

State Best Practice Policy for Shoulders and Walkways

FHWA Safety Program

Introduction

Safety is the number one priority for the U.S. Department of Transportation (USDOT) and it's the agency's policy to provide safe and effective pedestrian accommodation wherever possible. The Federal Highway Administration (FHWA) encourages the use of specific proven pedestrian safety countermeasures that can help achieve local, State and National safety goals. One of those countermeasures is the inclusion of walkways and paved shoulders. This flyer highlights three agencies: New York State Department of Transportation (NYSDOT), Pennsylvania Department of Transportation (PennDOT) and the Oregon Department of Transportation (ODOT) that have implemented policies and plans that promote the inclusion of paved shoulders and walkways.

All State and local agencies are encouraged to consider providing and maintaining paved shoulders or walkways along both sides of streets and highways in urban areas, particularly near school zones and transit locations, and where there is frequent pedestrian activity.¹

A **walkway** is defined as a continuous way designated for pedestrians and separated from motor vehicle traffic by a space or barrier. A **shoulder** provides a gravel or paved highway area for pedestrians to walk next to the roadway, particularly in rural areas where sidewalks and pathways are not feasible.

State DOT Example NYSDOT

In New York, pedestrians are permitted to use the shoulders of most State highways, with the exception of interstates, parkways, and other similar controlled-access highways where they are specifically prohibited. As a result, the New York State Department of Transportation's (NYSDOT) *Highway Design Manual* includes considerations that designers need to make shoulders pedestrian friendly when shoulders will be used as pedestrian facilities. The policy and its implementing design standards are intended to address the requirements of the Title 23 CFR 652.5 which requires pedestrians to be given full consideration on all Federal Aid projects. Below is an excerpt from the pedestrian facilities design chapter that defines when shoulders should be included:



Photo Credit: Sprinkle Consulting

When accommodation of pedestrian travel is warranted, then pedestrian facilities should be provided. The preferred facility for pedestrian travel along a road is a sidewalk.

Shoulders are not substitutes for a well-designed pedestrian facility. However, there may occasionally be a need to design shoulders as walkways where roadside space is constrained... When shoulders will be used as pedestrian facilities, the designer should decide whether it is practicable for pedestrians to walk facing traffic or if provisions should be made for them to walk in either direction along one side of the road. The decision should be based on safety, e.g., the ability to cross the road safely, and other considerations.²



U.S. Department of Transportation
Federal Highway Administration



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

State DOT Example

PennDOT

The Pennsylvania Department of Transportation (PennDOT) has adopted design standards specifically to make shoulders accessible. Along some roadways, sidewalks are not feasible and pedestrian use is expected to be only occasional. While some transportation agencies install paved shoulders along these roadways, PennDOT goes the extra mile for pedestrians. To better provide for pedestrians who may need to walk on these shoulders, PennDOT constructs the shoulders to be compliant with the (draft) Public Rights-of-Way Accessibility Guidelines.³ Cross slopes are kept to a 2% maximum and detectable warning strips are installed at crosswalks.



Photo Credit: Michael Ronkin

State DOT Example

ODOT

In 1971, the State of Oregon legislature passed the "Bike Bill"⁴ ushering in a new era of non-motorized facility construction. The Bill's goal was to create safer bicycling facilities across the state but the Bill also requires the construction of sidewalks or walkways when a road is built or rebuilt. The following is an excerpt from the Oregon State Bicycle and Pedestrian plan on the different types of walkways:

Rural Walkways

In sparsely populated areas, the shoulders of rural roads usually accommodate pedestrians. There are, however, roadways outside urban areas where the urban character creates a need for sidewalks... Where sidewalks are not provided, shoulders should be wide enough to accommodate both pedestrians and bicyclists.

Urban Walkways

The appropriate facilities for pedestrians are sidewalks. A sidewalk provides positive separation from traffic, an all-weather surface and access for the disabled. They are readily identifiable by both pedestrians and motorists.

Arterials and Major Collectors

Sidewalks must be provided on both sides of all arterial and collector streets, unless there are physical limitations and land use characteristics that render a sidewalk unsuitable on one side.

Minor Collectors and Local Streets

Sidewalks on both sides of the street are the appropriate facility. There is a point below which sidewalks on both sides of a local street may not be critical: e.g. on short dead-end streets with few potential residences and with no access to other facilities.⁵

Overcoming Implementation Challenges

The implementation of these policies has encountered some resistance for reasons ranging from budget concerns to maintenance in the field. Each state has addressed these concerns in order to facilitate their inclusion in roadway projects.

In New York, there were two primary concerns: availability of required right-of-way and cross-slope. Resistance to implementing the policy came from the regional designers who are responsible for designing the shoulders. In some cases, where there is very limited right-of-way and significant slopes to swales adjacent to the roadway, it could be impractical to add pavement. When such a determination is made, the New York policy states the reasons should be fully documented in the Project Scoping Report/



Photo Credit: Michael Ronkin

Design Report. There were also drainage concerns as the cross slope for a paved shoulder is typically six percent but when the shoulders are installed for pedestrian use, the allowed cross slope is two percent. There was concern that the minimal cross slope could impede water flow across the shoulder allowing sediment to accumulate resulting in the loss of a usable shoulder. Evaluation of paved shoulders over time has mitigated these operational concerns.

In Oregon, the resistance is primarily budgetary. When a roadway is being resurfaced, only the travel lanes may be repaved. Resurfacing or pavement preservation projects are tracked using dollars/mile. Adding or resurfacing shoulders decreases the miles of resurfacing that can be implemented within the available budget. Likewise, the policy of maintenance paving offers no incentive to add shoulders. If lane miles paved is one of an agency's performance measures, and adding shoulders does not increase miles paved, the agency is essentially penalized for paving shoulders. While these budgetary concerns are valid, they can be overcome by the wide range of benefits that paved shoulders and walkways can provide – such as reducing pedestrian crashes and reducing shoulder maintenance requirements.

Benefits of Shoulders and Walkways

FHWA encourages the inclusion of walkways and shoulders to create safer pedestrian environments. Pedestrians killed while “walking along the roadway” account for almost eight percent of all pedestrians killed in traffic crashes.⁶ 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.”⁷ Widening paved shoulders also provide numerous safety benefits for motorists as well as benefits for pedestrians including:

- Reducing numerous crash types⁸
 - » Head on crashes (15%-75% reported reduction)
 - » Sideswipe crashes (15%-41%)
 - » Fixed object crashes (29%-49%)
 - » Pedestrian “walking along roadway” crashes (71%)
- Improving roadway drainage
- Increasing effective turning radii at intersections
- Reducing shoulder maintenance requirements
- Providing emergency stopping space for broken down vehicles
- Providing space for maintenance operations and snow storage
- Providing an increased level of comfort for bicyclists⁹

Endnotes

- 1 U.S. Department of Transportation, Federal Highway Administration, Guidance Memorandum on Consideration and Implementation of Proven Safety Countermeasures (Washington, DC: July 2008). <http://safety.fhwa.dot.gov/policy/memo071008/>
- 2 New York State Department of Transportation, “Ch 18.6.2 Use of Shoulders as Pedestrian Facilities,” in Highway Design Manual, (Albany, NY: 2006) p. 18-20. https://www.nysdot.gov/divisions/engineering/design/dqab/hdm/hdm-repository/chapt_18.pdf
- 3 U.S. Access Board, “Public Rights-of-Way” web page. <http://www.access-board.gov/prowac/>
- 4 State of Oregon, “The Bike Bill,” Oregon Revised Statute (2009), sec 366.514. <https://www.oregonlaws.org/ors/366.514>
- 5 Oregon Department of Transportation, “1.2.B.2.d Urban Walkways,” in 1995 Oregon Bicycle and Pedestrian Plan (Salem, OR: 1995), p.53. http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/bp_plan_2.pdf
- 6 U.S. Department of Transportation, Federal Highway Administration, Pedestrian and Bicycle Crashes of the Early 1990’s, FHWA-RD-95-163 (Washington, DC: 1995.)
- 7 U.S. Department of Transportation, Federal Highway Administration, An Analysis of Factors Contributing to “Walking Along Roadway” Crashes: Research Study and Guidelines for Sidewalks and Walkways, FHWA-RD-01-101 (Washington D.C., 2001).
- 8 Florida Department of Transportation, Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects (Tallahassee, FL, 2005). http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_SF/FDOT_BD015_04_rpt.pdf.
- 9 Dowling, Reinke, et al., NCHRP Report 616, Multimodal Level of Service Analysis for Urban Streets, Transportation Research Board of the National Academies, Project 3-70 (Washington D.C., 2008).

For more information and resources on pedestrian and bicycle safety, please visit:

http://safety.fhwa.dot.gov/ped_bike/