



How to Improve Safety for Pedestrians & Cyclists

(Suggestions identified in various research reports as effectively improving safety)

Big picture

- Implement a "complete streets" approach—design, construct, and operate roadways to take into account all road users. Complete streets are safer streets
- Increase the number of people walking and biking and the number of crashes decline, as motorists get accustomed to sharing the roadway—"safety in numbers" (STRS study: doubling the number of people walking in a community reduces an individual's risk of being struck by a car while walking by 66%)
- Implement a "Safe Routes to School" program that takes a comprehensive approach to improving safety around schools for children walking and bicycling. (Consider adopting Miami-Dade's "WalkSafe" program which has reduced the number of children hit by cars by 43%.)

Specific measures

Analysis: Identify all the problem sources contributing to lack of safety at particular locations. Let this factual analysis drive the search for solutions.

- Analyze crash and traffic data on a quarterly basis and share with policymakers, the media, and the public.
- Engage the community and government in problem-solving efforts that are open and transparent.

Education: Help everyone who uses our roadways to be aware of the rules under which they should operate.

- Safety education campaigns for all users of all ages: educate motorists, bicyclists and pedestrians about their rights and responsibilities on the road. This can be done through a number of venues: Media, school, government, community organizations, and businesses.
- Increased roadway signage to raise driver awareness, esp. in areas with high frequency of pedestrians or cyclists, or at the beginning or roadway stretches with known design limitations.
- Join the national/state/local "Distracted Driving" campaign, with particular focus on the dangerous for the most vulnerable road users — pedestrians and cyclists.

Enforcement: Enforce existing rules to remind all roadway users they exist.

- Targeted enforcement initiatives to ticket motorists who fail to yield to pedestrians in crosswalks.
- Targeted enforcement initiative of Florida’s three-foot passing law for bicyclists
- Organize a Neighborhood Speed Watch initiative to decrease driver speeds in school zones. This program encourages citizens to take active role in changing driver behavior, raises public awareness of the negative outcomes associated with speeding. (SRTS study)

Design: Once we have a better grasp of causes for these problems, use roadway design elements to help create solutions. Among the options that could be considered once analysis is in place are:

ROADWAYS:

- Install on-road bicycle lanes (2009 research study found a 50% reduction in crash risk (NCSC) or paint shared lane markings on roadways—if a roadway is too narrow for bike lanes, these shared lane markings can alert drivers to respect the rights of bicyclists in the road (NCSL).
- Reduce speeds on roadways (80% of pedestrians struck by car going 40 mph will die; at 20 mph it drops to 5%), through traffic calming features, lowering speed limits in safety zones, and enforcing existing speed limits.
- Design roadways with narrower traffic lanes, so that a four-lane road with modest traffic levels can be turned into a two-lane road with a middle turning lane, two bicycle lanes, and wider sidewalks. (Research shows they can reduce collisions by 25%-44%, and that roads designed with four or more lanes encourage distracted driving habits—D by D.)
- Install roundabouts as a strategy for reducing collisions and improving traffic flow. (Roundabouts (if designed and built correctly) reduce injury crashes by 75% over stop signs or signal-controlled intersections.)
- Install sidewalks for pedestrian (pedestrian crashes are more than twice as likely to occur in places without sidewalks — streets with sidewalks on both sides have fewest crashes (NCSC)).
- Eliminate continuous center-turn lanes (“suicide lanes”) because they increase the chances for vehicular conflict among all drivers, esp. older drivers (AARP CS).

CROSSWALKS:

- Provide frequent crosswalks for pedestrians (40% of pedestrian fatalities occurred where no crosswalk was available (NCSC)). Also, install raised medians & refuge islands to create a safe, protected median area in the middle of the street. Walkers can cross the street in two phases, reduce left-turning motorist crashes to zero, and improve bicycle safety (NCSC). (SRTS study: refuge islands can reduce risk of pedestrian-vehicle conflicts by 66%.)
- Install curb extensions. They reduce street crossing distance, induce slower traffic speed. Studies show that when paired with marked crosswalks, more motorists yield to pedestrians (NCSL).
- Install raised crosswalk. They act as a visual clue and are a traffic calming device (NCSL).
- Design crosswalks to correspond to vehicle speed and make highly visible by using retro-reflective paint and using Zebra striping (AARP CS)

SIGNAGE AND SIGNALS:

- Changing pedestrian signal timing at intersections to a 3.5 ft/sec walking speed (adds nothing to cost of a signal—NCSC), or add countdown clocks at pedestrian signal crossings, allowing more time for automobile movement.

- Install in-pavement lights or overhead flashing lights at crosswalks to warn drivers when pedestrians are present at an intersection or crosswalk. (STRS study: In-pavement lights have been proven to reduce vehicle speeds up to 25% and double the percentage of drivers who slow or stop for pedestrians crossing the street.)
- In-street pedestrian crosswalk sign. These offer a clear visual cue to drivers to slow down and expect pedestrian traffic. They can be designed to display the state crosswalk law and effectively increase motorist compliance with state laws (NCSL).
- Improve crosswalk safety with installation of Enhancer, a rapid-flashing rectangular beacon at marked crosswalks (St. Pete found that it improved driver-yielding compliance from less than 3% to more than 83%)
- Install traffic signals with "exclusive traffic signal phasing," in which all vehicle traffic is stopped during a portion of the pedestrian crossing signal. (SRTS study: technique shown to reduce pedestrian-vehicle conflicts by approximately 50% over standard crossing signals.)
- Reconsider some right-turn-on-red intersections—they put pedestrians in sudden, unexpected danger. Where pedestrian activity is high, designers should prohibit right turns on red or consider a roundabout as an alternative (AARP CS).
- Install protected left turn arrows, especially needed with pedestrian refuge island or median.
- Install bike box feature. This feature gives bicyclists increased visibility and a head-start at a red light by placing them in front of motorists, and reduces the risk of a right-turning vehicle hitting a bike, which is one of the most common threats to bicyclists. Research shows that bike boxes reduce vehicle-bicycle crashes (NCSL).
- Add signage to roadways to education and increase awareness. For example, a sign saying “no right turn on red when pedestrians and bicyclists are present” are more effective than eliminating right turn on red.
- Increase intensity of street lighting (which can be done with solar or energy-efficient lighting) (SRTS study: shown to reduce vehicle-pedestrian crashes by 59%).

OTHER DESIGN ELEMENTS:

- Better bus stop placement
- Installation of speed bumps in residential neighborhoods (research found 50-60% reduction in the odds of injury or death among child pedestrians—D by D).
- Improve roadway visibility by reducing visual “clutter” such as oversized store signs and landscaping that make it hard for drivers to see (AARP CS).

Key to Research Reports:

STRS study: Safe Routes to School: “Putting Traffic Safety First,” 12/2009

NCSC: National Complete Streets Coalition, “Complete Streets Improve Safety for Everyone,” 12/2009.

NCSL: National Conference of State Legislatures: “Encouraging Bicycling and Walking: the State Legislative Role,” 11/2008.

D by D: “Dangerous by Design” report by Surface Transportation Policy Partnership & Transportation for America, 11/2009.

AARP CS: AARP: “Planning Complete Streets for an Aging America,” 5/2009.

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