

Safety Benefits of Walkways, Sidewalks, and Paved Shoulders



FHWA Safety Program



U.S. Department of Transportation
Federal Highway Administration



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In a suburban community a six lane road is built. It has businesses on both sides of the street, driveways, and bus stops. Students often walk along the shoulder to get to school, restaurants, and nearby shops. Along the edge of the road, footprints in the grass leave dirt paths. For pedestrians it is dangerous, inaccessible, and uncomfortable to walk along this roadway — they need a sidewalk.

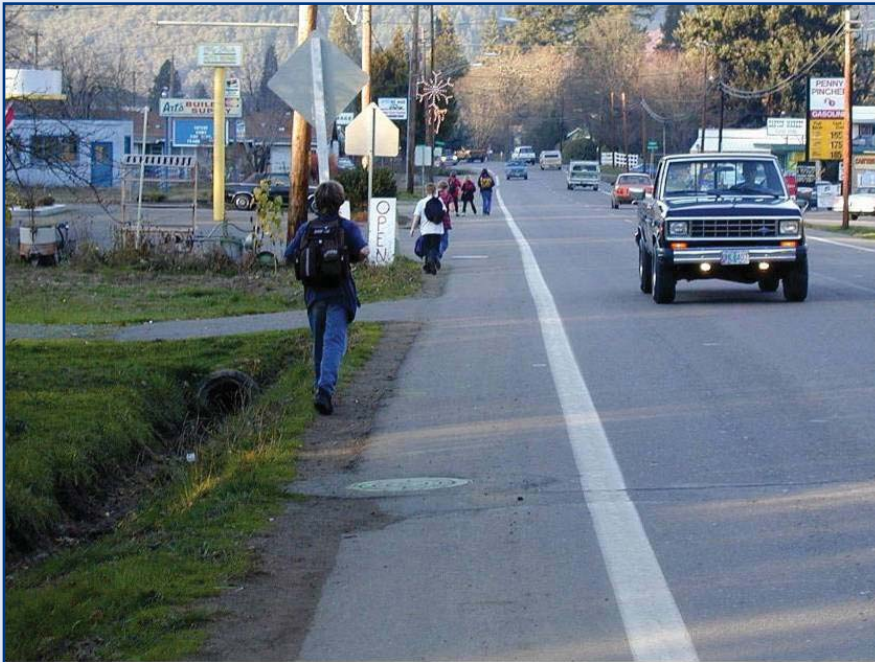


Photo Credit: Michael Ronkin

Walkways

Annually, around 4,500 pedestrians are killed in traffic crashes with motor vehicles in the United States.¹ Pedestrians killed while “walking along the roadway” account for almost 8 percent of these deaths.² Many of these tragedies are preventable. Providing walkways separated from the travel lanes could help to prevent up to 88 percent of these “walking along roadway crashes.”³

Walkways can be provided by constructing either stabilized or paved surfaces separated from the roadway, or by widening paved shoulders. These treatments can not only improve the safety of pedestrians, but also make pedestrian trips more viable.

Providing walkways for pedestrians dramatically increases how well pedestrians perceive their needs are being met along roadways.⁴ The wider the separation is between the pedestrian and the roadway, the more comfortable the pedestrian facility.



Photo Credit: www.pedbikeimages.org/Dan Burden

Benefits of Sidewalks

Sidewalks separated from the roadway are the preferred accommodation for pedestrians. Sidewalks provide many benefits including safety, mobility, and healthier communities.

In addition to reducing walking along roadway crashes, sidewalks reduce other pedestrian crashes. Roadways without sidewalks are more than twice as likely to have pedestrian crashes as sites with sidewalks on both sides of the street.⁵ By providing sidewalks on both sides of the street, numerous midblock crossing crashes can be eliminated.



Photo Credit: www.pedbikeimages.org/Dan Burden

By providing facilities that are more comfortable, we can increase the number of trips made by walking, particularly in areas with mixed land uses.⁶ Moreover, we can better serve our local populations. Many people cannot drive a car and are reliant on walking and public transit for transportation. Children, older adults, and people with disabilities make up a substantial portion of the population

— up to 37 percent in some States.⁷ Other people might choose to walk if they had better accommodations. Providing sidewalks, widened paved shoulders, or stabilized shoulders — particularly when providing access to transit and schools — can increase the transportation options for these individuals. Additionally, by moving pedestrians off the travel lanes, motorists operations are improved and capacity increased.

Research also indicates that people will walk for recreational purposes if a facility is provided.⁶ Recreational walking is one of the easiest ways for people to get the recommended allotment of physical exercise each day.

Benefits of Paved Shoulders

Paved shoulders provide numerous safety benefits for motorists as well as benefits for pedestrians. Providing or widening paved shoulders has the following benefits:

- Provides a stable surface off of the roadway for pedestrians to use when sidewalks cannot be provided
- Reduces numerous crash types including the following:
 - Head on crashes (15%-75% reported reduction)⁸
 - Sideswipe crashes (15%-41%)⁸
 - Fixed object crashes (29%-49%)⁸
 - Pedestrian (walking along roadway) crashes (71%)⁸
- Improves roadway drainage
- Increases effective turning radii at intersections
- Reduces shoulder maintenance requirements
- Provides emergency stopping space for broken down vehicles
- Provides space for maintenance operations and snow storage
- Provides space for variable message signs
- Provides an increased level of comfort for bicyclists⁴



Photo Credit: Michael Ronkin

Case Study: Dale Mabry Highway, Tampa, Florida

Before / During Construction



Photo Credit: Bruce Landis

After Construction

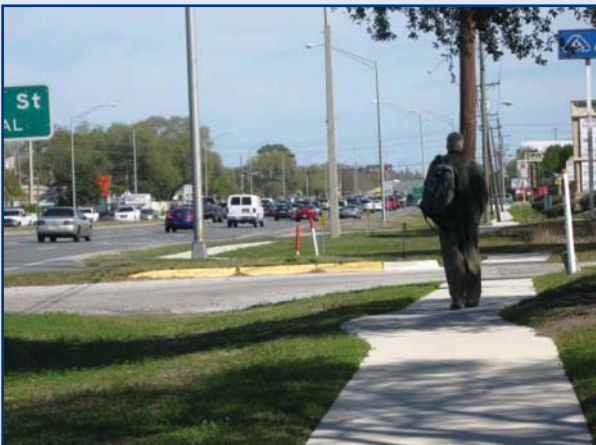


Photo Credit: Jennifer Bartlett

Before the installation of sidewalks, Dale Mabry Highway (SR580) in Tampa, Florida was not a place anyone would feel comfortable walking. Dale Mabry is a commercial corridor with six lanes of traffic, a five foot shoulder, and transit service stopping along the route. Many vehicles using this corridor are traveling faster than the 45 mph posted speed limit and pedestrian crashes were all too common. Even before construction was completed, pedestrians were using the sidewalks. Pedestrians can now walk in a safe location off the roadway/shoulders on separated accessible sidewalks.

Guidance Statement/Application:

The Federal Highway Administration (FHWA) *Guidance Memorandum on Consideration and Implementation of Proven Safety Countermeasures* offers the following guidance for the application of sidewalks and shoulders:

Accessible sidewalks or pathways should be provided and maintained along both sides of streets and highways in urban areas, particularly near school zones and transit locations, and where there is frequent pedestrian activity.

Sidewalks should be considered the preferred treatment for accommodating pedestrians in urban areas and where frequent pedestrian use is expected. For less developed areas with occasional pedestrian traffic expected, the Guidance Memorandum provides the following:

Walkable shoulders (minimum of 4 feet stabilized or paved surface) should be provided along both sides of rural highways...⁹

For more information, visit <http://safety.fhwa.dot.gov/policy/memo071008/>

¹ NHTSA, Traffic Safety Facts 2008 Pedestrians, NHTSA, Washington, D.C., 2009.

² FHWA, *Pedestrian and Bicycle Crashes of the Early 1990's*. Publication No. FHWA-RD-95-163, FHWA, 1995.

³ FHWA, An Analysis of Factors Contributing to "Walking Along Roadway" Crashes: Research Study and Guidelines for Sidewalks and Walkways. Report No. FHWA-RD-01-101, FHWA, Washington D.C., 2001.

⁴ NCHRP Report 616, *Multimodal Level of Service Analysis for Urban Streets*, TRB, Washington D.C., 2008.

⁵ FHWA *Investigation of Exposure-Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets, and Major Arterials*. Publication No. FHWA/RD87-038, FHWA, Washington, D.C., 1987.

⁶ Florida Department of Transportation, *Conserve by Bicycle and Pedestrian Study Phase II*. FDOT, Tallahassee, FL, 2009.

⁷ FHWA, FHWA University Course on Bicycle and Pedestrian Transportation: Student Workbook. FHWA, Washington, D.C., July 2005.

⁸ Florida Department of Transportation, *Update of Florida Crash Reduction Factors and Countermeasures to improve the Development of District Safety Improvement Projects*. FDOT, Tallahassee, FL, 2005.

⁹ Lindley, J., *Guidance Memorandum on Consideration and Implementation of Proven Safety Countermeasures* FHWA, Washington D.C., July 2008.

For More Information:

For more information, visit http://safety.fhwa.dot.gov/ped_bike

FHWA, Office of Safety

Tamara Redmon
tamara.redmon@dot.gov
202-366-4077