

crossovers on Interstate facilities require approval by the State Roadway Design Engineer and Federal Highway Administration (FHWA) to remain.

- (3) Crossover locations that meet the **AASHTO Green Book** criteria, but do not meet additional FDOT criteria, require approval by the District Design Engineer to remain.

211.3.3 Managed Lanes Separation

Managed lanes are always separated from the general use lanes. Median openings and crossovers are prohibited within managed lanes.

There are four types of managed lanes separation treatments:

- (1) Barrier separation; see **Figure 211.3.1**
- (2) Contiguous separation with tubular markers; see **Figure 211.3.2**
- (3) Wide buffer separation; see **Figure 211.3.3**
- (4) Grade separation; see **Figure 211.3.4**

Managed lane separation type and width must be approved by the District Design Engineer. The maximum width for the contiguous separation is 3 feet. In developing the contiguous separation width, consideration should be given to transitions between new and adjacent roadway segment treatments and should be done in consultation with the DTOE. Install tubular markers per the **TEM**, Chapter 4. Use barrier separation or grade separation when implementing a reversible managed lane system. See the **Managed Lanes Guidebook** for factors to consider in determining separation type.

The maximum spacing and placement of tubular markers is provided in the **TEM**. If, based on operational and safety analysis, the EOR or the district wishes to increase the maximum allowable spacing, a Design Variation must be approved by the Chief Engineer of Production.

When a wide buffer separation is selected, the buffer may include a grassed median or pavement. Paved wide buffers should be no more than 12 feet wide.

Do not place turning movement lane-use pavement markings on the upstream approach between the railroad crossing pavement message and the tracks.

Where intersections occur between the W10-1 sign shown in **Exhibits 220-1** through **220-4** and the tracks, place an additional W10-1 sign between the intersection and the railroad gate.

Include Railroad Dynamic Envelope (RDE) pavement markings at Active and Passive Grade Crossings on:

- State Roads,
- State-owned rails, and
- State-owned property.

Design Variations to not install an RDE are to be approved by the Chief Engineer of Production.

The determination of slightly or significantly skewed railroad crossing is at the discretion of the EOR.

Detail RDE pavement markings in the plans in accordance with [Standard Plans](#), [Index 711-001](#) and the details shown in **Exhibits 220-1** through **220-4**. Ensure the details in the plans include the following:

- (1) Orient RDE pavement markings:
 - (a) In the direction of the travel lanes at all approaches upstream of the crossing (i.e., transverse to the travel lanes).
 - i. For slightly-skewed railroads, extend the RDE markings transverse across all lanes, as shown in **Exhibits 220-2** and **220-3**.
 - ii. For significantly-skewed railroads, step the RDE markings transverse across each lane, as shown in **Exhibit 220-4**.
 - (b) Along the railroad (i.e., parallel to the railroad tracks) for areas between tracks and downstream of the crossing.
 - (c) To maximize the visibility of the RDE pattern for both the upstream and downstream sides of the track. Locate markings in a manner to ensure the "X" pattern is identifiable to the motorists and bicyclists and centered in the lanes to the extent practicable.
- (2) Place RDE markings through the foul area as shown in **Exhibits 220-3** and **220-4**. If the railroad owner will not allow the RDE markings through the foul area, or the substrate material will not provide an appropriate bonding surface for the

(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 the 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 of Production, 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.

Table 233.11.1 DMS Characters

DMS Type		Minimum Character Size (inches)	Minimum Number of Characters Per Line	Maximum Resolution (millimeter pixel pitch)
Lane Status	LA Facility	18	18	20
	Arterial	12		
Toll Amount	LA Facility	18	7	
	Arterial	12		

233.11.2 Highway Advisory Radio (HAR)

A highway advisory radio (HAR) system is an advisory tool that informs the public of traffic- and safety-related issues. HAR systems may be installed or upgraded with the approval from the Chief Engineer of Production. See Engineering and Operations Memorandum [16-03](#).

Include the equipment necessary for the operator to record verbal messages from onsite or remote locations, and to continually broadcast live, prerecorded, or synthesized messages from roadside transmission sites. Also, include highway signs with remotely operated flashing beacons to notify motorists of HAR broadcasts.

Refer to FCC regulations [Title 47 CFR, Part 90.242](#) for additional design requirements on travelers' information stations. Additional information on licensing issues, frequency allocation, and other specifics may be obtained by contacting the State Traffic Engineering and Operations Office's ITS Communications division.

Determine placement of a HAR installation based on specific project needs, as well as the following requirements:

- Transmission of message that can be received by motorists traveling through the broadcast zone.
- Placement on Interstate and Freeway facilities prior to interchanges that offer alternate routes.
- Placement in advance of high crash locations and traffic bottlenecks.
- Placement that accommodates access for service and maintenance.
- Placement along key commuter or evacuation corridors.

(9) [Traffic Analysis Handbook](#)

240.1.2 TMP Components

A TMP consists of strategies to manage the work zone impacts of a project. The scope, content, and degree of detail will vary based upon the expected work zone impacts of the project. A TMP may include the following three components:

- Temporary Traffic Control Plan
- Transportation Operations Plan
- Public Information Plan

240.2 Temporary Traffic Control Plan

A Temporary Traffic Control Plan (TTCP) is required for all work zones within or adjacent to highways, roads and streets as specified by Florida Statute and Federal regulations. Typical applications of some commonly encountered situations are shown in the **MUTCD**. Some of these typical applications have been modified by the **Standard Plans, 102 Series**. Most work zones will require further development of the typical applications to address project-specific conditions.

240.2.1 TTCP Details

240.2.1.1 Emergency Shoulder Use

The requirements for Emergency Shoulder Use (ESU) outlined in **FDM 211.4.6** must be maintained during all phases of construction. A Design Variation to omit ESU evacuation requirements for any phase of construction must be approved by the Chief Engineer of Production.

The Design Variation must include all the following:

- Documentation of concurrence with the ESU omission from the District Traffic Operations Engineer, District Construction Engineer, and District Maintenance Engineer
- A statement on how the ESU closure will occur outside of Hurricane Season (June 1 – November 30) to the extent practical
- A time estimate for how long it would take to implement an ESU in the event of an emergency evacuation