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 Paths,” 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.

Shared Use Paths are appropriate in Context Classifications C1, C2, and C3, but may not be applicable in other contexts due to short block lengths and frequent intersections. Shared use paths may be considered when all of the following conditions are met:

(1) The path is separated from the roadway.

(2) There are few access points or roadways crossing the path.

(3) There is adequate access to local streets and other facilities along the path.

(4) There is a commitment to provide path continuity with other bikeways throughout the corridor.

Providing a shared use path:

- May substitute for sidewalk in locations where sidewalk is required (See ***FDM 222.2.1***)
- Does not substitute for bicycle lanes in locations where bicycle lanes are required (See ***FDM 223.2.1***)

When shared use paths are located immediately adjacent to roadways, some operational problems may occur:

(1) Shared use paths require one direction of bicycle traffic to ride against motor vehicle traffic, which is contrary to the normal Rules of the Road. Motorists are not in the habit of scanning for bicycle traffic from the oncoming direction.

(2) Where shared use path ends, bicyclists riding against traffic may likely continue to travel on the wrong side of the street, as do bicyclists getting on to a path. Wrong-way travel by bicyclists is a major cause of bicycle-vehicle crashes and should be discouraged.

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 barrier.

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:

- Lighting
- Fencing or barriers
- Security gates
- Signing
- 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:

(a) Accommodate future widening of the LA Facility,

(b) Span the LA R/W with minimal piers, and

(c) Provide abutments outside of clear zone.

(5) 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:

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

Modification for Non-Conventional Projects:
Delete the above paragraph and see the RFP for requirements.

224.1.3 At-grade Railroad Crossings

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

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:

- 10-feet wide may be used where there is limited R/W.
- Short 8-feet 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 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.

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

To meet ADA requirements, the maximum longitudinal grade is 5%. Grades greater than 5% should be considered ramps and designed accordingly. 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 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

Notes:

(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.

(2) Clear distances and sight distances should be adjusted to accommodate longer grades.

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 posts, fencing and railing may be located within 4 feet of the edge of pavement, but not less than 2 feet.

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

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.

Modification for Non-Conventional Projects:
Delete ***FDM 224.8*** and replace with the following: **224.8 Vertical Clearance** Provide a 10-foot vertical clearance from the bottom 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. See RFP for additional requirements.

224.9 Design Speed

Use a design speed of 18 mph for paths with longitudinal grades ≤ 4%. Use a design speed of 30 mph for paths with downhill longitudinal grades greater than 4%.

224.10 Horizontal Alignment

224.10.1 Minimum Radii

The minimum 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)	Cross Slope (%)	Minimum Radius (feet)
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%

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								Uphill						
	9%	8%	7%	6%	5%	4%	3%	Flat	3%	4%	5%	6%	7%	8%	9%
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:

(1) 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:

When S > L: $L = 2S - (900 / A)$

When S < L: $L = AS^2 / 900$

L = Min. Length of Vertical Curve (ft.)
A = Algebraic Grade Difference (%)
S = Stopping Sight Distance (ft.)

224.12 Separation from Roadway

Provide a separation between a shared use path and the roadway when they are located adjacent to each other. 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 curbed roadways with design speed 45 mph or less, the edge of the path is to be at least 4 feet from the back of curb, with consideration of other roadside obstructions (e.g., signs and light poles).
- On all roadways with design speed 50 mph or greater, the edge of the path is to be at least 5 feet from the shoulder break.

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.

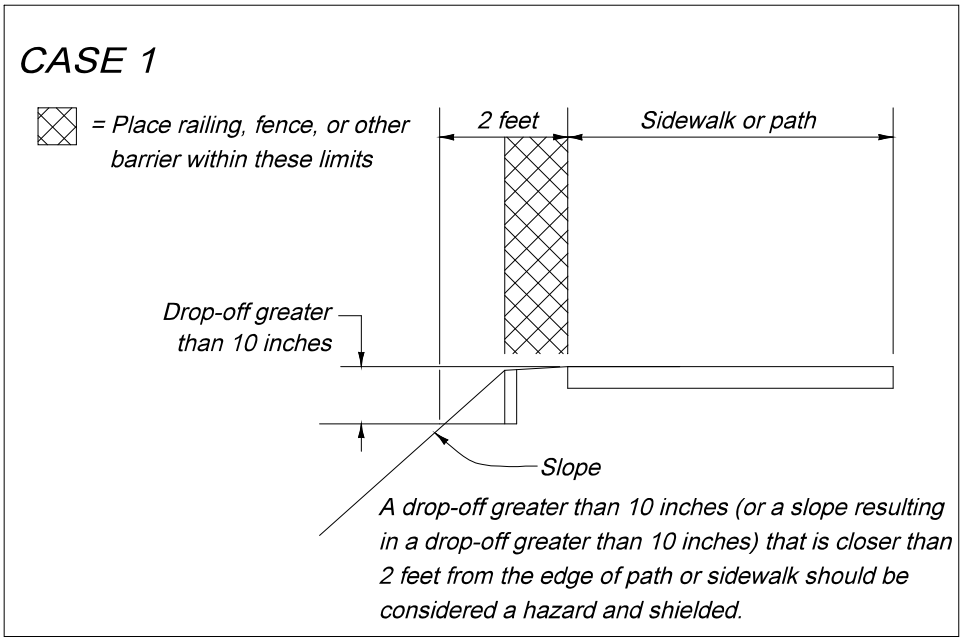
(3) Along continuous sections where the drop-off varies above and below the 60-inch threshold, for uniformity the engineer may consider using only one of the railing types adequate for shielding all drop-offs.

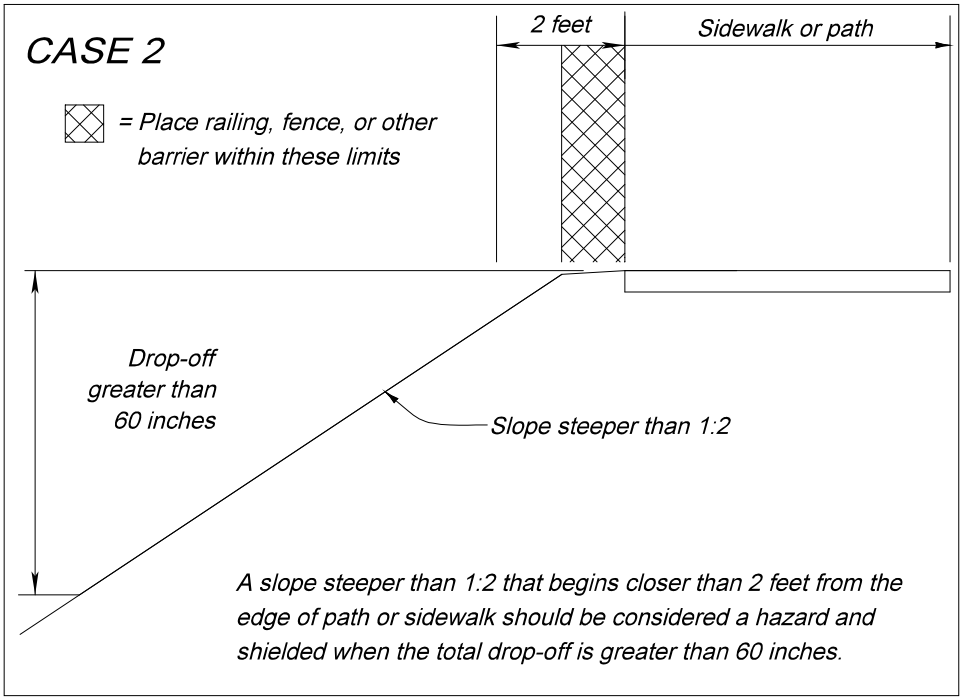
(4) Railing or fencing near intersections or driveways could obstruct the driver's line of sight. To reduce the need for railings, as a sidewalk or shared use path

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 306***.

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:

- 12-inch Stabilized Subgrade
- Base Group 1
- 1.5-inch Structural Course.