ▶ Rural 37%
-

Day of Week

- ▶ Weekday 63%
 - ▶ Weekend 37%
-

Road Feature

- ▶ Public driveway . . 15%
 - ▶ No special feature . 11%
 - ▶ Private driveway . . 6%
 - ▶ All other 66%
-

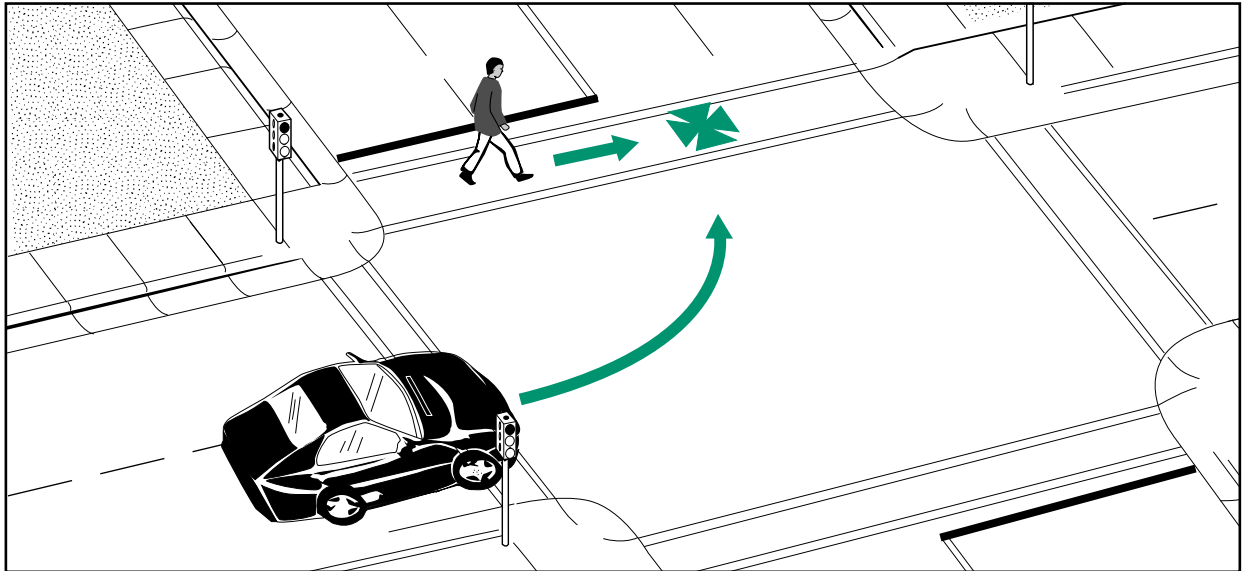
Pedestrian Location

- ▶ Parking lot lanes . . 28%
 - ▶ Parking lot space . . 16%
 - ▶ Alley/Driveway . . . 16%
 - ▶ Sidewalk 15%
 - ▶ Parking lot, other . . 9%
 - ▶ All other 16%
-

Figure 31. Light condition in “Not In Roadway.”

Vehicle Turn/Merge

Frequency: 497 cases; 9.8% of all crashes
Severity: 18% resulted in serious or fatal injuries



Description: The pedestrian and vehicle collided while the vehicle was preparing to turn, in the process of turning, or had just completed a turn (or merge).

Summary: In comparison to all crashes, this crash was more likely to involve adult pedestrians ages 25 and above.

This was largely an urban event (77%).

It was more likely to occur on 3 to 4 lane roads and on roads with speed limits of 50 to 60 km/h.

“Vehicle Turn/Merge” crashes were less severe than the average.

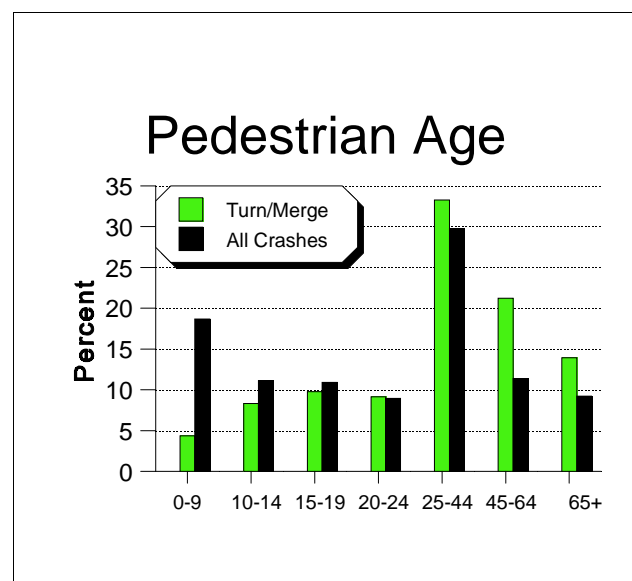
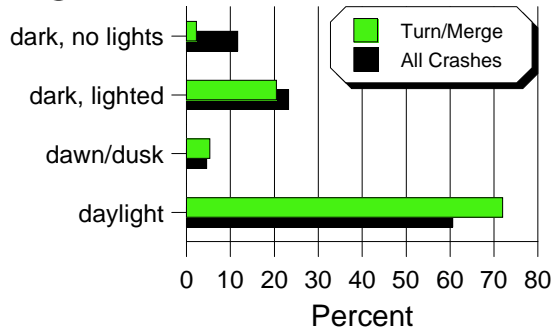


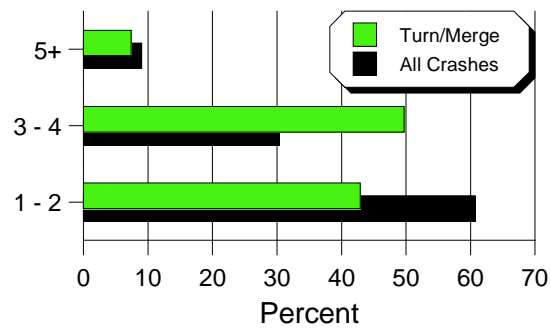
Figure 34. Pedestrian age in “Vehicle Turn/Merge.”

Vehicle Turn/Merge

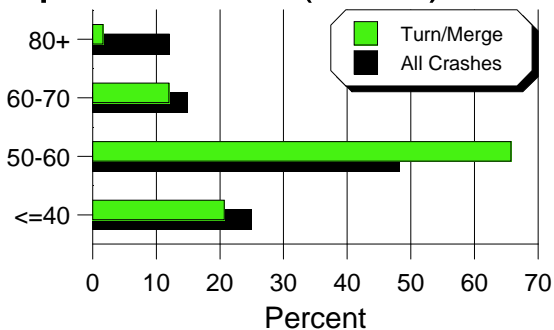
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 5%
- ▶ Driver 3%

Development Character

- ▶ Urban 77%
- ▶ Rural 23%

Day of Week

- ▶ Weekday 77%
- ▶ Weekend 23%

Road Feature

- ▶ Intersection 96%
- ▶ All other 4%

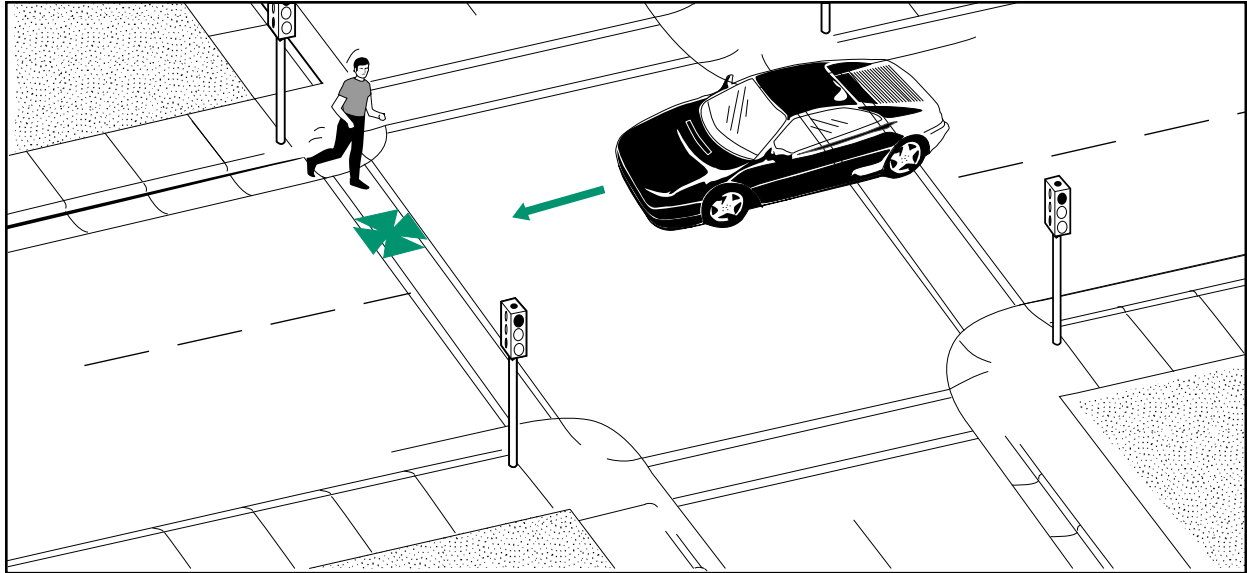
Pedestrian Location

- ▶ Travel lane 99%
- ▶ Median 1%

Figure 35. Light condition, number of lane, and speed limit in “Vehicle Turn/Merge.”

Intersection Dash

Frequency: 363 cases; 7.2% of all crashes
Severity: 34% resulted in serious or fatal injuries



Description: The pedestrian was struck while running through an intersection and/or the motorist's view of the pedestrian was blocked until an instant before impact.

Summary: In comparison to all crashes, this crash was much more likely to involve child (age 0 to 9) and youth (age 10 to 14) pedestrians.

More than 70 percent occurred under daylight conditions. Overall 9 percent of the pedestrians had been drinking, but 48 percent of those ages 25 to 44.

The "Number of Lanes" and "Speed Limit" variables were typical of all crashes, with greatest numbers occurring on 1 to 2 lane and 50 to 60 km/h roads.

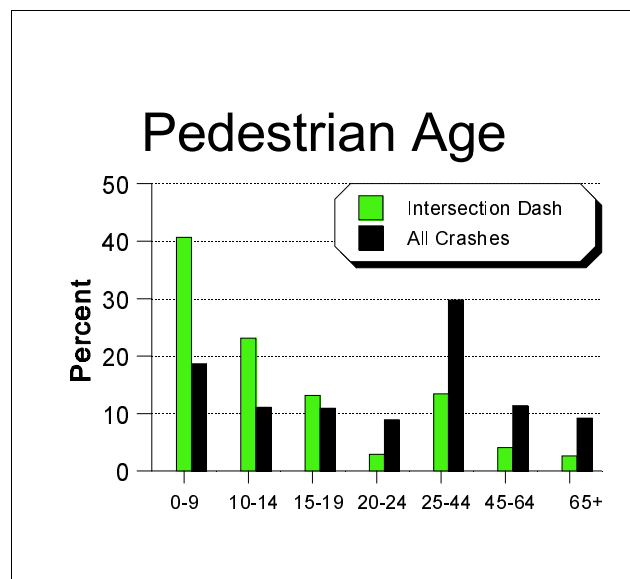
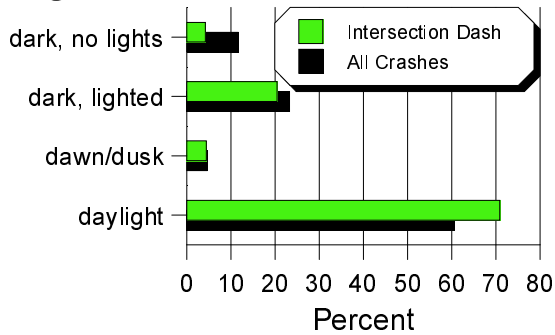
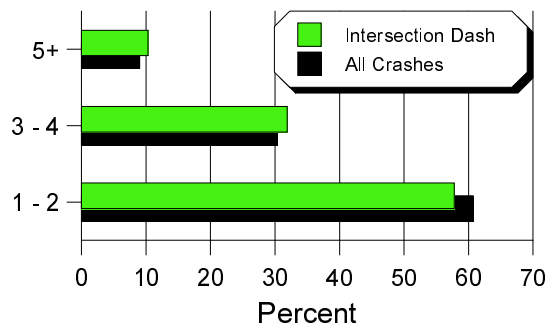


Figure 36. Pedestrian age in "Intersection Dash."

Light Condition



Number of Lanes



Speed Limit (km/h)

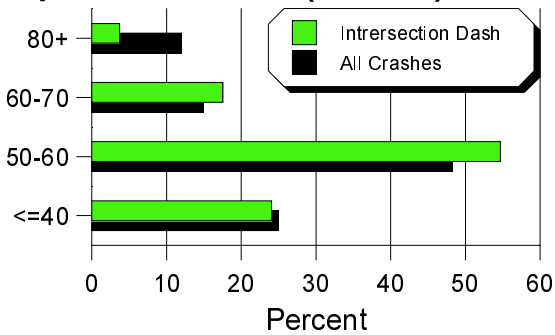


Figure 37. Light condition, number of lanes, and speed limit in “Intersection Dash.”

Alcohol use

- ▶ Pedestrian 9%
- ▶ Driver 3%

Development Character

- ▶ Urban 71%
- ▶ Rural 29%

Day of Week

- ▶ Weekday 66%
- ▶ Weekend 34%

Road Feature

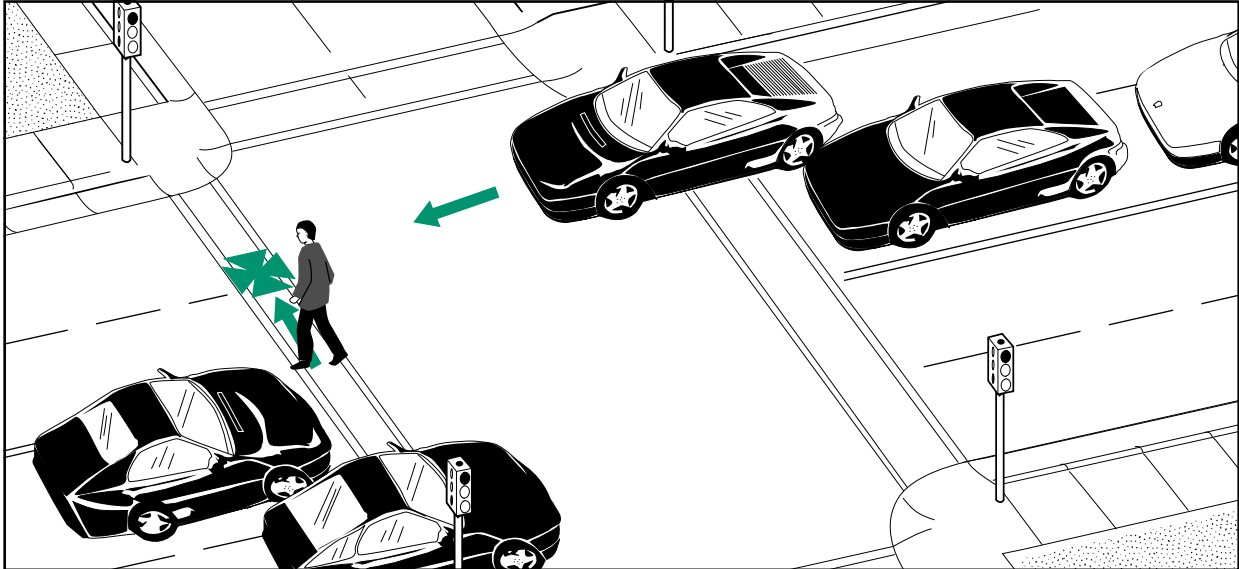
- ▶ Intersection 100%

Pedestrian Location

- ▶ Travel lane 100%

Trapped

Frequency: 41 cases; 0.8% of all crashes
Severity: 12% resulted in serious or fatal injuries



Description: The pedestrian was struck while crossing at a signalized intersection when the light changed and traffic started moving.

Summary: In comparison to all crashes, this crash was more likely to involve youth (age 10 to 14) and elderly (age 65+) pedestrians.

Multilane roads were strongly overrepresented in this crash type.

“Trapped” crashes were much less likely to result in serious injury than average.

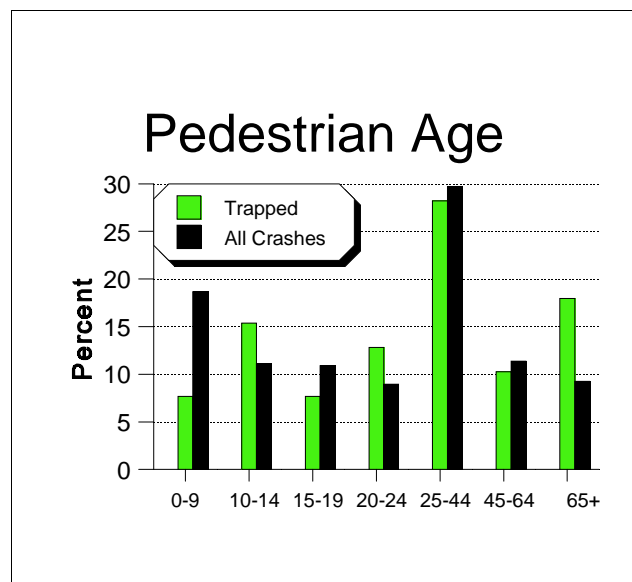
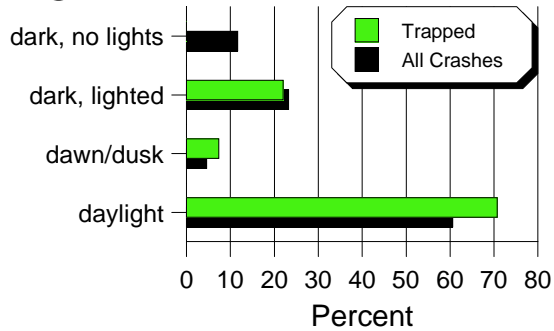
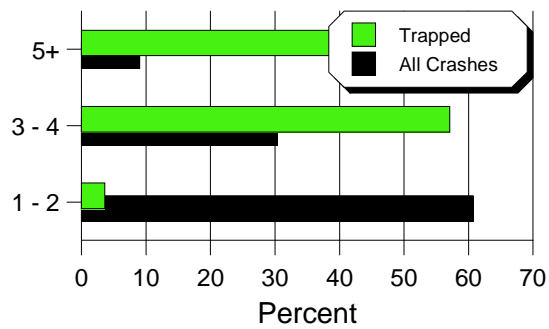


Figure 38. Pedestrian age in “Trapped.”

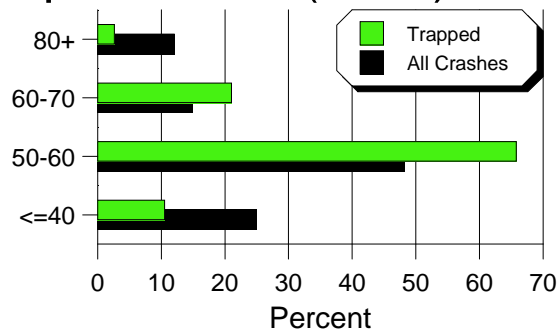
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 0%
- ▶ Driver 3%

Development Character

- ▶ Urban 66%
- ▶ Rural 34%

Day of Week

- ▶ Weekday 76%
- ▶ Weekend 24%

Road Feature

- ▶ Intersection 100%

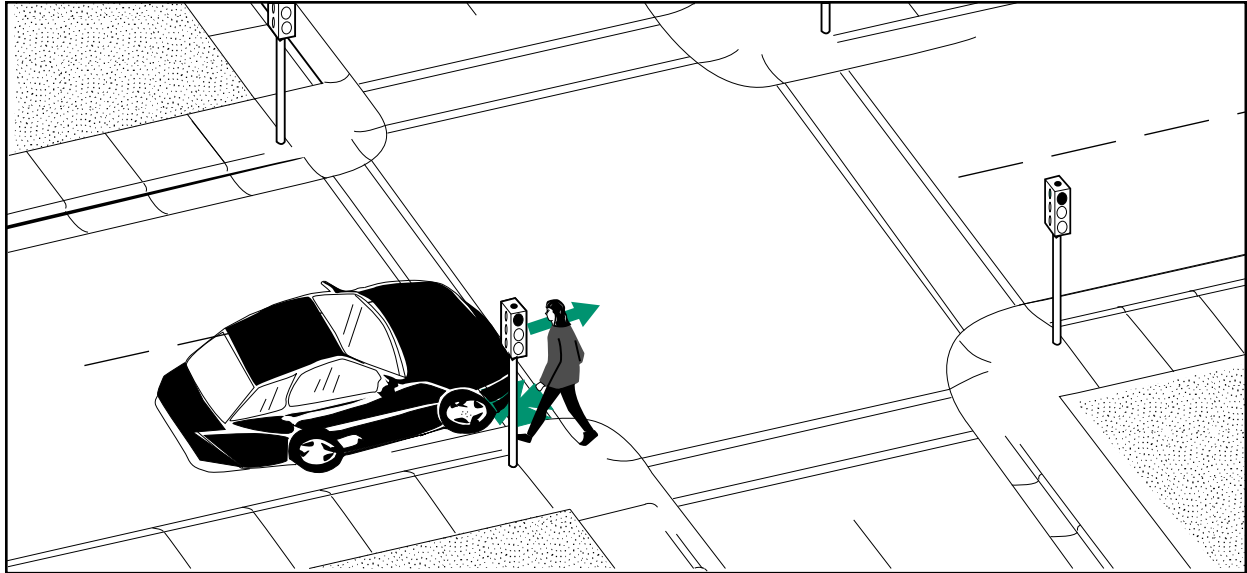
Pedestrian Location

- ▶ Travel lane 100%

Figure 39. Light condition, number of lane, and speed limit in “Trapped.”

Walked Into Vehicle At Intersection

Frequency: 42 cases; 0.9% of all crashes
Severity: 20% resulted in serious or fatal injuries



Description: The pedestrian walked into (i.e., struck) the vehicle at an intersection. The pedestrian may have stepped into the travel lane and instantaneously collided with the vehicle (13 cases), or may have been walking in the lane prior to colliding with the vehicle (11 cases) (18 cases were undetermined).

Summary: The age profile for this crash generally followed that of all crashes combined.

Almost half the crashes occurred on 3 to 4 lane roads. Most occurred on 50 to 60 km/h roads, but more than a fourth took place on 60 to 70 km/h roads.

Overall, 38 percent of the pedestrians had been drinking. Thirteen of the 21 (62 percent) pedestrians age 20 to 64 had been drinking.

A lower percentage than average were seriously injured or killed.

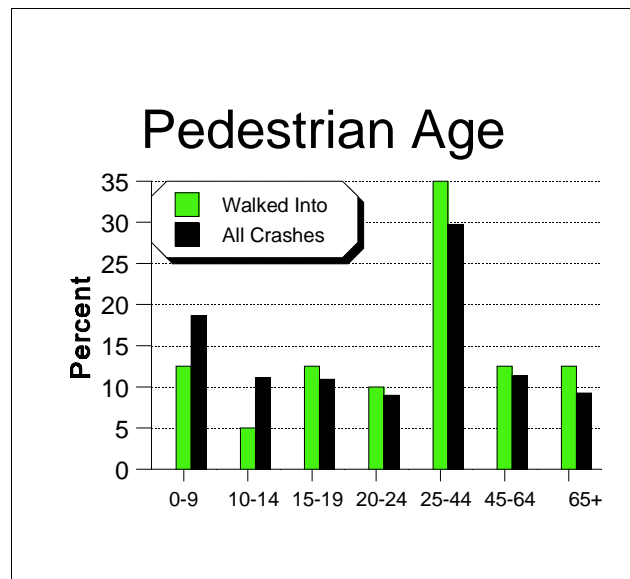


Figure 40. Pedestrian age in "Walked Into Vehicle At Intersection."

Driver Violation At Intersection

Frequency: 259 cases; 5.1% of all crashes
Severity: 28% resulted in serious or fatal injuries



Description: The pedestrian was struck by a vehicle proceeding straight ahead and the report indicated that the driver committed a violation such as careless driving, failed to yield, signal/sign violation, speeding, or DWI, etc.

Summary: The age profile for this crash generally followed that of all crashes combined, though child (age 0 to 9) pedestrians were less likely to be involved.

Eighty percent occurred in urban areas, and lower speed roads were slightly overrepresented.

This crash resulted in somewhat less serious injuries than average.

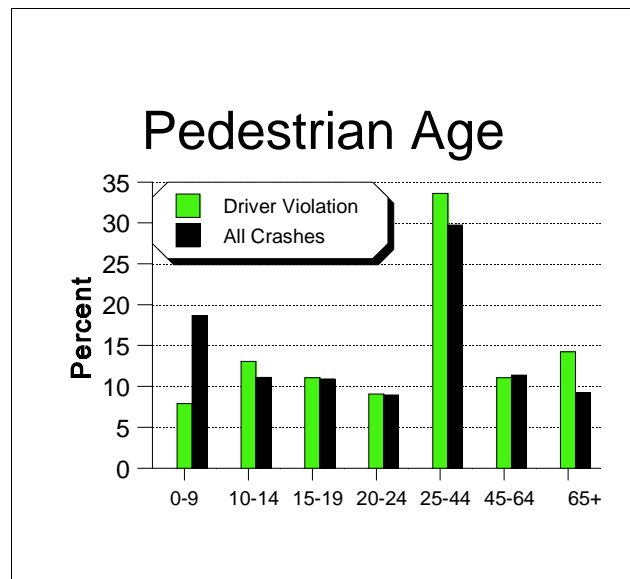
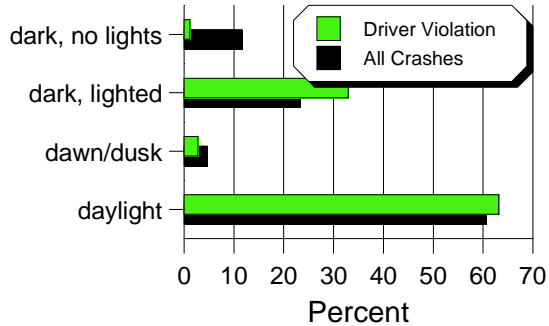


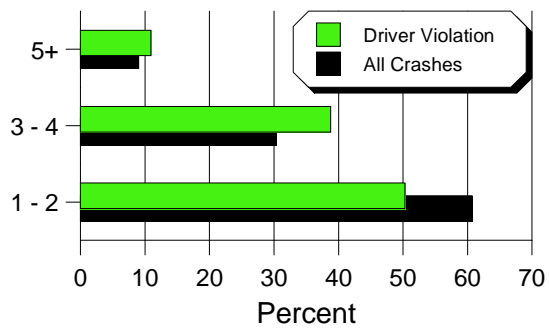
Figure 42. Pedestrian age in "Driver Violation At Intersection."

Driver Violation At Intersection

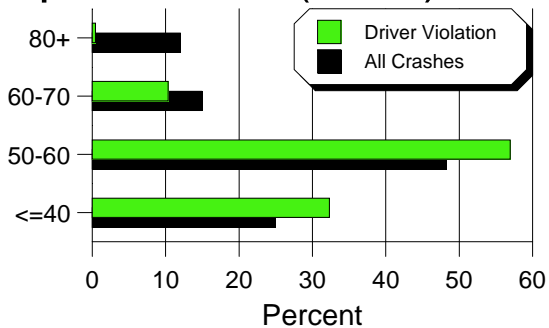
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 8%
- ▶ Driver 5%

Development Character

- ▶ Urban 80%
- ▶ Rural 20%

Day of Week

- ▶ Weekday 74%
- ▶ Weekend 26%

Road Feature

- ▶ Intersection 100%

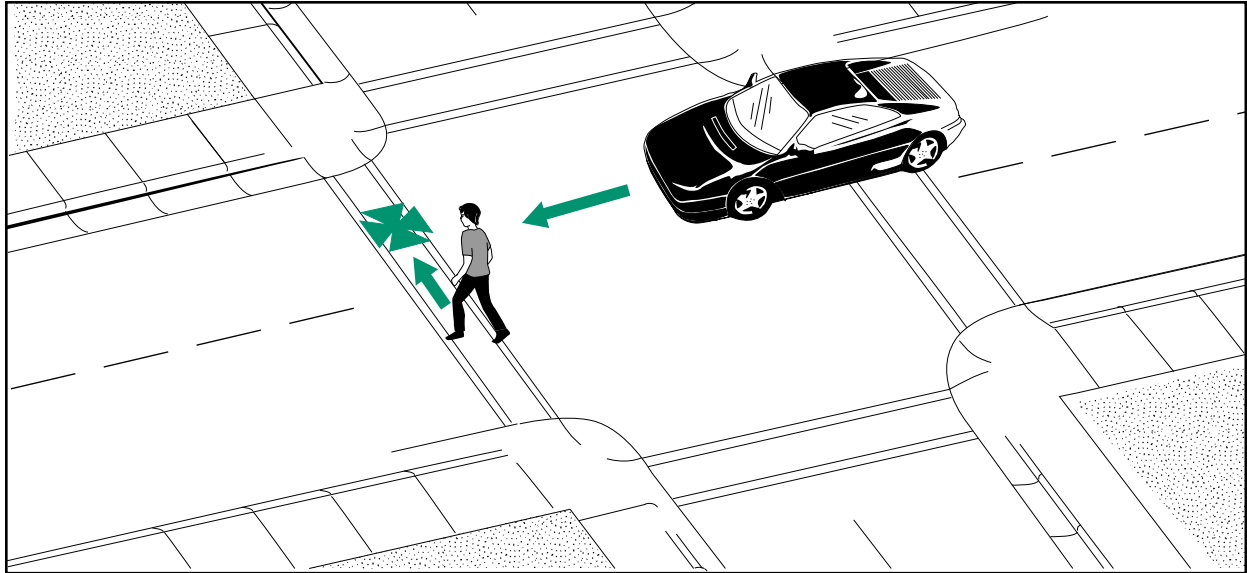
Pedestrian Location

- ▶ Travel lane 100%

Figure 43. Light condition, number of lanes, and speed limit in “Driver Violation At Intersection.”

Intersection— Other

Frequency: 364 cases; 7.2% of all crashes
Severity: 42% resulted in serious or fatal injuries



Description: The crash occurred at an intersection but does not conform to any of the specified crash types.

Summary: In comparison to all crashes, this crash was **less** likely to involve child (age 0 to 9) pedestrians.

Forty-four percent of the involved pedestrians had been walking in the travel lane prior to impact, 4 percent had been standing in the roadway, 16 percent stepped into the travel lane and were instantaneously struck, and 7 percent misjudged the crossing gap. Thirty percent were undetermined.

More than 40 percent occurred under dark, lighted conditions. Multilane roads were also overrepresented.

Forty-two percent of pedestrians ages 25 to 64

had been drinking. These crashes were more severe than the average.

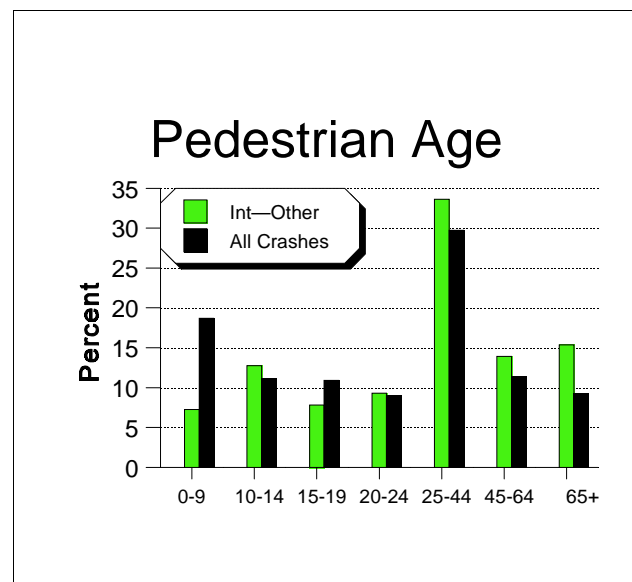
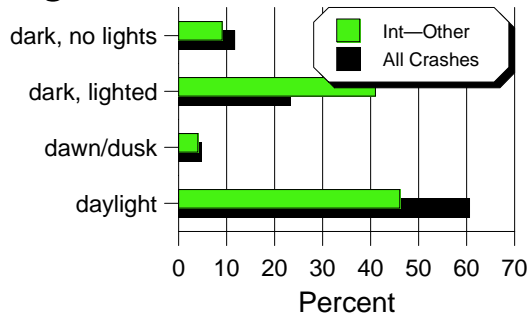
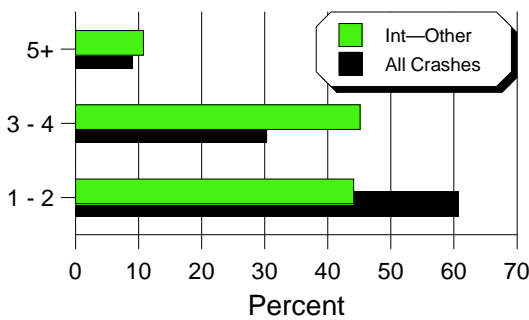


Figure 44. Pedestrian age in “Intersection—Other.”

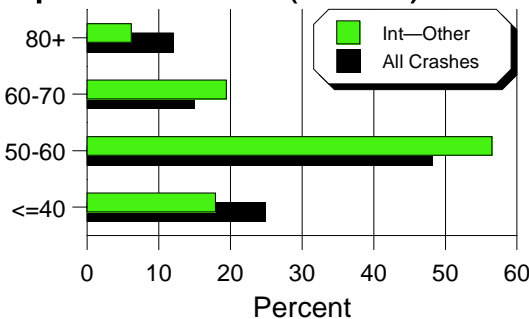
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 27%
- ▶ Driver 5%

Development Character

- ▶ Urban 73%
- ▶ Rural 27%

Day of Week

- ▶ Weekday 74%
- ▶ Weekend 26%

Road Feature

- ▶ Intersection 100%

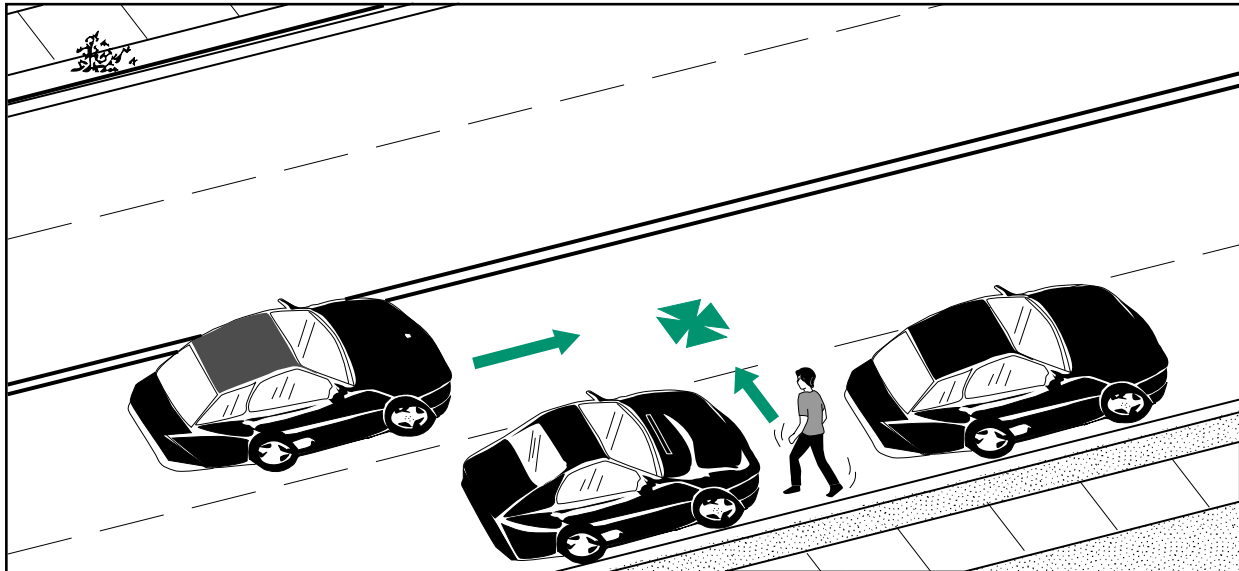
Pedestrian Location

- ▶ Travel lane 100%

Figure 45. Light condition, number of lanes, and speed limit in “Intersection—Other.”

Multiple Threat At Midblock

Frequency: 46 cases; 0.9% of all crashes
Severity: 41% resulted in serious or fatal injuries



Description: The pedestrian entered the traffic lane at midblock in front of standing or stopped traffic and was struck by another vehicle moving in the same direction as the stopped traffic.

Summary: In comparison to all crashes, this crash was more likely to involve youth (age 10 to 14) pedestrians.

Almost 90 percent occurred under daylight conditions.

Multilane roads were, by definition, strongly overrepresented. This was also very likely to be a weekday rather than weekend event.

Alcohol was generally not a factor.

This crash tended to be more serious than the average.

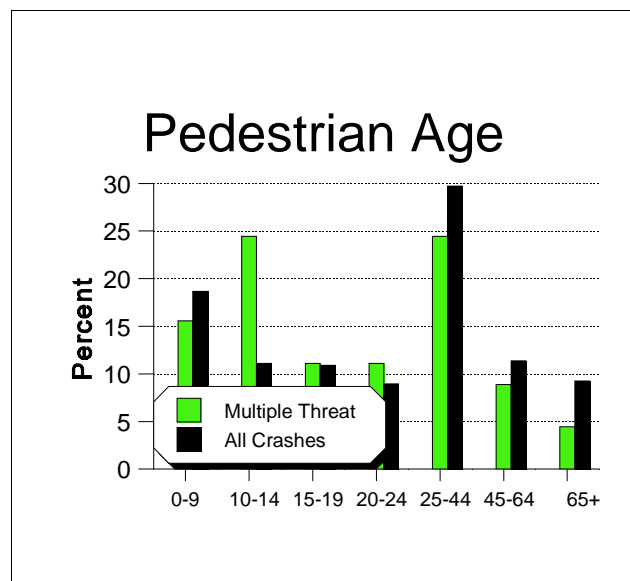
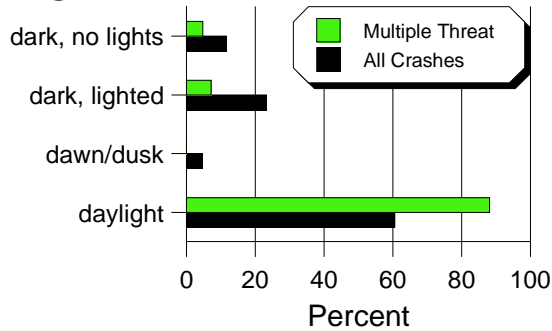


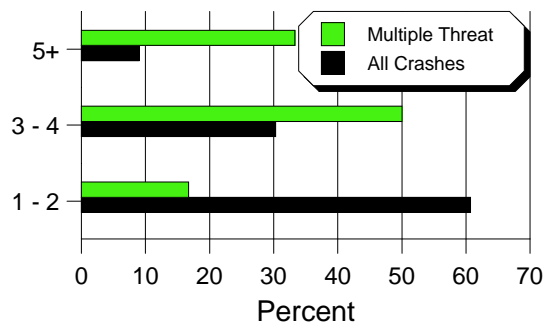
Figure 46. Pedestrian age in “Multiple Threat At Midblock.”

Multiple Threat At Midblock

Light Condition



Number of Lanes



Speed Limit (km/h)

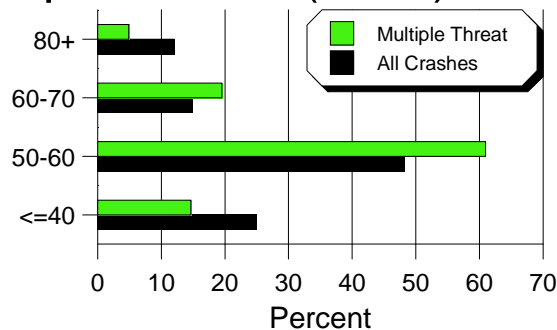


Figure 47. Light condition, number of lanes, and speed limit in “Multiple Threat At Midblock.”

Alcohol use

- ▶ Pedestrian 3%
- ▶ Driver 0%

Development Character

- ▶ Urban 62%
- ▶ Rural 38%

Day of Week

- ▶ Weekday 87%
- ▶ Weekend 13%

Road Feature

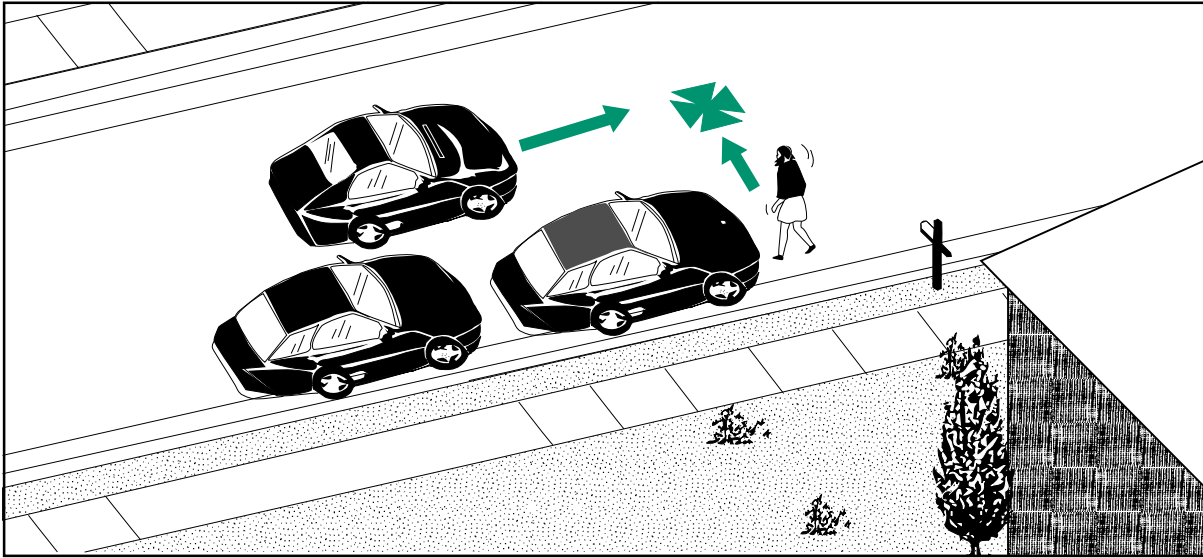
- ▶ No special feature 100%

Pedestrian Location

- ▶ Travel lane 100%

Midblock Dart Out

Frequency: 232 cases; 4.6% of all crashes
Severity: 32% resulted in serious or fatal injuries



Description: At a midblock location, the motorist's view of the pedestrian was blocked until an instant before impact.

Summary: In comparison to all crashes, this crash was much more likely to involve child (age 0 to 9) pedestrians. Youth (age 10 to 14) were also slightly overrepresented.

Seventy-six percent of the pedestrians were struck in their first half of the roadway, 22 percent in their second half of the roadway, and 2 percent were unable to be specified.

This was largely an urban event (78 percent). Eighty percent occurred under daylight conditions. One to 2 lane roads and very low speed roads (≤ 40 km/h) were strongly overrepresented.

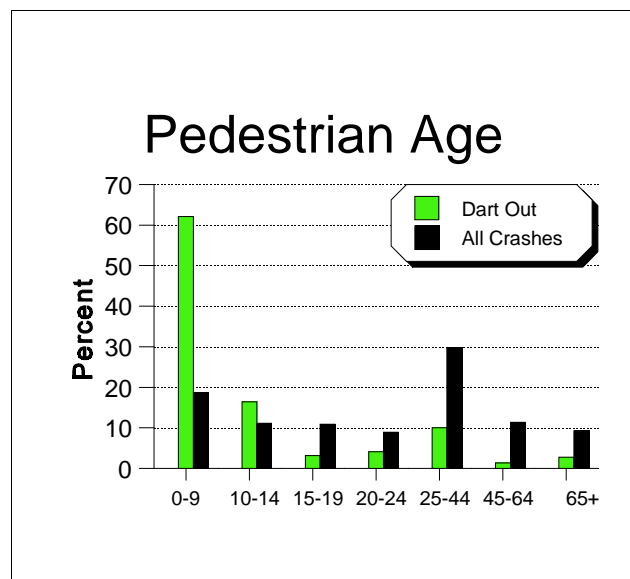
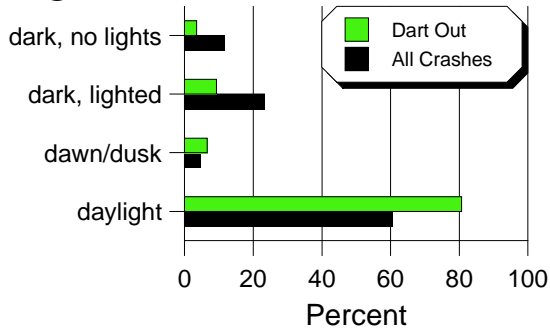
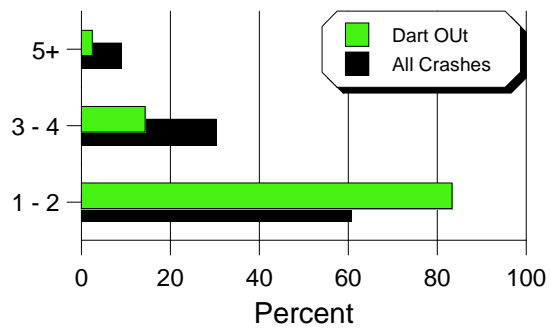


Figure 48. Pedestrian age in "Midblock Dart Out."

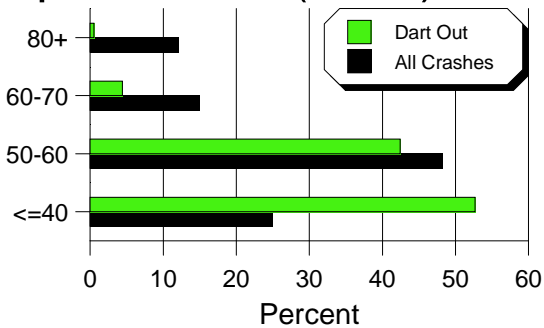
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 3%
- ▶ Driver 4%

Development Character

- ▶ Urban 78%
- ▶ Rural 22%

Day of Week

- ▶ Weekday 63%
- ▶ Weekend 37%

Road Feature

- ▶ No special feature 92%
- ▶ Private driveway . . 4%
- ▶ All other 4%

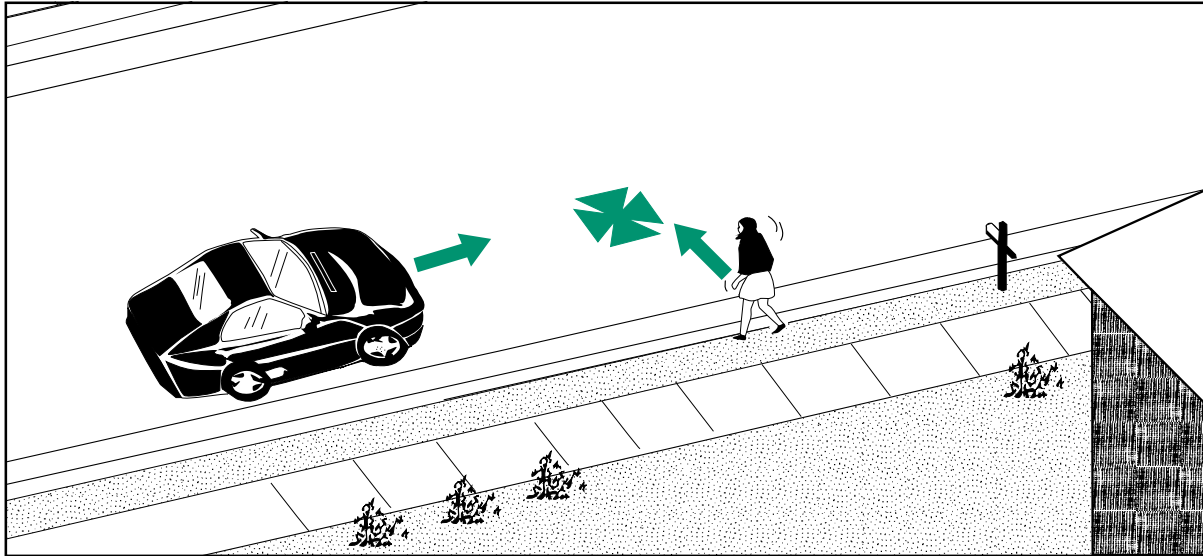
Pedestrian Location

- ▶ Travel lane 100%

Figure 49. Light condition, number of lanes, and speed limit in “Midblock Dart Out.”

Midblock Dash

Frequency: 442 cases; 8.7% of all crashes
Severity: 37% resulted in serious or fatal injuries



Description: At a midblock location, the pedestrian was struck while running and the motorist's view of the pedestrian was **not** obstructed.

Summary: In comparison to all crashes, this crash was much more likely to involve child (age 0 to 9) pedestrians. Youth (age 10 to 14) were also slightly overrepresented.

Although still occurring mostly on 1 to 2 lane roads, these crashes generally took place on higher speed roads than the "Midblock Dart Out" type crashes. Nearly a third occurred on roads with speeds of 60+ km/h.

Forty-five percent of adults ages 20 to 64 had been drinking.

"Midblock Dash" crashes were slightly more severe than average.

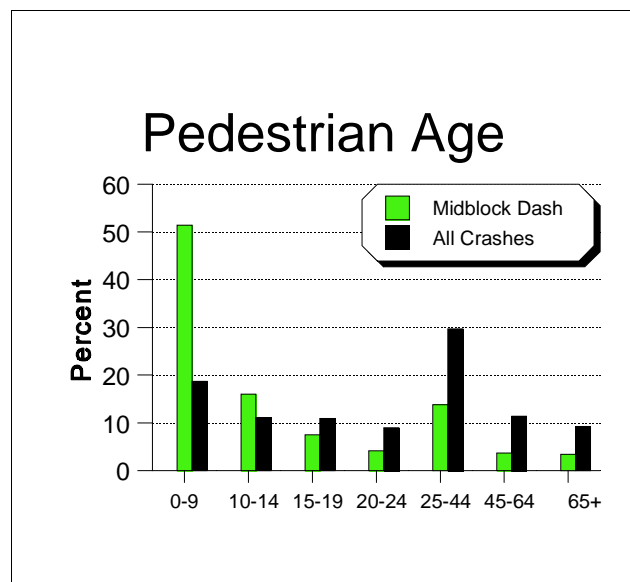
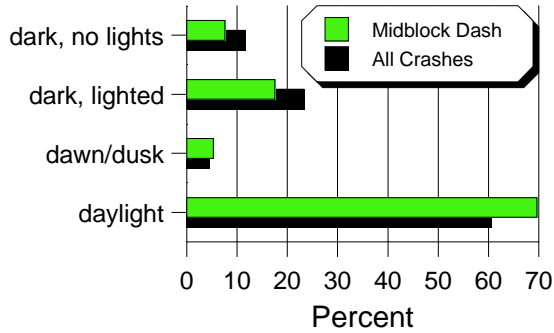
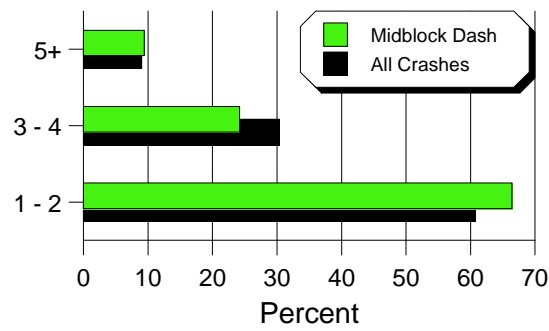


Figure 50. Pedestrian age in "Midblock Dash."

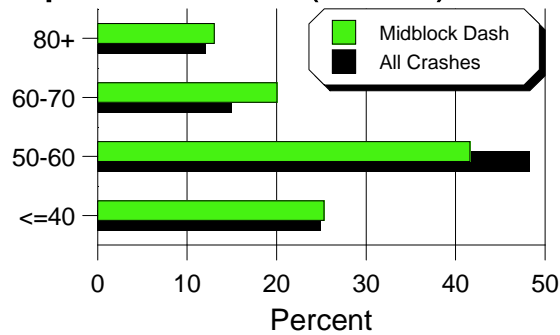
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 10%
- ▶ Driver 5%

Development Character

- ▶ Urban 63%
- ▶ Rural 37%

Day of Week

- ▶ Weekday 64%
- ▶ Weekend 36%

Road Feature

- ▶ No special feature 89%
- ▶ Private driveway . . 4%
- ▶ Public driveway . . 2%
- ▶ All other 5%

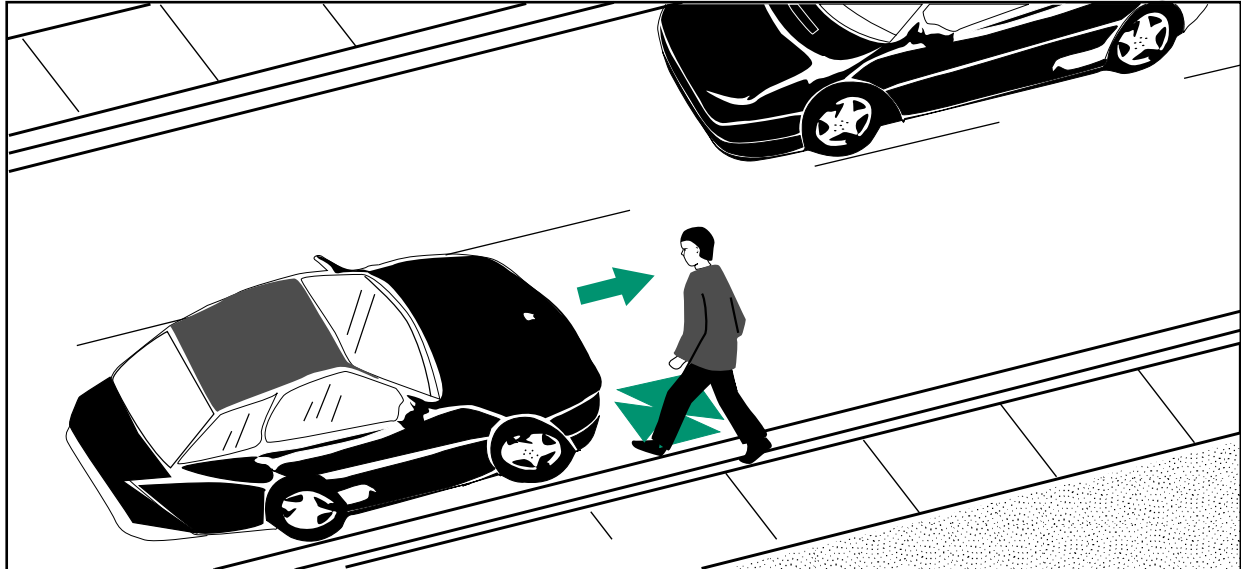
Pedestrian Location

- ▶ Travel lane 100%

Figure 51. Light condition, number of lanes, and speed limit in “Midblock Dash.”

Walked Into Vehicle At Midblock

Frequency: 76 cases; 1.5% of all crashes
Severity: 32% resulted in serious or fatal injuries



Description: The pedestrian walked into (i.e., struck) the vehicle at a midblock location. The pedestrian may have stepped into the travel lane and instantaneously collided with the vehicle (24 cases) or may have been walking in the lane prior to colliding with the vehicle (18 cases) (34 cases were undetermined).

Summary: In comparison to all crashes, this crash was more likely to involve child (age 0 to 9) and adult (age 25 to 44) pedestrians.

The light condition and roadway variables generally followed the distribution for all crashes combined.

Fifty-seven percent of pedestrians ages 20 to 64 had been drinking.

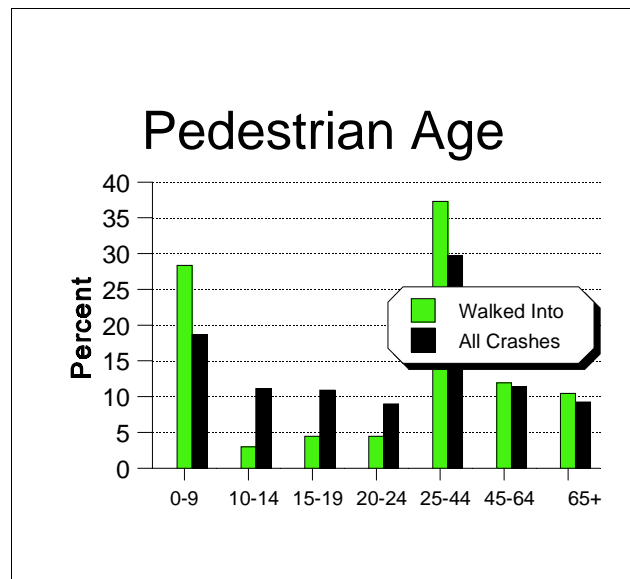
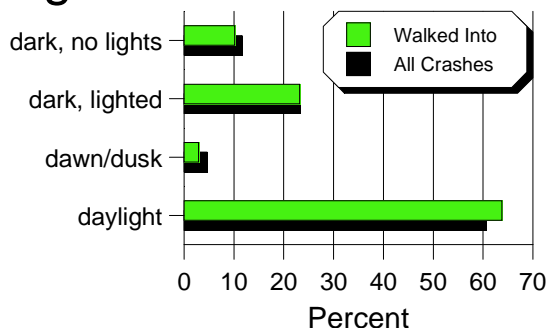


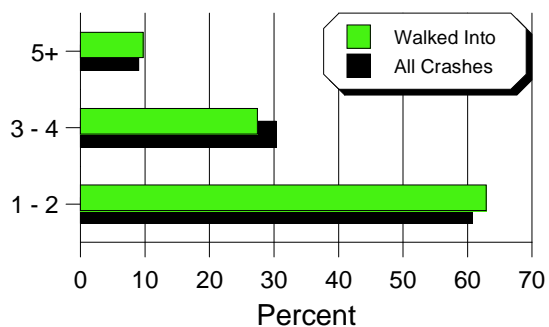
Figure 52. Pedestrian age in “Walked Into Vehicle At Midblock.”

Walked Into Vehicle At Midblock

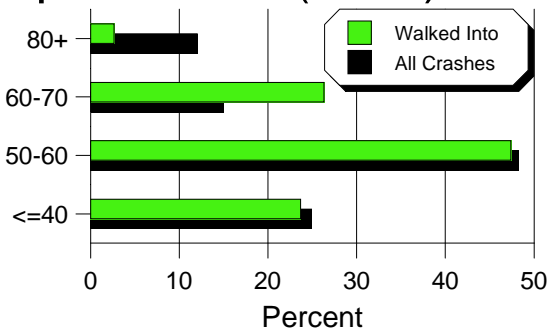
Light Condition



Number of Lanes



Speed Limit (km/h)



Alcohol use

- ▶ Pedestrian 31%
- ▶ Driver 0%

Development Character

- ▶ Urban 62%
- ▶ Rural 38%

Day of Week

- ▶ Weekday 61%
- ▶ Weekend 39%

Road Feature

- ▶ No special feature 89%
- ▶ Public driveway . . 2%
- ▶ Private driveway . . 2%
- ▶ All other 7%

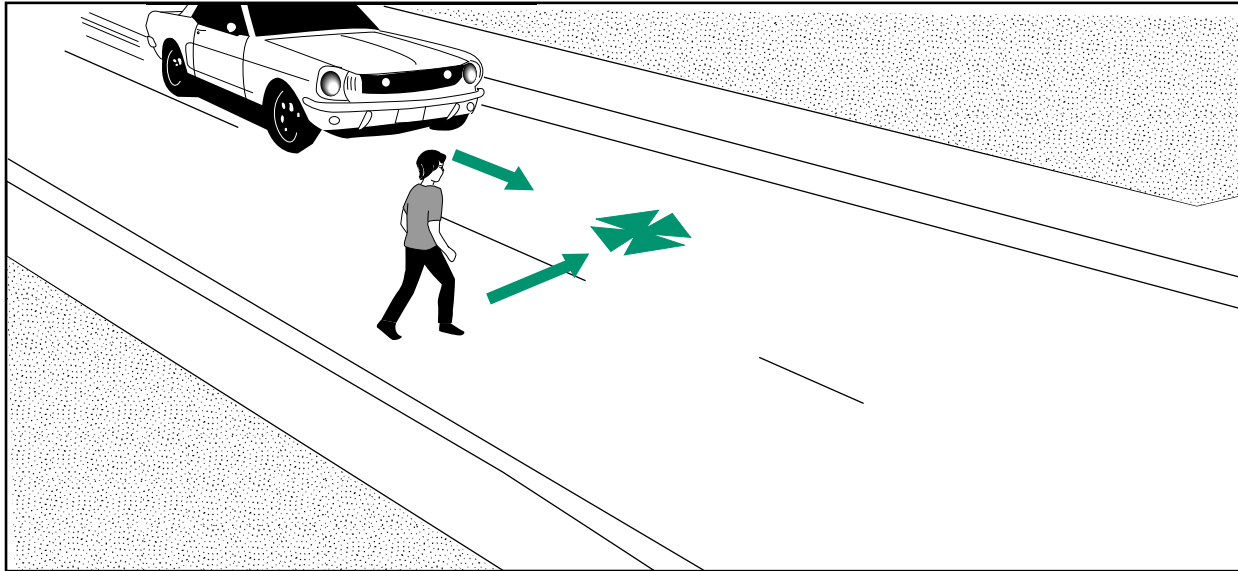
Pedestrian Location

- ▶ Travel lane 99%
- ▶ Parking lot lane . . . 1%

Figure 53. Light condition, number of lanes, and speed limit in “Walked Into Vehicle At Midblock.”

Midblock— Other

Frequency: 548 cases; 10.8% of all crashes
Severity: 49% resulted in serious or fatal injuries



Description: The crash occurred at midblock but does not conform to any of the specified crash types.

These crashes were much more severe than average.

Summary: In comparison to all crashes, this crash was more likely to involve adult pedestrians ages 25 and older.

Six percent of the pedestrians misjudged the crossing gap, 9 percent had been standing in the roadway, 11 percent stepped into the travel lane and were instantly struck, and 36 percent had been walking in the travel lane prior to impact. Thirty-eight percent were undetermined.

More than half of these crashes occurred under conditions of darkness, and 41 percent on weekends.

Overall, 33 percent of pedestrians had been drinking, and 45 percent of those ages 20 to 64.

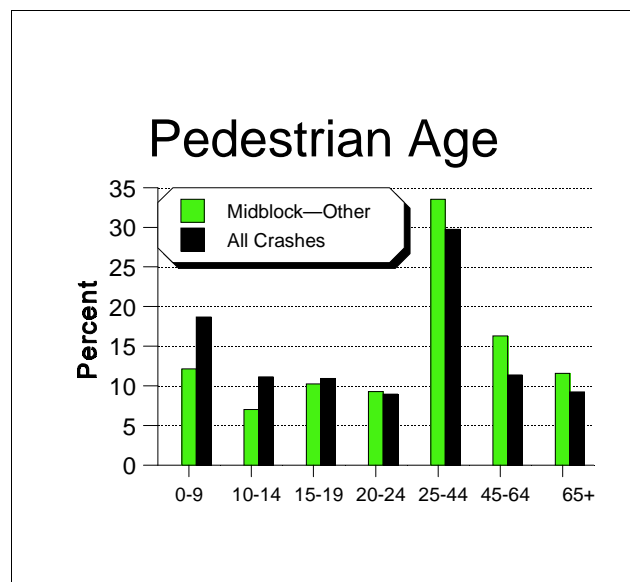
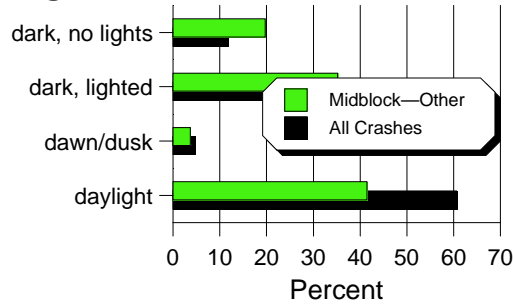
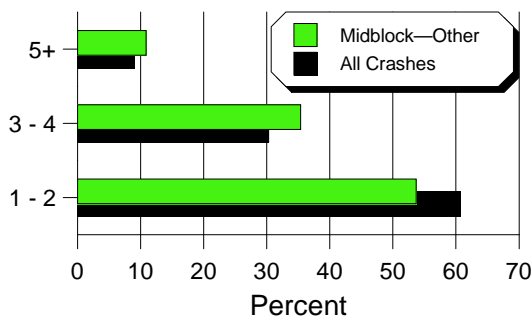


Figure 54. Pedestrian age in "Midblock—Other."

Light Condition



Number of Lanes



Speed Limit (km/h)

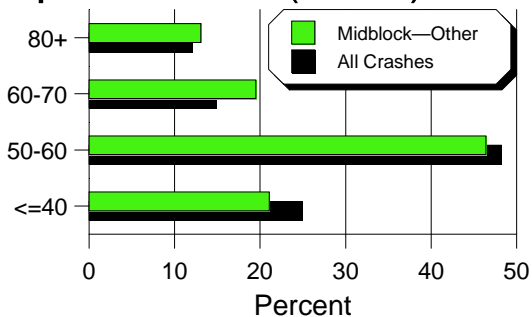


Figure 55. Light condition, number of lanes, and speed limit in “Midblock—Other.”

Alcohol use

- ▶ Pedestrian 33%
- ▶ Driver 9%

Development Character

- ▶ Urban 67%
- ▶ Rural 33%

Day of Week

- ▶ Weekday 59%
- ▶ Weekend 41%

Road Feature

- ▶ No special feature 88%
- ▶ Public driveway . . 3%
- ▶ Private driveway . . 2%
- ▶ All other 7%

Pedestrian Location

- ▶ Travel lane 99%
- ▶ Road related; unk . 1%

Weird

Frequency: 85 cases; 1.7% of all crashes
Severity: 45% resulted in serious or fatal injuries

Description: The pedestrian was struck by a vehicle, but the circumstances were unusual and did not conform to any specified crash type.

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19), young adult (age 20 to 24), and adult (age 25 to 44) pedestrians.

Darkness, with and without lights, were overrepresented light conditions.

About two-third of these crashes took place on 1 to 2 lane roads.

Twenty-seven percent of pedestrians and 14 percent of drivers had been drinking.

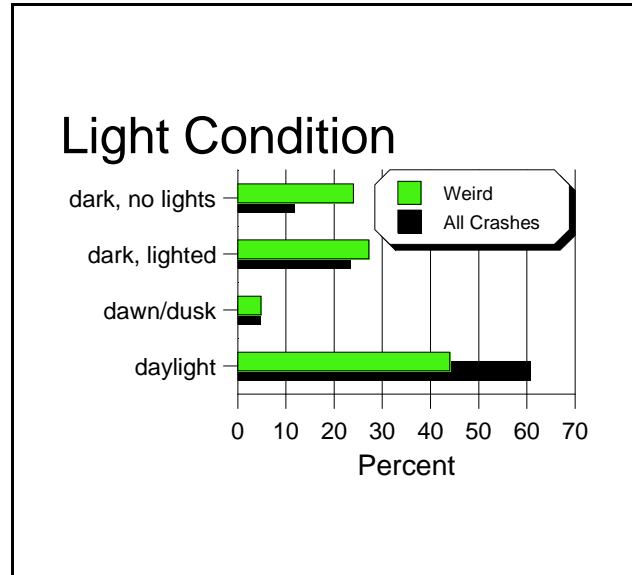


Figure 70. Light Condition in “Weird.”

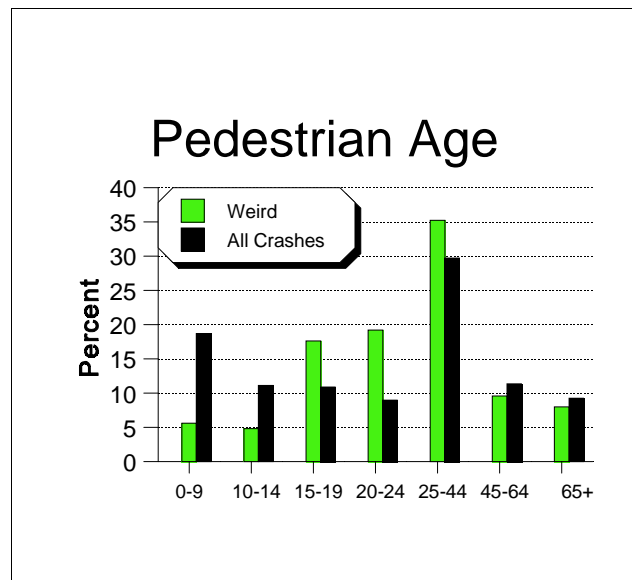


Figure 71. Pedestrian age in “Weird.”

Lying In Road

Frequency: 22 cases; 0.4% of all crashes
Severity: 67% resulted in serious or fatal injuries

Description: The pedestrian was lying in the road and was struck by a moving vehicle.

Summary: This crash involved primarily adult (age 25 to 44) pedestrians who accounted for more than 70 percent of the crashes.

More than 60 percent occurred under conditions of darkness, no lights.

Forty-two percent of the pedestrians had been drinking.

As would be expected, these crashes were much more likely than average to result in serious or fatal injuries.

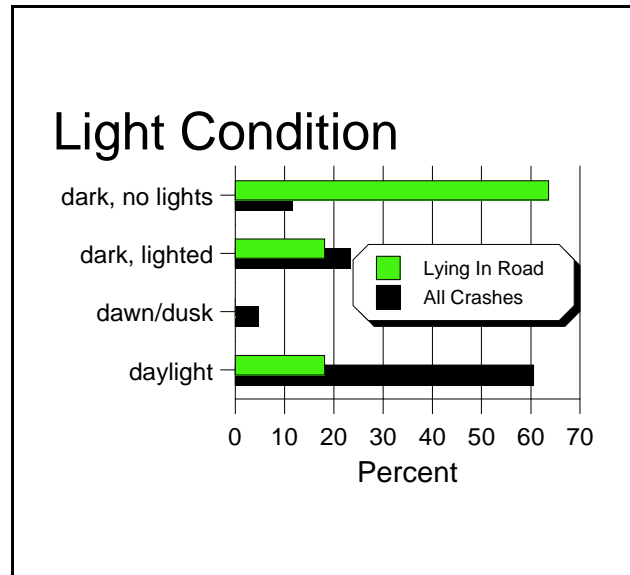


Figure 56. Light Condition in "Lying In Road."

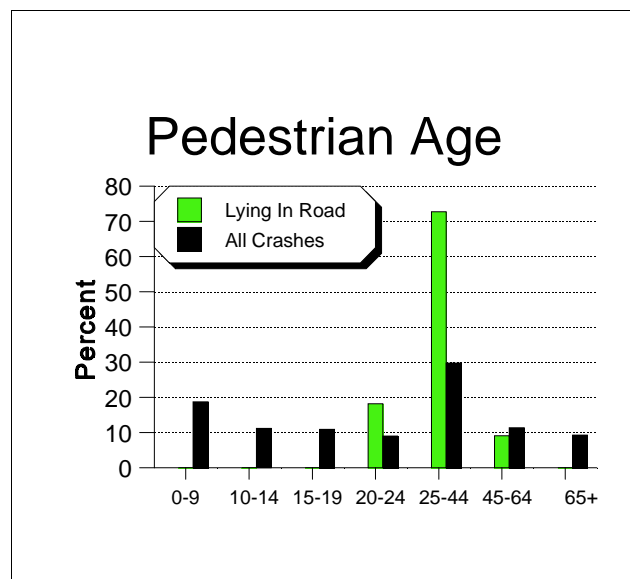


Figure 57. Pedestrian age in "Lying In Road."

Suicide

Frequency: 6 cases; 0.1% of all crashes
Severity: 100% resulted in serious or fatal injuries

Description: The pedestrian committed suicide or attempted suicide by deliberately walking, running, jumping, etc. in front of a moving vehicle.

Summary: These few crashes occurred exclusively to pedestrians ages 15 to 44.

Dark light conditions were strongly overrepresented.

Half of the pedestrians had been drinking.

All resulted in severe or fatal injuries.

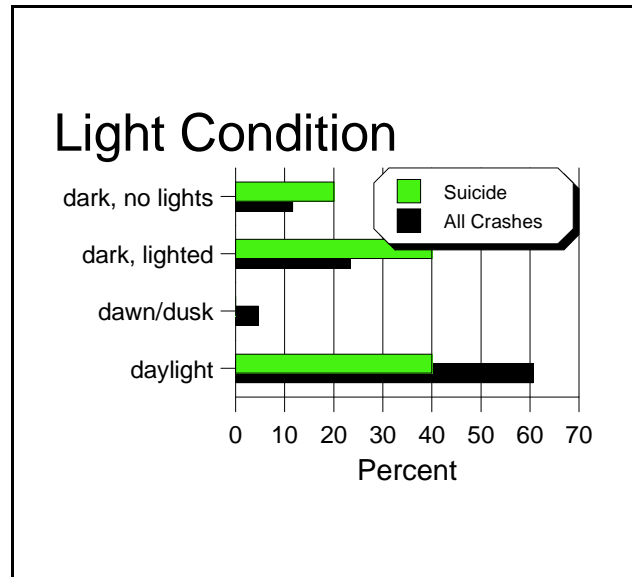


Figure 58. Light Condition in "Suicide."

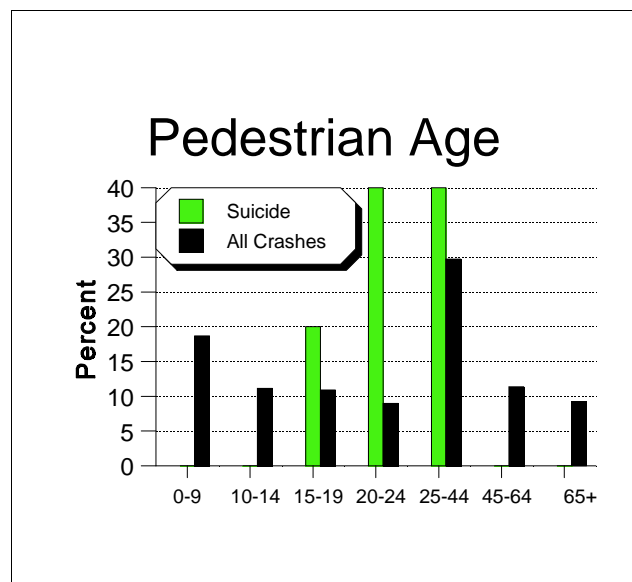


Figure 59. Pedestrian age in "Suicide."

Assault With Vehicle

Frequency: 55 cases; 1.1% of all crashes
Severity: 18% resulted in serious or fatal injuries

Description: The driver intentionally caused the vehicle to strike a pedestrian.

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19), young adult (age 20 to 24), and adult (age 25 to 44) pedestrians.

Nearly half of the pedestrians were in the travel lane, 18 percent were in a parking lot location, and 13 percent on the shoulder of the road.

Alcohol was not reported as a major factor in these crashes.

Only 18 percent resulted in a serious or fatal injury.

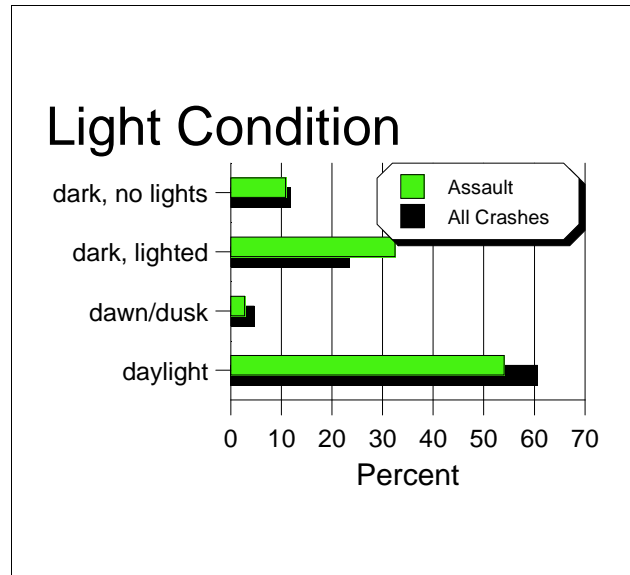


Figure 60. Light condition in "Assault With Vehicle."

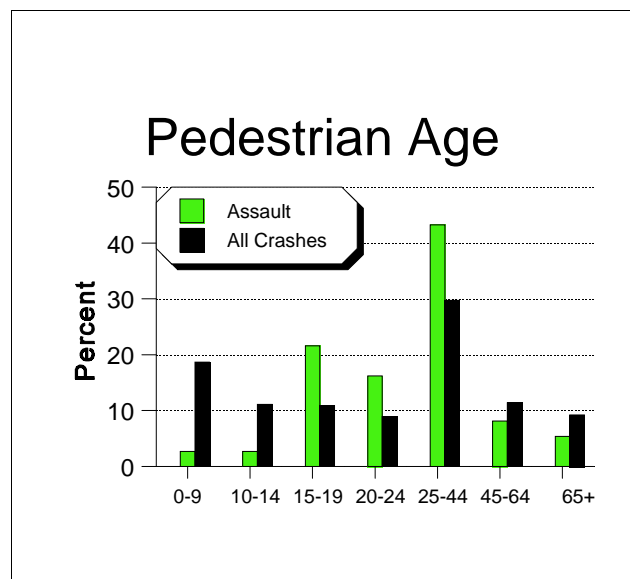


Figure 61. Pedestrian age in "Assault With Vehicle."

Domestic/Dispute Related

Frequency: 76 cases; 1.5% of all crashes
Severity: 23% resulted in serious or fatal injuries

Description: The pedestrian was struck by a vehicle during the course of a domestic or other dispute.

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19), young adult (age 20 to 24), and adult (age 25 to 44) pedestrians.

Half occurred under conditions of darkness, and more than 40 percent on very low speed (≤ 40 km/h) roads.

Twenty-six percent of pedestrians had been drinking.

This crash tended to be less severe than the average.

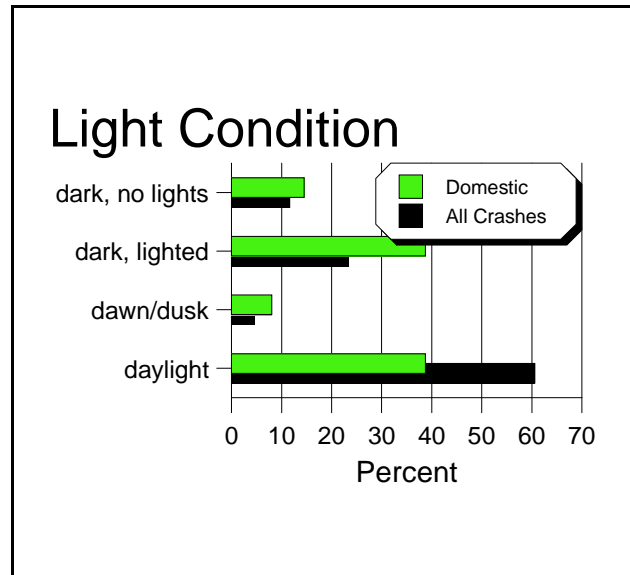


Figure 62. Light Condition in “Domestic/Dispute Related.”

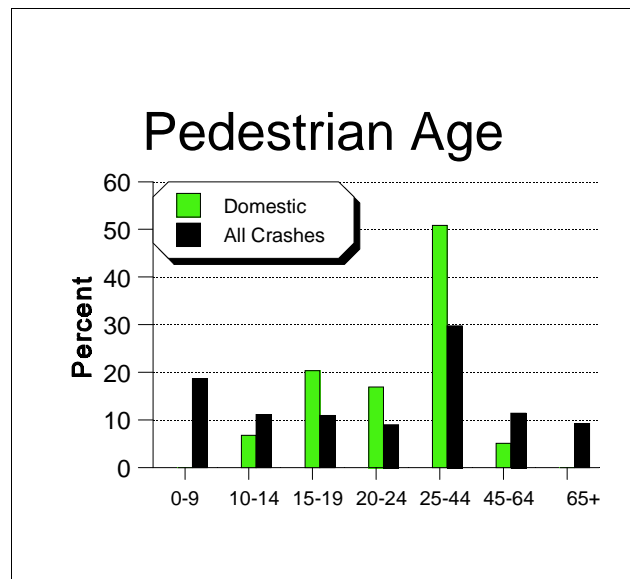


Figure 63. Pedestrian age in “Domestic/Dispute Related.”

Pedestrian On Vehicle

Frequency: 40 cases; 0.8% of all crashes
Severity: 31% resulted in serious or fatal injuries

Description: The pedestrian was sitting on, leaning against, or clinging to a vehicle which began to move or was moving.

Summary: In comparison to all crashes, this crash was much more likely to involve youth (age 10 to 14) and teen (age 15 to 19) pedestrians.

Twenty-six percent of pedestrians and 15 percent of motor vehicle operators had been drinking.

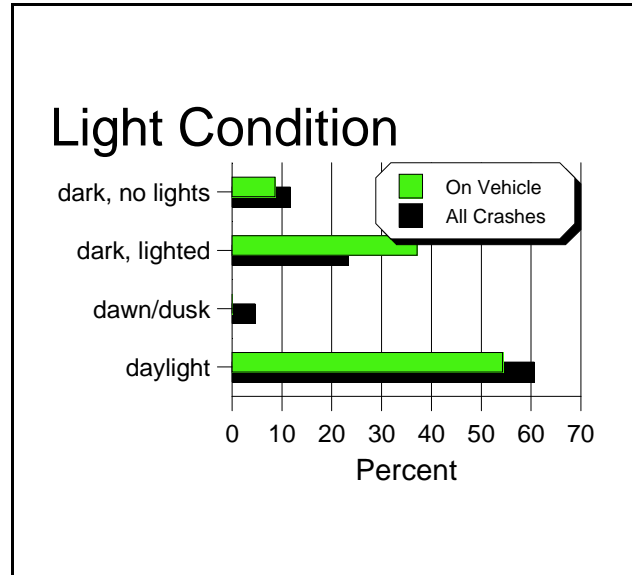


Figure 64. Light Condition in "Pedestrian On Vehicle."

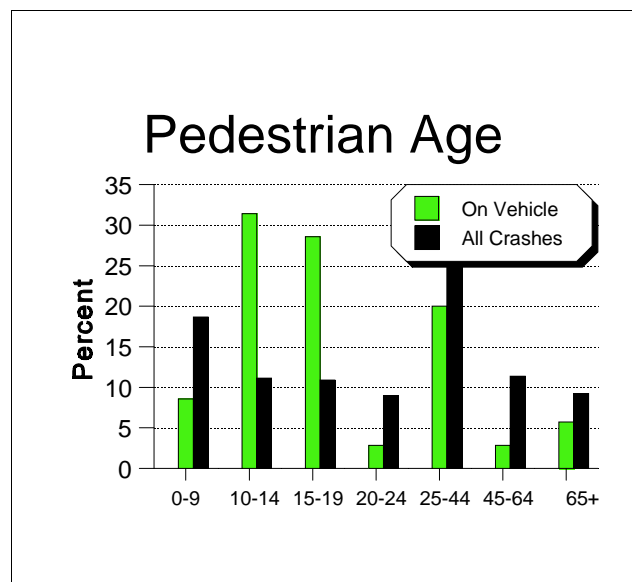


Figure 65. Pedestrian age in "Pedestrian On Vehicle."

Vehicle-Vehicle Crash

Frequency: 61 cases; 1.2% of all crashes
Severity: 26% resulted in serious or fatal injuries

Description: The pedestrian was struck as a result of a prior vehicle-vehicle collision.

Summary: In comparison to all crashes, this crash was more likely to involve teen (age 15 to 19) and adult (age 25 to 44) pedestrians.

Twenty-one percent of pedestrians were on a sidewalk and 15 percent were in on-street parking when struck.

Fourteen percent of drivers had been drinking.

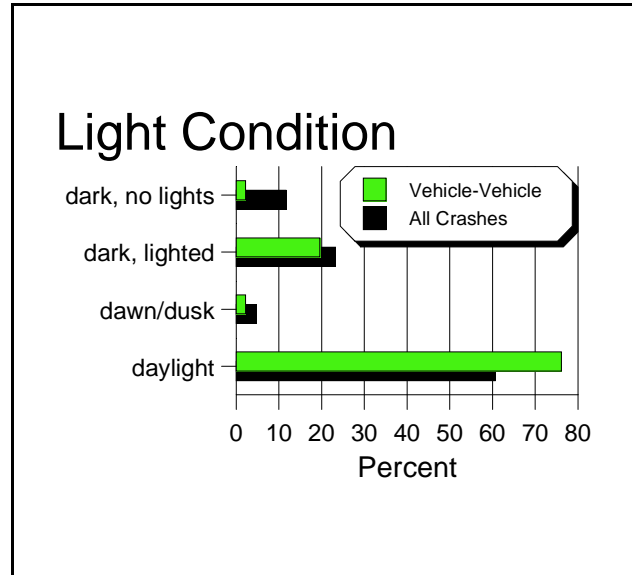


Figure 66. Light Condition in “Vehicle-Vehicle Crash.”

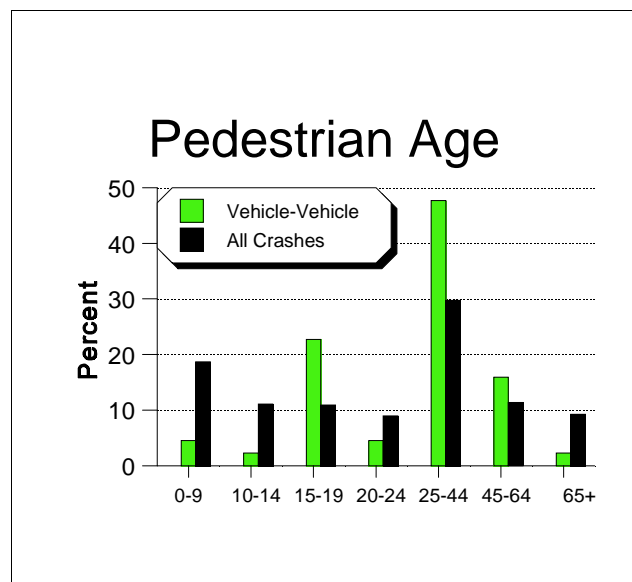


Figure 67. Pedestrian age in “Vehicle-Vehicle Crash.”

Vehicle-Object Crash

Frequency: 25 cases; 0.5% of all crashes
Severity: 11% resulted in serious or fatal injuries

Description: The pedestrian was struck as a result of a prior vehicle-object (e.g. building; pole; sign, etc.) collision.

Summary: In comparison to all crashes, this crash was more likely to involve adult pedestrians age 25 and older. Middle (age 45 to 64) and elder adults (age 65+) were strongly overrepresented.

Alcohol was generally not a factor in these crashes.

Vehicle-Object Crashes were less severe than the average.

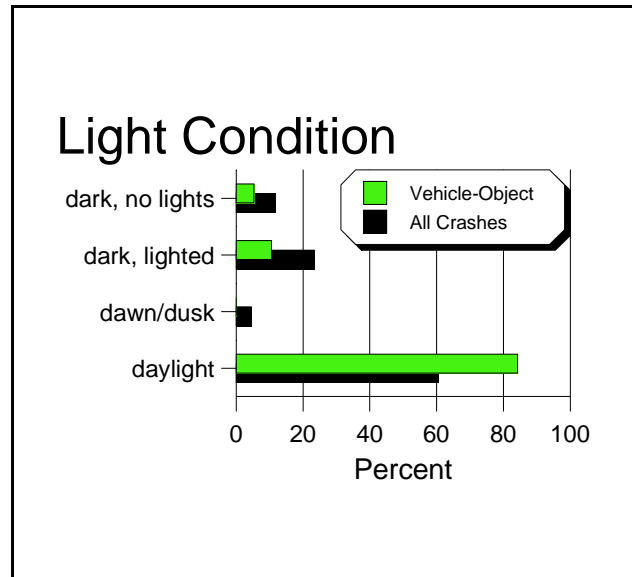


Figure 68. Light Condition in “Vehicle-Object Crash.”

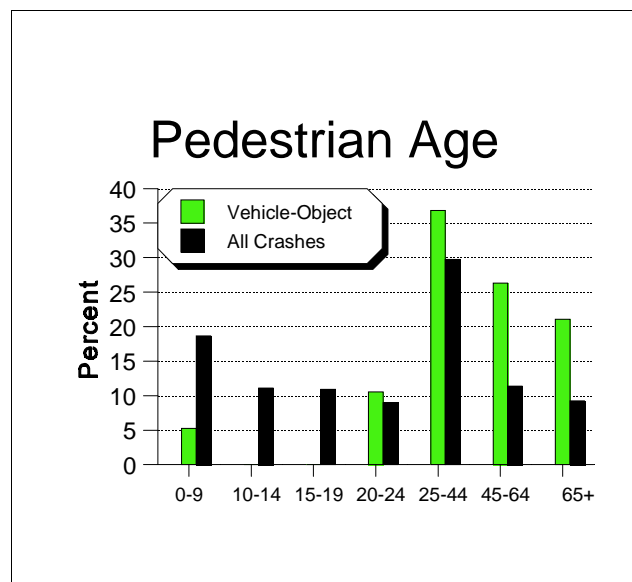


Figure 69. Pedestrian age in “Vehicle-Object Crash.”

Inadequate Information

Frequency: 27 cases; 0.5% of all crashes
Severity: 41% resulted in serious or fatal injuries

Description: Insufficient information was available to specify the crash type.

Summary: Pedestrians ages 10 to 44 were slightly overrepresented.

More than 40 percent occurred under conditions of darkness, no lights.

Forty percent of pedestrians and 13 percent of drivers had been drinking.

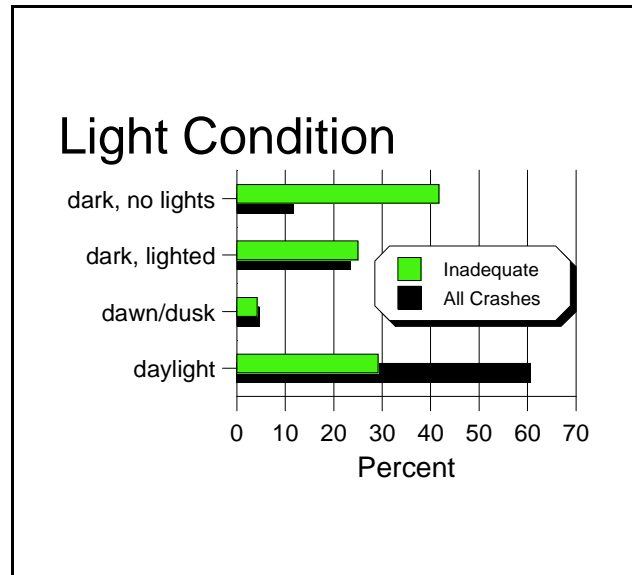


Figure 72. Light Condition in “Inadequate Information.”

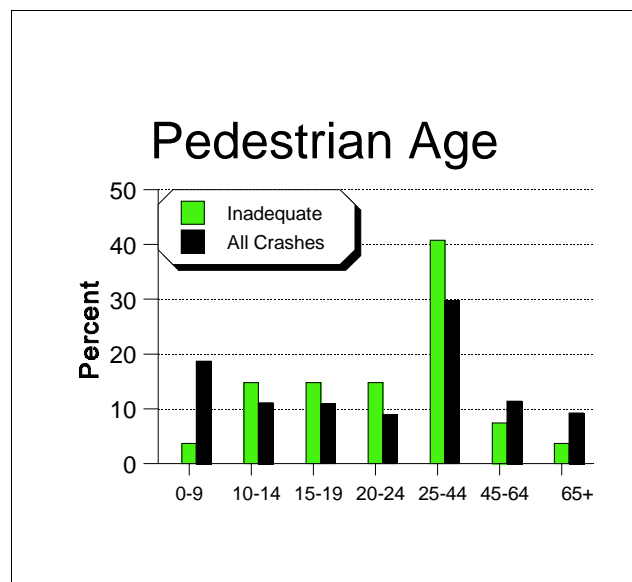


Figure 73. Pedestrian age in “Inadequate Information.”