



**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
NASHVILLE, TENNESSEE 37243-0350**

**MEMORANDUM**

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**DATE:** October 10, 2016

**SUBJECT:** Non-Motorized Transportation Facility Design Criteria (Shared-Use Path)

During the development of separated non-motorized transportation facility plans, the following geometric design criteria shall be followed until the Department develops a new Multimodal Design Guideline. This criteria is applicable for all projects using federal funds.

**Separated Non-motorized Facility Design Criteria**

- Minimum Design Speed, 18 mph (Table 5-2, See Ref. 1)

**Geometric design criteria**

- Minimum bi-directional paved path width shall be based on Level of Service (LOS) in the 2010 Highway Capacity Manual (Ref.3). See the table below, which has been developed from Ref.2.

	Minimum paved path width (ft.)	
Number of users per hour	LOS B	LOS C
0-100	8	8
100-200	10	8
200-300	12	10
300-400	14	12

Minimum width of 10' for LOS C and 12' for LOS B shall be used. Design Capacity of 200-300 users per hour (LOS B) shall be used unless an analysis is completed using the Highway Capacity Manual.

- All plan title sheets shall include proposed facility design speed and capacity.
- A 2' wide clear zone with maximum 6:1 fill slope on each side of the paved surface shall be provided (Figure 5-1, Ref 1.). Sections bound by a structure, such as a pedestrian/bicycle rail, may reduce the lateral offset to 1' (See Std. Drawing RD01-TS-8).

- At fill Sections, the typical crown shall be placed on center with a maximum 1.5% cross slope. Cut and fill sections may use single slope from cut edge toward the fill section with a maximum 1.5% cross slope. Do not use superelevation rates on paths exclusive for bicycle use (see Std. Drawing RD01-TS-8).
- Maximum longitudinal slope shall be limited to 5%.
- Minimum horizontal curve radius is 60 ft. (based on 18 mph bicycle speed; See Ref.1).
- Minimum vertical clearance is 10' (8' for extreme limitations; See Ref.1).
- The geometric design of horizontal curves, vertical curves, stopping sight distance, and horizontal sight distance shall follow the guidelines in Chapter 5 of Ref.1.

### **Structures**

- The proposed structure width shall follow the above paved path guideline with an additional 1' lateral clearance on both sides and proper safety rail (See Std. Drawing RD01-TS-8).

### **Drainage**

- Gravity walls or retaining wall sections shall consider additional drainage (See Std. Drawing RP-S-9).
- No offsite runoff over the facility is allowed.

### **Signing and marking**

- All signs shall adhere to the minimum sizes specified in the MUTCD, Section 9B.02 (Ref. 4).
- Warning signs shall be placed a minimum of 100' in advance of locations where the curve radius is smaller than the required 60 ft. (See Ref. 1). They shall also be placed 2' offset from paved surfaces. (See Std. Drawing RD01-TS-8 and Figure 5-1, Ref. 1).
- All path intersections with roadways shall have proper pavement marking and signage for both facilities. (See Std. Drawing T-M-10).

### **Safety features**

- If the edge drop-off warrants a safety rail, use 42" pedestrian/bicycle rail height per Std. Drawing S-BPR-1 (See also Figure 5-3 Ref. 1).
- A proper separation, exceeding the minimum clear zone (See Std. Drawing S-CZ-1), shall be provided for facilities adjacent to an existing roadway. If the proposed non-motorized facility cannot be placed outside the clear zone, then a barrier protection is required (See Std. Drawing RD01-TS-8) to protect vulnerable users from motorists. Based on the posted design speed of the existing roadway, a variety of barrier shapes and types are available. Seek advice from the Roadway Design Standards and Policies section if more information is needed.
- Appropriate curb ramps should be placed throughout the facility and should be based on TDOT RP-H series standards.
- Truncated domes should be yellow, cover the full width of the ramp, and extend only 2' from the edge (See Std. Drawing RP-H-3).

Currently, the Department has no formal design exception request process for the locations where the above criteria cannot be met. Therefore, please consult with the Roadway Design QA/QC section for advice at any time during the development of the plans. All mitigation practices shall be included as a special note on the plan sheets.

### **References:**

1. AASTHO Guide for the Development of Bicycle Facilities, 2012 Fourth Edition
2. Shared-Use Path Level of Service Calculator - A User's Guide, FHWA Report No. FHWA-HRT-05-138
3. 2010 Highway Capacity Manual
4. MUTCD, 2009 Edition