

224 Shared Use Paths

224.1 General

Shared use paths are paved facilities physically separated from motorized vehicular traffic by an open space or barrier and are either within the highway right of way or an independent right of way. The term, “shared use path”, as used in this manual is synonymous with trails, multiuse trails, or other similar terms used in other Department manuals.

Shared use paths are used by bicyclists, pedestrians, skaters, runners, and others. Since shared use paths serve as pedestrian facilities, they must comply with Americans with Disabilities Act (ADA) standards. In addition to the requirements of this manual for accessible pedestrian facilities, the bicycle’s operating characteristics govern the design of shared use paths.

It is preferable to plan for shared use paths ahead of time by including them in a district bicycle facility plan. There should be a commitment to provide path continuity with other bikeways throughout the corridor. Ensure adequate access to local streets and other facilities along the path.

A shared use path may substitute for the following:

- Sidewalk in locations where sidewalk is required (See **FDM 222.2.1**)
- Bicycle lanes on roads with a design speed of 35 mph or greater (See **FDM 223.2.1**)

For RRR projects, other than meeting detectable warning and curb ramp requirements, unaltered shared use paths that are not in compliance with **FDM** criteria or ADA standards are not required to be reconstructed.

An Urban Side Path is a category of shared use paths that may be used in C2T, C4, C5 and C6 context classifications where the design speed of the adjacent roadway is 35 mph or less. In C5 or C6 context classifications, Urban Side Paths placed adjacent to the roadway must be provided with a separate sidewalk to accommodate increased pedestrian demand in these context classifications.

The Urban Side Path users and motorists in adjacent travel lanes will be traveling more slowly in C2T, C4, C5, and C6 context classifications, compared to the rural and suburban locations of conventional Shared Use Paths. In addition, because they are associated with curbed roadways, Urban Side Paths will be vertically separated from the roadway, further

distinguishing them from conventional Shared Use Paths. The slower travel speeds and vertical separation allow the use of design criteria differing from a standard Shared Use Path. The slower travel speeds are due to speed management concepts inherent to the urban environment (e.g., enclosure, engagement, and deflection). See **FDM 202** for more information on speed management.

A shared use path may not be the best solution for all conditions. Use a separated bike lane with a sidewalk per **FDM 223** and **FDM 222** in Context Classifications C2T, C4, C5, or C6 when:

- (1) Non-motorist volumes are expected to be high, or
- (2) There may be high numbers of more vulnerable users such as elderly or people with disabilities.

224.1.1 Shared Use Path Within Department Limited Access Right of Way

Exposing vulnerable road users to high-speed traffic is undesirable; therefore, shared use paths located parallel to Limited Access (LA) Facility travel lanes are not permitted within LA right of way (R/W). However, a shared use path on causeways or bridges that span navigable waterways may be considered when the path is shielded from the high-speed traffic using a barrier or traffic railing.

It is the Department's intention to facilitate interconnectivity with other existing or planned shared use paths (trails) as identified by the Florida Greenways and Trails Council in accordance with **Chapter 260, Florida Statutes** "Florida's Greenways and Trail Act". To support Florida's shared use path (trail) network, crossing the Department's LA R/W at an existing roadway, or on a new separated overpass or underpass, will be considered.

Shared use paths that cross LA R/W must meet the following criteria:

- (1) The shared use path is available for public use and includes a fence or wall to prevent access to the LA Facility travel lanes.
- (2) Local Agency Agreements must be obtained to assign ownership, maintenance, and management; responsibilities, including:
 - (a) Lighting
 - (b) Fencing or barriers
 - (c) Security gates
 - (d) Signing
 - (e) Amenities
- (3) At-grade crossings are permitted only at interchange ramp terminals and signalized crosswalks.
- (4) A proposed overpass crossing (i.e., bridge structure spanning LA R/W) must not be within two miles of an existing or proposed shared use path crossing of the same LA Facility. A proposed overpass must:
 - (5) Accommodate future widening of the LA Facility,
 - (6) Span the LA R/W with minimal piers, and
 - (7) Provide abutments outside of clear zone.
- (8) A proposed underpass crossing (i.e., shared use path adjacent to roadway or waterway under LA Facility bridge) must meet minimum vertical clearance as defined in **FDM 224.8**. A proposed underpass must remain free from standing water up to and including the 10-year storm event.

Design Variations for the above criteria must be approved by the Chief Engineer, following a review by the Chief Planner.

224.1.2 Public Transit Loading Zones

See **FDM 225** for information on Public Transportation Facilities. Provide a minimum 5-foot-wide sidewalk connecting transit stops to shared use paths.

Coordination with the following may be required to determine the optimum location of boarding and alighting areas, transit shelters, and bus bays:

- (1) District Pedestrian/Bicycle Coordinator
- (2) District Modal Development Office Coordinator
- (3) District ADA Coordinator
- (4) District Public Transportation staff
- (5) Local public transit provider(s)

224.1.3 At-grade Railroad Crossings

See **FDM 222.2.4** for information on at-grade railroad crossings.

224.1.4 Conflict Points

Special attention should be paid to minimizing and managing conflict points along shared use paths. See **FDM 223.2.4.5** for more information.

224.1.5 Cyclists Enter and Exit Paths

Design Shared Use Path entry and exit points to allow cyclists to enter and exit without riding against traffic. See **FDM 223.2.4.5** for more information.

224.2 Curb Ramps

Provide curb ramps to be the same width as the path. At locations where the path narrows from the typical width, warning signs or pavement markings in conformance with the [**MUTCD**](#) should be used. Refer to **FDM 222.2.2** for specific design criteria for curb ramps.

224.3 Detectable Warnings

Provide detectable warnings in accordance with **FDM 222.3**.

224.4 Widths

The appropriate paved width for a two-directional shared use path is dependent upon context, volume and mix of users. Widths range from a minimum 10 feet to 14 feet, with a standard width of 12-feet. SUN Trail network facilities that are less than 12-feet require approval by the Chief Planner. For shared use paths not in the SUN Trail network:

- (1) 10-foot wide may be used where there is limited R/W.
- (2) Short 8-foot wide sections may be used in constrained conditions.

Consider the accommodation of emergency and maintenance vehicles or management of steep grades when selecting the width of the path.

FHWA's [Shared Use Path Level of Service Calculator](#) may be used as a guide in determining appropriate width.

224.4.1 Tunnel and Bridge Widths

Clear width for tunnels is the width of the shared use path plus four feet. The geometrics and lighting requirements should be discussed with the Department Project Manager and the District Pedestrian/Bicycle Coordinator.

Clear width for standalone pedestrian & bicycle bridges can be found in **FDM 266.3**.

Clear width for shared use paths on vehicular bridges is the width of the approach facility plus four feet (2-foot wide on each side). The minimum clear width is 12 feet under constrained conditions.

224.5 Cross Slopes

To meet ADA requirements, the maximum cross slope on shared use paths is 2%.

Use a 75-foot distance to transition from -2% to 2% or from 2% to -2% when it is desired to change the slope direction of the path. Consider the potential for ponding water when proposing a slope transition.

224.6 Longitudinal Grades

When a shared use path is adjacent to the roadway (i.e., follows the roadway profile), shared use path grades may mirror the roadway profile. When a shared use path is not adjacent to a traveled way, shared use path grades are not to exceed 5%, unless accessible ramps are provided. Maximum ramp slopes are 8.33% and can have a maximum rise of 30 inches, with a level landing at least 60 inches in length.

Grades greater than 5% cause difficulties for many path users including bicyclists. **Table 224.6.1** provides maximum grades and distances for areas in which the terrain makes it necessary to use steeper grades on short sections.

Table 224.6.1 Maximum Grade Lengths

Longitudinal Grade (%)	Maximum Length (feet)
6	800
7	400
8	300
9	200
10	100
11+	50
<p>Notes:</p> <p>(1) When using a longer grade, consider adding 4 to 6 feet of additional width to the path to allow a bicyclist to dismount and walk their bicycle.</p> <p>(2) Clear distances and sight distances should be adjusted to accommodate longer grades.</p>	

Refer to **FDM 224.11** for controls on grade changes.

224.7 Horizontal Clearance

Provide a 4-foot clear area adjacent to both sides of the path, including placement of signs. Maintain a 2-foot-wide graded area with a maximum 1:6 slope adjacent to both sides of the path. For restricted conditions, bridge abutments, sign columns, fencing and railing may be located within 4 feet of the edge of pavement.

For Urban Side Paths, the following criteria reflect the lower design speed. Provide a minimum 2-foot buffer area adjacent to both sides of the path, including placement of signs. Signs, plantings, or other items must be located outside of the 2-foot buffer. Maintain a graded area with a maximum 1:6 slope adjacent to both sides of the path within the 2-foot minimum buffer area.

Horizontal clearance on standalone pedestrian & bicycle bridges, shared use paths alongside or on vehicular bridges, and tunnels is accounted for in the required clear widths as described in **FDM 224.4.1**.

See **FDM 224.15** for information concerning drop-off hazards.

See **Figure 224.8.1** where horizontal clearance is "H".

224.8 Vertical Clearance

Provide a 10-foot vertical clearance from the lowest edge of an overhead obstruction to any portion of the path under the obstruction. An 8-foot clearance is allowed for overhead signs and for other overhead obstructions under constrained conditions.

A 12-foot vertical clearance is desirable for:

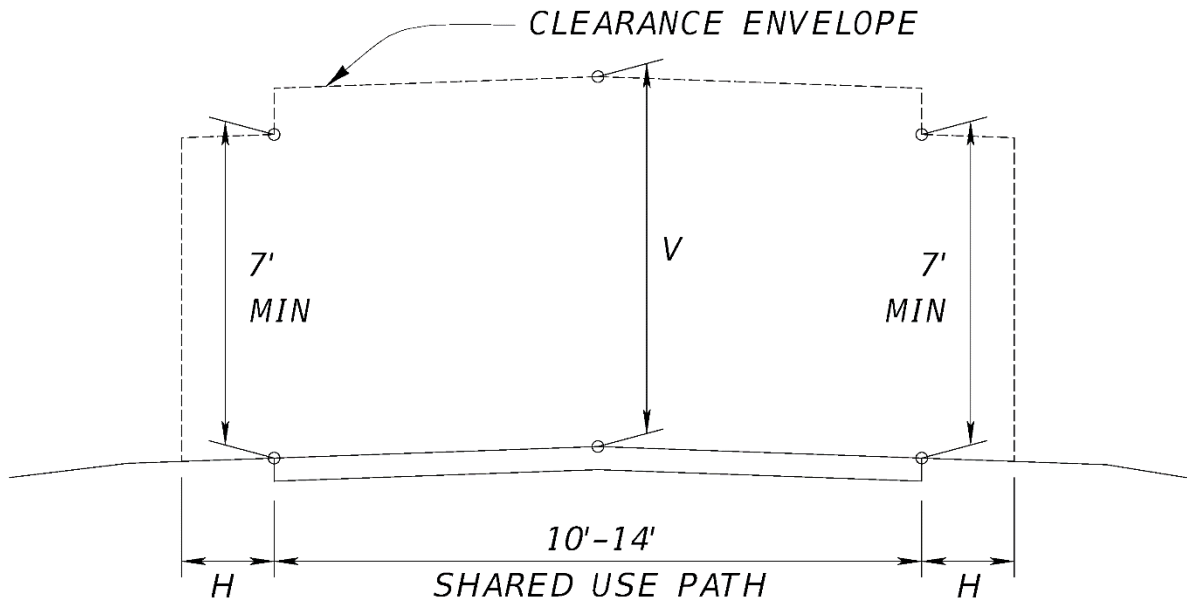
- (1) Accommodation of equestrians or maintenance and emergency vehicles.
- (2) Underpasses and tunnels.
- (3) SUN Trail.

Minimum clearances for bridge structures are given in **FDM 260.6**.

Existing elements that provide a minimum 8-foot vertical clearance are not required to be corrected to the clearances listed above.

See **Figure 224.8.1** where vertical clearance is “V”.

Figure 224.8.1 Shared Use Path Horizontal and Vertical Clearance Envelope



224.9 Design Speed

Use a design speed of 18 mph for paths with longitudinal grades $\leq 4\%$. Use a design speed of 30 mph for paths with downhill longitudinal grades greater than 4%. For Urban Side Paths use a design speed of 10 mph.

224.10 Horizontal Alignment

224.10.1 Minimum Radii

The minimum centerline radius of curvature for a shared use path is provided in **Table 224.10.1**.

Table 224.10.1 Minimum Radius Horizontal Curves on Shared Use Paths

Design Speed (mph)	Maximum Cross Slope (%)	Minimum Radius (feet)
10	2	20
10	-2	22
18	+2	74
18	-2	86
30	+2	261
30	-2	316

Notes:

- (1) For paths with two-way traffic use minimum radius given for cross slope of -2%
- (2) Positive (+) cross slopes represent pavement sloped to the inside of horizontal curves. Negative (-) cross slopes slope toward the outside of horizontal curves.

224.10.2 Stopping Sight Distance

The minimum stopping sight distances for a shared use path are provided in **Table 224.10.2**. Further information on calculating the minimum stopping sight distances may be found in the **AASHTO [Guide for the Development of Bicycle Facilities, 2012](#)**.

Table 224.10.2 Minimum Stopping Sight Distances

Minimum Stopping Sight Distance (feet)																
Design Speed	Grades															
	Downhill							Flat	Uphill							
	9%	8%	7%	6%	5%	4%	3%		3%	4%	5%	6%	7%	8%	9%	
10 mph	84	78	74	70	67	64	62	58	54	53	53	52	51	51	50	
18 mph	Use 30 mph Values						156	149	134	123	120	118	115	113	111	109
30 mph	539	485	444	410	383	Use 18 mph Values										
Notes: Stopping sight distance based on an object height of 0.0 feet and an eye height of 4.5 feet																

224.11 Vertical Alignment

The minimum length of vertical curve necessary to provide minimum stopping sight distance at various speeds on crest vertical curves is selected by using the formula listed below:

$$\begin{aligned} \text{When } S > L: \quad L &= 2S - (900 / A) & L &= \text{Min. Length of Vertical Curve (ft.)} \\ & & A &= \text{Algebraic Grade Difference (\%)} \\ \text{When } S < L: \quad L &= AS^2 / 900 & S &= \text{Stopping Sight Distance (ft.)} \end{aligned}$$

224.12 Separation from Roadway

Place as close to the R/W line as possible or outside the clear zone. At a minimum, provide a separation between the shared use path and the roadway. This demonstrates to both path users and motorists that the shared use path is a separate facility. Minimum separation is as follows:

- On flush shoulder roadways with design speed 45 mph or less, the edge of the path is to be at least 5 feet from the edge of the paved shoulder.
- On flush shoulder roadways with design speed 50 mph or greater, the edge of the path is to be at least 5 feet from the shoulder break (see **FDM 210.4**).

- On curbed roadways, the edge of the path is to be at least 5 feet from the face of curb, with consideration of other roadside obstructions (e.g., signs and light poles).

Where the minimum separation cannot be obtained:

- Consider installation of a pedestrian channelization fence at speeds of 45 mph or less to limit incursion of path users onto the roadway.
- Consider installation of a crashworthy barrier at speeds greater than 45 mph to limit incursion of motorists onto the path, although this type of barrier can be used at lower speeds as well.

For Urban Side Paths, place as close to the R/W line as possible, but no closer than 2 feet from the back of curb. Do not place Urban Side Paths adjacent to uncurbed roadways.

Commentary: Criteria provided are minimum values only. As motorist speeds increase, the amount of separation between the traveled way and path should also increase to manage the level of traffic stress for path users.

224.13 Lighting

Lighting for shared use paths is important and should be considered where riding at night is expected, such as paths serving college students or commuters. Lighting should also be considered through underpasses or tunnels. Lighting standards are provided in **Table 231.2.1**.

224.14 Signing, Pavement Marking, and Signalization

The [Standard Plans](#) and the [MUTCD](#) provide guidance and requirements for signage, pavement markings and signals for shared use paths. Signs on shared use paths should follow the dimensions provided in **Table 9B-1 Bicycle Sign and Plaque Sizes, [MUTCD](#)**.

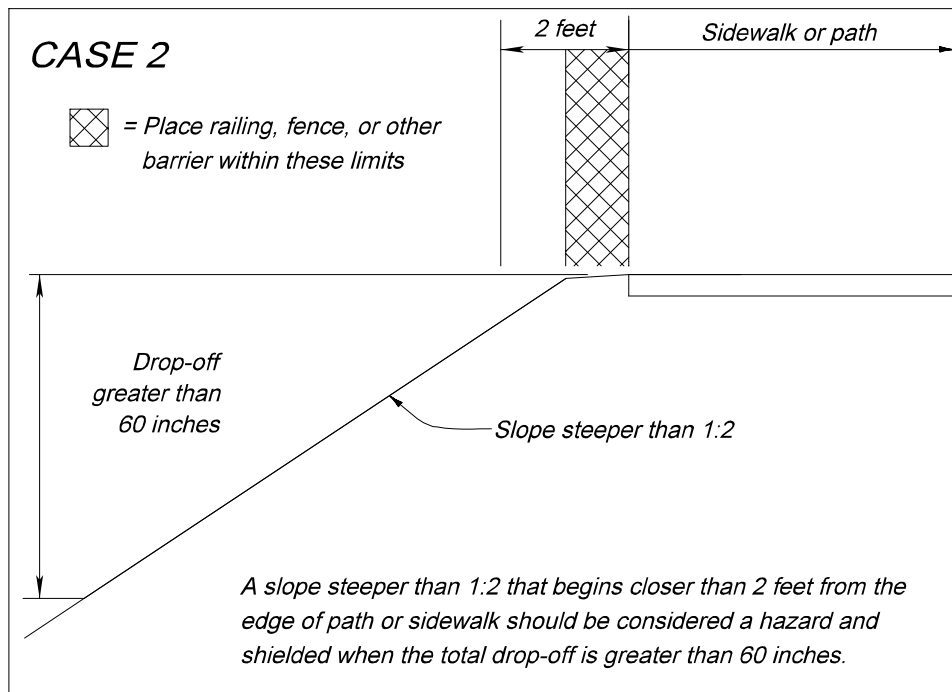
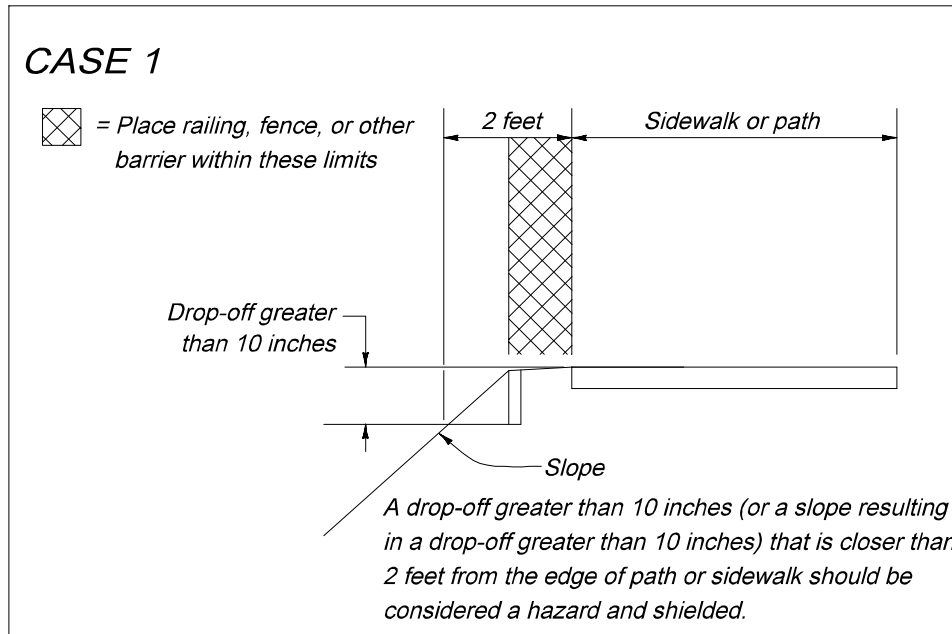
224.15 Drop-off Hazards

Drop-off hazards are steep or abrupt slopes adjacent to the path that can be perilous to pedestrians and cyclists. There are two cases that require shielding as shown in **Figure 224.15.1**. Depending on the depth of the drop-off and severity of the conditions below, shielding may be necessary for conditions other than cases 1 or 2.

Consider the following when determining the feasibility of shielding other drop-off hazards for protecting pedestrians and cyclists:

- (1) The engineer should consult the District Bicycle/Pedestrian Coordinator or Trail Coordinator.
- (2) Installing fencing or railings are two ways to shield the drop-offs. Fencing is generally intended for use in rural areas along paths and trails. Railing is generally intended for urbanized areas, locations attaching to bridge rail or along concrete walkways. Pedestrian/Bicycle Railings ([Standard Plans, Index 515 Series](#)) are adequate for shielding all drop-offs but are generally intended for use on drop-offs greater than 60 inches. Pipe Guiderail ([Standard Plans, Index 515-070](#) and [515-080](#)) is adequate for shielding drop-offs which are 60 inches or less.
- (3) Along continuous sections where the drop-off varies above and below the 60-inch threshold, for uniformity the engineer may consider using only one of the railing types adequate for shielding all drop-offs.
- (4) Railing or fencing near intersections or driveways could obstruct the driver's line of sight. To reduce the need for railings, as a sidewalk or shared use path approaches an intersection, consider extending cross drains and side drains to minimize drop-offs.
- (5) The installation of fencing, railing, or pipe guardrail presents a hazard in and of itself. Evaluate whether or not the installation of these devices present a greater risk than the drop-off or other condition it is intended to shield.

Figure 224.15.1 Drop-Off Hazards for Pedestrians and Bicyclists



224.16 Path Railings

Requirements for railings and fences are discussed in **FDM 222.4**.

224.17 Typical Sections

Example typical sections are provided in **FDM 913**.

224.17.1 Pavement Design

See the [FDOT Pavement Management website](#) for guidance on pavement requirements.

Provide a pavement design equivalent to standard shoulder pavement:

- (1) 12-inch Stabilized Subgrade
- (2) Base Group 1
- (3) 1.5-inch Structural Course.

224.18 Shade Considerations

Shade along shared use paths is desired. Consider shade from landscaping and shade from architectural sources such as buildings, pavilions, and shade sails.

To maximize shade and minimize costs:

- (1) Begin coordination between the designer, project manager, utilities, district landscape architect, and maintaining agency for the landscaping during Phase I of the design.
- (2) Choose an alignment of the path that can capitalize on shade from existing and proposed trees or architectural sources.

For more information on shade from Landscape Design, refer to **FDM 270**, **FDM 944**, and **Work Program Instructions Part 3, Chapter 16**.