Maintenance Rating

HANDBOOK

Data Collection for the Maintenance Rating Program

2025 Edition

ACKNOWLEDGMENTS

The development of this program was conducted by the Office of Maintenance, Florida Department of Transportation, in cooperation with Maintenance representatives from all Districts within the State. Acknowledgment to: Maintenance Levels-of-Service Guidelines, National Cooperative Highway Research Program Report 223, Transportation Research Board, National Research Council, Washington, D.C., June 1980, for guidelines in developing our Maintenance Rating Program and in providing some verbiage in this manual. Any ongoing revisions are the result of continuous review by a team established by the District Maintenance Engineers for that purpose. The team consists of a representative from each district. Our thanks and appreciation goes to those members for many long hours of meetings, research and study in the continuing development and refinement to this program.

The 2025 Consistency Workshop was held in Miami at the FDOT District 6 office. This is the first time that the Consistency Workshop has been located in District 6. The consistency workshop is crucial to training the inspectors and providing field sample evaluation points to test their knowledge of the accepted maintenance criteria.

The MRP task team would like to thank District 6 for their hospitality and hosting a successful workshop.

This handbook is available on the Office of Maintenance web site. Printed copies of the handbook may be purchased from the Maps and Publications Sales Office, 605 Suwannee Street, Mail Station 12, Tallahassee, Florida 32399-0450, or telephone (850) 414-4050.

Maintenance Rating Program Handbook

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ABSTRACT

The information contained in this handbook defines a method of conducting a visual and mechanical evaluation of routine highway maintenance conditions. The purpose of this evaluation is to provide information that should be used to schedule and prioritize routine maintenance activities and provide uniform maintenance conditions that meet established Departmental objectives. General program requirements are outlined in both the Roadway and Roadside Procedure, Topic No. 850-000-015 and the Maintenance Rating Program procedure, Topic No. 850-065-002.

This handbook is, primarily, for the use of personnel responsible for conducting the Maintenance Rating Program Survey. Training for conducting the survey was provided to initiate the program and additional training will be provided as required. The survey is being conducted on all types of highway facilities. The type of maintenance required determines the classification of a particular facility. The current facility type **classifications** are as follows:

1. **Rural Limited Access**
2. **Rural Arterial**
3. **Urban Limited Access**
4. **Urban Arterial**

Each of the highway facility types is divided into **5 elements**:

1. **Roadway**
2. **Roadside**
3. **Traffic Services**
4. **Drainage**
5. **Vegetation/Aesthetics**

Further divisions of these elements include those features that are characteristic to an individual element. For example, the Roadside element is composed of the following characteristics:

A. Unpaved Shoulder
B. Front Slope
C. Slope Pavement
D. Sidewalk
E. Fence

TERMINOLOGY

FACILITY TYPE - Classification is determined by the type of maintenance applied to the facility (rural or urban) and the access to and from the facility (Limited Access or Arterial).

MAINTENANCE ELEMENT - A part of the highway system that requires maintenance (e.g., roadway, traffic services, aesthetics).

CHARACTERISTIC - A part or parts of a maintenance element that, combined with other characteristics, compose the maintenance element (e.g., Roadside is composed of unpaved shoulder, front slope, slope pavement, sidewalk and fence).

MAINTENANCE CONDITION - That condition of an element characteristic that requires routine maintenance to prevent deficiencies or that needs to be repaired or corrected.

LEVEL-OF-MAINTENANCE - That point or level of a maintenance condition in relation to a desired level of maintenance.

EDGE OF PAVEMENT - Is the outside edge of pavement (travel way or paved shoulder) where it meets the curb or unpaved shoulder.

FUNCTION AS INTENDED - Characteristics that meet the desired maintenance conditions as determined by the applicable Standard Plans, or Maintenance Rating Program guidelines.

QUALIFIED STATUS - For team leaders, a qualified team leader is a person who is responsible for performing the MRP survey for the Department's sample points. To become a team leader, a person must:

1. Have worked as both an active MRP team member **and** participated in the annual MRP Consistency Workshop for three consecutive years while maintaining a minimum score of 85% on the eight consistency sample points on the third year, **or**

2. Current member of the MRP Task Team or MRP Steering Committee for more than two years, **or**

3. Meet ALL the following qualifications:

    - Three years of demonstrated operational field experience, or a minimum of one-year experience as a registered member of a MRP team, or Professional Engineer with demonstrated operational field experience; **and**
    - Participation at the annual MRP Consistency Workshop with a minimum score of 85% on the eight consistency sample points; **and,**
    - Successful completion of a written qualification examination with a minimum score of 90%.

To maintain qualification as a MRP Team Leader, the incumbent must have participated in one of the annual MRP Consistency Workshops within the last two years with a minimum score of 85% on the eight consistency sample points, passed an annual quality control (QC) check by the District with acceptable ratings, and passed an annual quality assurance (QA) review performed by the Office of Maintenance with acceptable ratings.

The following are requirements for maintaining MRP team qualifications:

- Participation at the annual MRP Consistency Workshop with a minimum score of 85% on the eight consistency sample points.

If the MRP Team Leader qualification requirements are not maintained, any one or all of the following may be required:

- Retake the written qualification examination with a minimum score of 90%.
- Suspension of qualifications for six months to one year, as determined by the Director, Office of Maintenance.

Each MRP Team Leader and their team members must register with the Office of Maintenance's MRP and Roadside Manager prior to conducting any MRP reviews during the year. Any changes of teams or their members must be submitted to the Office of Maintenance's MRP and Roadside Manager prior to conducting MRP for any sample period.

TEMPORARY STATUS - The following requirements are for obtaining temporary MRP team leader qualifications until the next annual Consistency Workshop becomes available. To become a temporary team leader, a person must:

- Have three (3) years of operational field experience, or a minimum of one year experience as a registered member of a MRP team, or Professional Engineer with demonstrated operational field experience, **and**

- Submit in writing to the Office of Maintenance for review and approval, a resume documenting your educational background and operational field experience **and**

- Successful completion of a written qualification examination with a minimum score of 90% **and**

- Successful completion of a 10 point QC /QAR review according to the Maintenance Rating Program procedure, Topic No. 850-065-002.

Clear Zone –

Table 215.2.1 Clear Zone Width Requirements

	Design Speed (mph)						
	≤ 30	35	40	45	50	55	≥ 60
Clear Zone Width for New Construction							
Travel Lanes & Multilane Ramps	12 feet	14 feet	18 feet	24 feet	24 feet	30 feet	36 feet
Auxiliary Lanes & Single Lane Ramps	10 feet	10 feet	10 feet	14 feet	14 feet	18 feet	24 feet

ACRONYMS

MRP - Maintenance Rating Program

SLD's – Straight Line Diagrams

RPM's – Raised Pavement Markers

DMI – Distance Measuring Instrument

MMS – Maintenance Management System

R-O-W – Right of Way

MUTCD – Manual on Uniform Traffic Control Devices

RCI – Roadway Characteristics Inventory

INTRODUCTION

The Department is responsible for providing routine and uniform maintenance of the State Highway System in safe conditions for the users and for protecting the public investment in these facilities by preserving existing infrastructure. Historically, Maintenance Engineers would determine recommended levels of service for various highway elements (roadway, roadside, traffic services, drainage, and vegetation) and task Maintenance Field Supervisors with maintaining desired conditions. These desired maintenance conditions were neither a minimum or a maximum condition but rather a level of service influenced by many considerations, such as safety, protection of public investment, comfort, economics, environmental impact, aesthetics and not least, money constraints on available resources (personnel, equipment, and materials). The decision of which elements should be maintained at a desired level of service and which should be allowed to regress were, generally, made informally by Maintenance personnel (e.g., field supervisors). Consequently, because of these many and complicated factors, inconsistent decisions were made that result in unintended lower levels of maintenance.

Due to these inconsistencies and resulting lower levels of maintenance, a systematic and formal method of making policy decisions for desired levels of maintenance was developed. This method, now called the Maintenance Rating Program, was implemented in April 1985. This program considers those factors listed above and allows different levels of service for varying maintenance activities and highway classifications.

This handbook does not address the steps involved in the development of the program. Instead, it is produced as guidelines for those responsible for gathering the data needed to implement and maintain the program. This edition of the handbook still does not address every situation or answer every question encountered in conducting the survey or maintaining the MRP, but, as experience is gained, it will be applied to these guidelines for further expansion and refinement. Consistency workshops and on-the-job training will supplement this handbook in the continuance of the program.

SURVEY SAMPLE SELECTION

The Maintenance Rating Program uses the Department's application platform to store information collected. This data is grouped and compared to desired levels or conditions of maintenance. Data processing is also used to produce those samples of highways to be surveyed. These samples are selected from the Department's Roadway Characteristics Inventory, by listing all facilities by length and classification (e.g. Urban Limited Access) and then producing random locations to be surveyed. Versatility of the randomization allows selection by facility type, county, maintenance area (yard), district or on a statewide level. The complete sample list contains the number of samples required for each facility type based upon the available mileage.

SURVEY SAMPLE

A list of survey sample points may be exported from the MRP2 application to an Excel spreadsheet for use in the field. The number of samples for each Maintenance Area will normally be 30 per facility type or a minimum of 3 samples per available mile. If the mileage for any facility type is

less than 3, no samples will be generated for evaluation. Alternate samples are provided for use when a primary sample is unacceptable for evaluation.

SURVEY FREQUENCY

A listing of samples required to be surveyed will be provided to each District by the Office of Maintenance on the following frequency:

Scheduled Sample Period - The District will be responsible for completing the survey of those samples in the District not later than the last working day of the scheduled period. The District will assure that all data is verified as correct and entered in the appropriate place in the Department's data processing system no later than the last day of the rating period.

As Required - Occasionally, a survey of a particular section of roadway (e.g., a roadway adjacent or leading to a popular tourist attraction) will be requested. Other occasions will require surveys for a particular facility type (e.g., URBAN LIMITED ACCESS), individual section, grouping of sections, county, maintenance area or any combination of facility types by sections, counties, maintenance areas, districts or statewide. In most instances, priorities and completion dates will be assigned to these additional requests, possibly requiring some adjustment to existing and other workloads.

DATA COLLECTION

The data must be collected accurately and completely to maintain credibility of the program and because ratings may be used by other sections and divisions within the Department, other State of Florida Agencies, and possibly by other states and federal agencies.

CREW ORGANIZATION AND RESPONSIBILITIES

A Maintenance Rating Program survey team will be composed of a minimum of two persons. Each district will be responsible for implementing and maintaining the MRP.

It is mandatory that the MRP survey team's first responsibility be the safety of the pedestrian and motoring public and themselves. On occasions, it may be necessary to schedule the survey of those samples with high traffic density during low traffic periods to provide proper safety. It may become necessary to request a safety crew (flag persons, cones, signs, flashing directional arrow) from the maintenance area in which the survey is taking place. The survey team shall walk together, facing traffic, as they evaluate each sample. Facing traffic is for the safety of the survey team and walking together to prevent missing items that might be overlooked by one person and to permit accurate measurements.

EQUIPMENT AND SUPPLIES

The following is a list of equipment and supplies for the efficient and safe collection of the survey data:

- iOS or Android handheld device, i.e., tablet, iPad or phone
- Copy of Maintenance Rating Program Handbook
- FDOT approved reflective safety vest or apparel
- FDOT approved Flashing warning lights for vehicles
- Vehicle with installed Distance Measuring Instrument (DMI) (calibrated before each rating period) when necessary
- Current copy of Straight-line diagram (SLD) maps for those sections to be sampled
- Writing device (when applicable)
- Sample point marking material (e.g., paint, reflective tape)
- Measuring wheel
- Measuring tape
- Straightedge (4 ft to 8 ft) (metal or wood)
- Leveling device (carpenter's level or string level)
- String line
- Handheld optical level
    - Probing device (rod or screwdriver)
    - Legal size writing clipboard
    - Pocket type calculator
    - Metal pry bar
    - Small box to hold supplies

- Other publication (e.g., Standard Plans, Manual on Uniform Traffic Control Devices)
- Roadway Characteristics Inventory (RCI):
  Location of outfall ditches
  Location of landscaped areas
  Location of highway lighting (Maintained by the Department)

NOTE:
Some items on the above list are necessary for proper collection of the data. Other items or supplies that will make collection of the survey data safer or more efficient may be included. Current Straight Line Diagrams (SLDs) should be available from the District Planning Section or the District Maintenance Office for each maintenance area.

GENERAL NOTES:

- Any feature or characteristic that is included in your RCI shall be rated according to the allocable MRP criteria. If necessary, verify inventoried limits with your respective MMS/RCI Manager.

- Rate all sample points from right-of-way to right-of-way, with the exception of rest areas, weight stations, service plazas, welcome centers, and inspection stations.

- If the sample point falls within the limits of a rest area, weight station, inspection station, etc. project the right-of-way limits across the ramp and rate for normal maintenance criteria.

- A sample point is 1/10 mile or 528 feet in length.

CODING & DATA ENTRY

The Maintenance Rating Program 2 (MRP2) application is a platform that incorporates generation of sample points, inspections, reporting, and scoring across all FDOT districts. It provides GIS mapping and reporting tools to support maintenance operations. The application can be accessed at: https://mrp.fdot.gov.

For data entry instructions, the MRP2 User Guide can be found at: Maintenance Rating Program

A valid FDOT user identification and password is required to access the platform. Inspectors and contract managers must be in the Active Directory (AD) and have an approved AARF (Access Authorization Request Form) to access the MRP system. All other users can access the application with read-only privileges for past period data.

CODING INFORMATION:

Each sample point to be surveyed will be coded within the MRP2 application. Some entries are automatically coded by the MRP2 application and others are manual entries. The sample points will include the following information:

COST CENTER NO. - This number is a FDOT cost center number and should be the maintenance area number in which the survey occurs. This number is precoded and consists of three digits of 1 through 9.

FACILITY TYPE - This column is precoded and is the facility type (1 through 4) of the sample being surveyed. Facility type number assignments are as follows: 1 for RURAL LIMITED ACCESS, 2 for RURAL ARTERIAL, 3 for URBAN LIMITED ACCESS and 4 for URBAN ARTERIAL. A brief explanation of each FACILITY TYPE is listed:

> **RURAL LIMITED ACCESS -** Interstate, toll and other limited access roadways that have adjacent property unimproved, agricultural, low-density population, industrial and light commercial development.
>
> **RURAL ARTERIAL -** All other rural roadways not covered above that have adjacent property unimproved, agricultural, low density population, industrial and light commercial development.
>
> **URBAN LIMITED ACCESS -** Interstate, toll and other limited access roadways that have adjacent property of high-density population, industrial and heavy commercial development.
>
> **URBAN ARTERIAL -** All other urban roadways not covered above that have adjacent property of high-density population, industrial and heavy commercial development.

The above definitions are used to classify the type of maintenance for all roadways currently maintained by the FDOT.

ROADWAY ID – This precoded field is the county, section and subsection number as assigned by the FDOT's Office of Planning. It is the same as used on straight-line diagrams and other official FDOT

identifications of roadways. FDOT county numbering system of eight digits between 00000000 and 99999999.

STATE ROAD NO. - This precoded number indicates the state road number of the section on which the sample is to be surveyed. U.S. Highway number designations are not listed.

MILE POST STATION - A sample is 1/10 mile or 528 feet in length. The milepost location is the mid-point of the sample. The survey should be conducted in opposite directions along the roadway(s) for 264 feet from the designated center point and includes all area within the FDOT's right of way or authorized boundaries.

POINT TYPE – The system will identify the type of point applied to contract and non-contract areas. There are 3 types of points: MRP, Common and Scorecard. Common point types apply to both MRP and scorecard areas.

PROJECTS UNDER CONSTRUCTION - The MRP2 Program currently does not eliminate projects let to bid. Roads under construction that affect two or more characteristics throughout the sample should not be surveyed. The survey team should evaluate one of the available alternate samples of the same facility type.

Samples that have a characteristic under construction (e.g., guardrail, minor shoulder repair, turnout/turn storage installation, intersection upgrade, utility work*) may be surveyed but omit the portion(s) of the characteristic(s) that is/are affected by the construction. Samples may be evaluated up to 528 ft. before construction or from 528 ft. after actual construction.

**(Utility cuts to install buried pipeline, cables and so forth.)*

RECENTLY COMPLETED CONSTRUCTION PROJECTS - The system will automatically identify all random sample selections that fall inside the limits of any construction project completed within the last year to date. The MRP Team will evaluate the sample for all characteristics.

ELEMENTS/CHARACTERISTICS - Each characteristic should be coded: Y=YES (meets desired conditions), N=NO (does not meet desired conditions) or leave blank when the characteristic is not present in the sample.

The MRP team shall be responsible for locating and marking the sample midpoint and limits. The sample points must be marked and surveyed by the MRP team based on existing conditions at the time they are being marked. Each sample shall be marked in a manner (e.g., paints, reflective tapes) so it can be located at night or by verification teams, auditors or others that may be required to evaluate the samples. The beginning and end of the sample shall be marked on the outside lane of multi-lane roadways. The marking should remain in place for the scheduled sample period.

The vehicle assigned is required to have Distance Measuring Equipment installed to assure accurate location of the selected center point. The team shall use a current straight-line diagram to determine the SLD milepost of the nearest roadway feature (bridge, intersection, side road) and use this known location as a reference to locate the selected point. ***ACTUAL FIELD CONDITIONS WILL OVERRIDE OBVIOUS SLD ERRORS.*** Most DMI's will measure stations or miles ascending or descending and will

allow programming of a desired station or milepost. If the DMI becomes inoperative or unavailable due to vehicle maintenance, then the replacement vehicle must be equipped with DMI as well.

The MRP2 Program should automatically exclude bridges. If any portion of a sample falls on a bridge, the team should select the end (abutment) of the bridge nearest the sample milepost and begin the evaluation from that end of the bridge. Should a sample mid-point fall on a bridge, the team should select an alternate point, of the same facility type, provided by the system and notify the Office of Maintenance of this situation. Notification should include County-Section and subsection and mile point of the sample. Many multi-lane or median divided facilities are constructed with individual travel way bridges. When a portion of a sample falls on a facility of this type it will be necessary to consider all bridges for the proper begin or end bridge point (use abutment) since some structure locations may be staggered or one may be longer than the other.

Note:
Listed below are seven characteristics that should be evaluated for all samples.

ROADWAY (BOTH TYPES)
1. **Pothole**
2. **Depression**

TRAFFIC SERVICES
3. **Raised Pavement Markers**
4. **Striping**

VEGETATION/AESTHETIC
5. **Tree Trimming**
6. **Litter Removal**
7. **Turf Conditions**

Further, there are characteristics that should be evaluated only for a particular pavement type:

ROADWAY (RIGID)
1. **Joint/Cracking**

ROADWAY (FLEXIBLE)
2. **Edge Raveling (Not with curb & gutter, or paved shoulders)**
3. **Shoving**

As a check, the total of any RIGID ROADWAY characteristic PLUS the total of any FLEXIBLE ROADWAY characteristic should be equal to or greater than the total number of points surveyed. To further assure that the mandatory data is coded, a review of coding forms prior to entering the data into the computer should be made.

REPORTING

Within the MRP application, both detail and summary reports for all facility types can be generated. Reports are produced by facility type for maintenance areas and districts in addition to the statewide level. The reports list the 5 MRP elements, each with its associated characteristics. Each characteristic shows the:

- Number of characteristics that met (YES) the desired maintenance condition
- Total number (TOTAL) of samples surveyed
- Percentage (% YES) of the total samples surveyed
- Overall Level of Maintenance score for the survey

FLORIDA DEPARTMENT OF TRANSPORTATION
MAINTENANCE RATING PROGRAM STANDARDS

ROADWAY

THE FOLLOWING CHARACTERISTICS MEET THE DESIRED MAINTENANCE CONDITIONS WHEN:

FLEXIBLE POTHOLE: No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

FLEXIBLE EDGE RAVELING: 90% of the total roadway edge is free of raveling. No continuous section of edge raveling 4 inches or wider exceeds 25 feet in length.

FLEXIBLE SHOVING: The shoved area does not exceed a cumulative 25 square feet.

FLEXIBLE DEPRESSION/BUMP: No deviation exceeds ½ inch for any area greater than 1 square foot. No single measurement shall exceed 2 inches.

FLEXIBLE PAVED SHOULDER/TURNOUT: Rate flexible paved shoulder for pothole, edge raveling and depression/bump. Rate flexible turnout for pothole only.

RIGID POTHOLE: No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

RIGID DEPRESSION/ BUMP: No deviation exceeds ½ inch for any area greater than 1 square foot. No single measurement shall exceed 2 inches.

RIGID JOINT/ CRACKING: 85% of the length of transverse and longitudinal joint material appears to function as intended or 90% of the roadway slabs have no unsealed cracks wider than 1/8 inch.

RIGID PAVED SHOULDER/TURNOUT: Rate rigid paved shoulder for pothole, depression/bump and joint/cracking. Rigid turnout rated for potholes and cracking only.

NOTES:

1) All pavement characteristics are to be rated as last constructed. (Rigid pavement overlaid with asphalt should be rated under the flexible pavement characteristic).

2) When a railroad crossing falls within the sample point, the following shall apply: The area to rate shall be 3 feet outside the rails of a railroad crossing. Do not rate any area between the rails.

3) In non-curb and gutter sections, all paved areas adjacent to the travel way are evaluated as paved shoulders. For MRP purposes do not rate tapers on paved shoulders. Within curb and gutter sections, all pavement is evaluated as roadway pavement. This includes bus turnouts. Edge widening less than 2 feet in width from the travel lane edge does not meet desired conditions for paved shoulders unless specified in the Department's Straight-line Diagrams.

The paved area to the right in this photo is a bus turnout. The pavement in a bus turnout should be evaluated as roadway pavement.

This edge widening is less than 2 feet wide therefore, does not meet MRP standards for paved shoulders (unless specified in the Straight-line Diagrams).

Asphalt bus turnout on rural roadway. This should be rated as roadway pavement, also rate for edge raveling. (Note: Rate only the edge of pavement parallel to the travel lanes for raveling)

Rate bike path within the curb & gutter as roadway pavement.

FLEXIBLE ROADWAY

FLEXIBLE POTHOLE: No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Flexible Pothole – Potholes are normally bowl-shaped holes in the pavement that usually form in low areas, such as wheel paths and utility trenches. They are caused by pavement weaknesses, which may result from poor quality materials, thin pavement surface, poor drainage on the pavement surface or within the base, or a loss of load support by either the base or sub grade.

Evaluation: Measure the size of the pothole. To measure the size of a pothole, place a straightedge across the defective area and determine if the defective area is deeper than that listed in the standard. To determine the area of a defect, measure the area as a square or rectangle. Use of a straightedge and a marker to outline the area may be helpful. In a non-curb and gutter section, do not rate the first 4 inches from the actual edge of pavement for pothole criteria (see edge raveling).

Flexible pothole does not meet MRP standards when any of the following exist:

1) If BOTH depth and area are greater than the standard limits.
2) If pervious base is exposed in any hole.

Measure the area and the depth of the pothole.

FLEXIBLE EDGE RAVELING: 90% of the total roadway edge is free of raveling.
No continuous section of edge raveling 4 inches or wider exceeds 25 feet in length.

Flexible Edge Raveling – Edge raveling is the progressive separation of aggregate particles in a pavement from the surface downward or from the edges inward.

Evaluation: Determine if edge raveling exists within the sample by reviewing the edge of pavement. If the pavement edge is missing or separated 4 inches or more from the edge of pavement for 25 feet or more, then edge raveling will not meet conditions. Measure the length of the edge raveling that is 4 inches or wider.

Two lane roadway samples with no paved shoulders can have a maximum pavement edge of 1,056 feet (528 ft. length X 2 roadway edges). A divided roadway with no paved shoulders can have a maximum pavement edge of 2,112 feet (528 ft. length X 4 roadway edges). Measurements are made from the actual edge of pavement. At least 90% of the total roadway edge should be free of raveling or this characteristic does not meet the desired maintenance conditions.

Roadway edge raveling should not be evaluated when paved shoulders, any type of curb, curb and gutter, or any permanent construction is installed that will protect the pavement edge.

Flexible edge raveling does not meet MRP standards when any of the following exist:

1) The roadway contains edge raveling at least 4 inches wide and 25 continuous feet in length.
2) More than 10% of the total roadway edge has edge raveling.

ROADWAY EDGE RAVELING TABLE

No of Pavement Edges	Total Length (ft)	90% (ft)	10% (ft)
1	528	475	53
2	1056	950	106
3	1584	1426	158
4	2112	1901	211

A roadway without paved shoulders would be rated for edge ravel.

Rate edge raveling at crossovers where pavement without paved shoulders ties into paved shoulders.

FLEXIBLE SHOVING: The shoved area does not exceed a cumulative 25 square feet.

Flexible Shoving - Flexible shoving is the lateral or longitudinal movement of flexible roadway surface most often caused by the acceleration or deceleration of vehicular traffic. Severe movement will result in cracking or breaking of the riding surface exposing the underlying roadway course or the base material.

Evaluation: Measure the length and width of the shoved area. If more than 25 square feet of roadway, in a sample, is displaced by pushing or shoving, then this characteristic does not meet the desired maintenance condition. Base failure and rutting are not to be considered as shoving but can cause shoving.

Flexible Shoving does not meet MRP standards when any of the following exist:

1) More than 25 cumulative square feet of roadway, in a sample, is displaced by pushing or shoving.

These are pictures of shoving. Measure the length and width to determine the shoving area. If the shoving area is more than 25 cumulative square feet, then this would not meet conditions for shoving.

FLEXIBLE DEPRESSION/BUMP: No deviation exceeds ½ inch for any area greater than 1 square foot. No single measurement shall exceed 2 inches.

Flexible Depression/Bump - A pavement depression or bump is a deviation from design grade. It may be an area close to or caused by an inlet, manhole or underground utility installation. This characteristic also includes parking lanes.

Evaluation: To determine if there is a depression or bump within the sample area, survey the roadway pavement. Many depressions or bumps are located near inlets, manholes or underground utility installations. Vehicles traversing the sample can give an indication if a depression or bump is present. Include parking lanes and bus turnouts in the evaluation.

If there is an indication of a depression or bump within the sample area, measure the area. If the area is greater than the standard, then measure the height or depth of the depression or bump. If the height or depth and area are greater than the standard, then this characteristic does not meet desired maintenance conditions.

Flexible depression/bump does not meet MRP standards when any of the following exist:

1) A deviation from design grade greater than ½ inch for any area greater than 1 square foot.
2) Concrete and/or asphalt spills which exceed ½ inch and 1 square foot.
3) Any single measurement of a depression or bump exceeding 2 inches.

Concrete spill, rate as a bump.

Depression at a water valve in pavement.

Depression next to a curb inlet.

Measuring the depth of a depression.

Measuring the depth of a depression.

Measuring the depth of a depression.

FLEXIBLE PAVED SHOULDER/TURNOUT

NOTE:

- Many roadways have combinations of paved and unpaved shoulder widths. The measurements for evaluation of the PAVED SHOULDER characteristic are different than those for a roadway. The methods for measuring or evaluating will be the same as for a roadway.
- Paved shoulder evaluation includes edge widening. Edge widening less than 2 feet in width from the travel lane edge does not meet desired conditions for paved shoulders unless noted on the Department's Straight-line Diagrams.

FLEXIBLE PAVED SHOULDER/TURNOUT: Rate flexible paved shoulder for pothole, edge raveling and depression/bump.
Rate flexible turnout for pothole only.

FLEXIBLE PAVED SHOULDER:

Pothole No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Flexible pothole does not meet MRP standards when any of the following exist:

1) If BOTH depth and area are in the standard limits or greater.
2) If pervious base is exposed in any pothole.

NOTE: For MRP purpose, evaluate all asphalt from adjacent to the paved shoulder to the face of guardrail (when present) as part of the paved shoulder.

Pothole in paved shoulder. Measurements should be taken to determine if this meets MRP Standards.

For MRP purpose, evaluate asphalt from edge of travel lane to face of guardrail as paved shoulder.

Edge Raveling 75% of the total shoulder edge is free of raveling.
No continuous section of edge raveling 4 inches or wider exceeds 50 feet in length.

Edge raveling does not meet MRP standards when any of the following exist:

1) If more than 25% of the shoulder edge contains edge raveling.
2) If there are more than 50 continuous feet of edge raveling 4 inches or wider.

Edge raveling on paved shoulder. Measurements should be taken to determine if this meets MRP Standards.

PAVED SHOULDER EDGE RAVELING TABLE

No. of Pavement Edges	Total Length (ft.)	75% (ft.)	25% (ft.)
1	528	396	132
2	1056	792	264
3	1584	1188	396
4	2112	1584	528

Depression/Bump No deviation exceeds 1 inch for any area greater than 1 square foot. No single measurement shall exceed 3 inches.

Depression/Bump does not meet MRP standards when any of the following exist:

1) A deviation from design grade greater than 1 inch for any area greater than 1 square foot.
2) Concrete and/or asphalt spills which exceed 1 inch and 1 square foot.
3) Any single measurement of a depression or bump exceeding 3 inches.

NOTE: The encroachment of soil build-up on paved shoulders should be rated under the "UNPAVED SHOULDER characteristic".

Measure deviations on paved shoulders to determine if they meet MRP standards.

FLEXIBLE TURNOUT:

Pothole No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Flexible Turnout – Paved aprons in highway section turnouts (no curb and gutter) should extend out 5 feet from the edge of the pavement or to the limits of paved shoulders. Turnouts in paved shoulder sections should be rated as paved shoulders. If there is no requirement for a paved apron as specified in the Standard Plans, rural turnout construction (less than 20 trips/day), rate as non-paved shoulder. The area outside the apron on an unpaved turnout should be rated as shoulder and front slope, if present.

Paved aprons in curb and gutter section turnouts may be of rigid or flexible construction. Evaluation of urban flared turnouts shall include the area from the back of curb to the front end of the sidewalk as turnout.

DO NOT evaluate dedicated streets and roads (normally should have a street sign) for paved aprons.

Unpaved turnouts in curb and gutter sections shall be rated as curb and sidewalk edging.

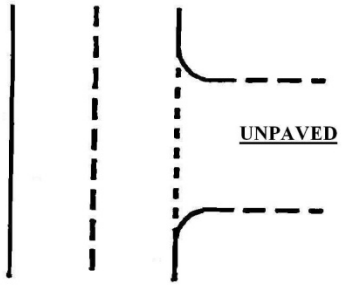
Flexible turnout does not meet MRP standards when any of the following exist:

1) If BOTH depth and area are greater than the standard limits.
2) Any exposed pervious base.

This is an example of a turnout in a paved shoulder section. This should be rated as paved shoulder only.

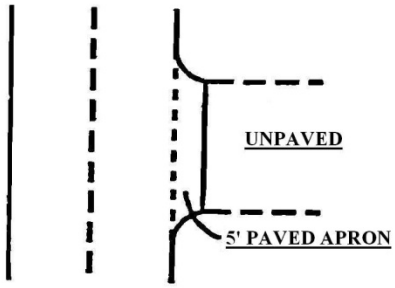
Case I

Assume there are less than 20 trips per day. **Do not** rate as Turnout. Rate as Unpaved Shoulder and Front Slope



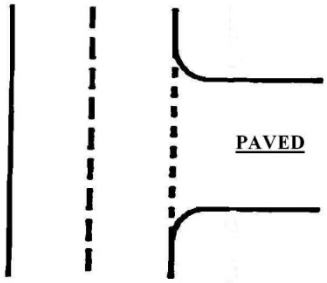
Case II

Rate 5' of paved apron as Turnout. Rate the rest of the driveway as Unpaved Shoulder and Front Slope.



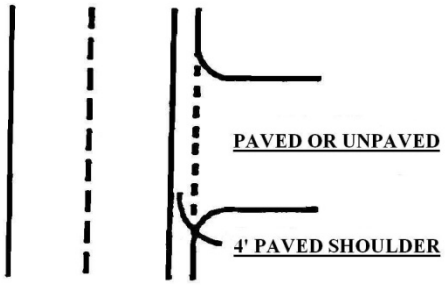
Case III

Only rate 5' next to roadway within driveway as Turnout. **Do not** rate the rest of the paved driveway.



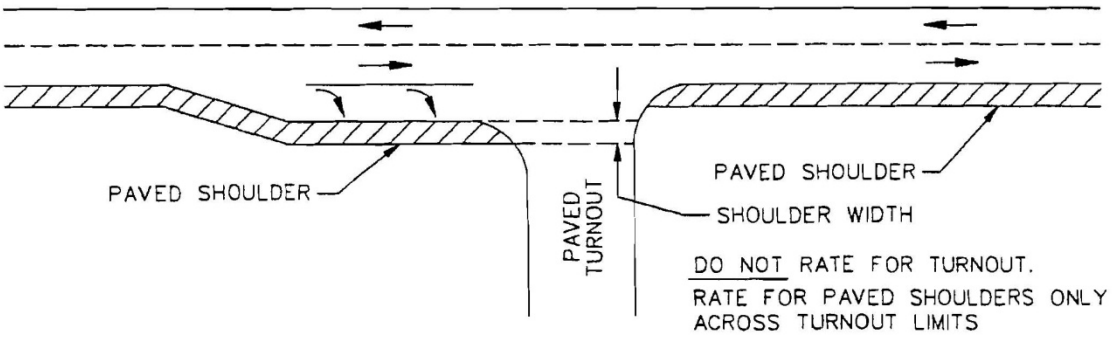
Case IV

Rate as Paved Shoulder. **Do not** rate the rest of the paved driveway. If unpaved, rate as Unpaved Shoulder and Front Slope



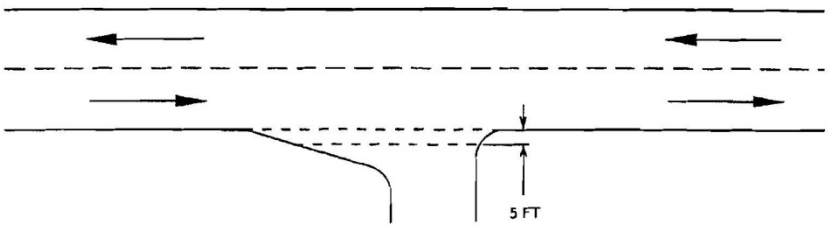
CASE V

TURNOUT WITH PAVED SHOULDERS



CASE VI

TURNOUT WITH TAPER ONLY



RATE 5 FEET THROUGHTOUT TAPER AND TURNOUT

RIGID ROADWAY

NOTE: The methodology used for evaluating potholes and depression/bump will be the same for both flexible and rigid pavements.

These areas should be rated for rigid and flexible pavement.

RIGID POTHOLE: No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Rigid Pothole – Potholes are normally bowl-shaped holes in the pavement that usually form in low areas, such as wheel paths and utility trenches. They are caused by pavement weaknesses, which may result from poor quality materials, thin pavement surface, poor drainage on the pavement surface or within the base, or a loss of load support by either the base or sub grade. Paved aprons in curb and gutter section turnouts may be of rigid or flexible construction.

Evaluation: Measure the size of the pothole. Place a straightedge across the defective area and determine if any single measurement of the defective area is 1½ inches or deeper. To determine the area of a defect, measure the area as a square or rectangle. Use of a straightedge and a marker to outline the area may be helpful.

Rigid pothole does not meet MRP standards when any of the following exist:

1) If BOTH depth and area are greater than the standard limits
2) If pervious base is exposed in any hole.

These are pictures of defects in rigid pavement. Calculate the area to determine if it is greater than ½ square foot and measure the depth of the defect. If BOTH depth and area are greater than the standard limits the areas do not meet MRP standards.

RIGID DEPRESSION/
BUMP: No deviation exceeds ½ inch for any area greater than 1 square foot. No single measurement shall exceed 2 inches.

Rigid Depression/Bump – A pavement depression or bump is a deviation from design grade. It may be an area close to or caused by an inlet, manhole or underground utility installation. This characteristic also includes parking lanes.

Evaluation: To measure the size of a depression or bump, first measure the area. If the area of the depressed or elevated area is less than 1 square foot, then no further measurements are necessary because it is not rated as a depression /bump unless a single measurement exceeds 2 inches. If the area is greater than 1 square foot, then measure the depression by putting a straightedge across the depression and measuring the distances from the straightedge to the lowest area in the depression. If this distance exceeds ½ inch, then the area does not meet desired maintenance conditions.

A Rigid Depression/Bump does not meet MRP standards when any of the following exist:

1) A deviation from design grade greater than ½ inch for any area greater than 1 square foot.
2) A bump ½ inch or greater exists with an area greater than 1 square foot.
3) Any single measurement of a depression or bump exceeding 2 inches.

RIGID JOINT/ CRACKING:

RIGID JOINT: 85% of the length of transverse and longitudinal joint material appears to function as intended.

Rigid Joints - Joints are placed in rigid pavement to control cracking and to allow for year-round contraction and expansion. Joints should be sealed to restrict the intrusion of water and incompressible into the joint. Sealed joints extend the life of the rigid pavement.

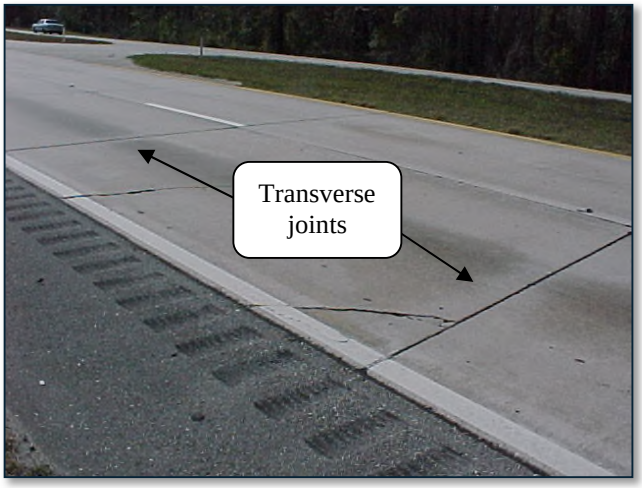
Evaluation: To determine if this characteristic meets MRP standards, you must first calculate the total length of transverse and longitudinal joints in the sample. This can be accomplished by computation or actual measurement.

Transverse joints are generally about 20 feet apart, but an on-site verification should be done. Count the number of transverse joints and multiply by the width of the road. Count the number of longitudinal joints and multiply by the length of the joints. To obtain the total length of joint material, add the length of transverse and longitudinal joints together. Generally, it is easier to multiply the total joint length to be evaluated by 0.15 (15%) to determine what length is allowed below the desired maintenance condition and then measure those joints that do not function as intended. A cumulative length greater than 15% of the total does not meet the desired maintenance condition.

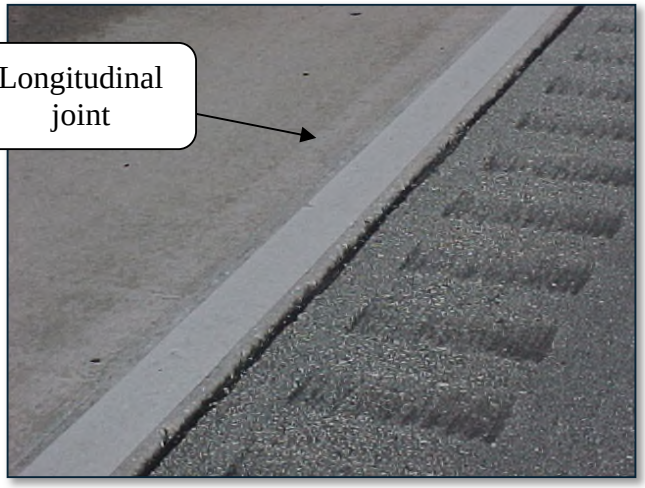
On multi-lane divided sections, with paved shoulders, BOTH the paved median shoulder and paved outside shoulder joints are to be evaluated. DO NOT rate the longitudinal joint between the rigid pavement and asphalt shoulder if it was never sealed.

Rigid Joints do not meet MRP standards when the following exist:

1) More than 15% of the total transverse and longitudinal joint length is missing.



This picture shows two traverse joints and a slab that has two unsealed cracks.



Do not rate the longitudinal joint between the rigid pavement and the asphalt shoulder if it was never sealed.

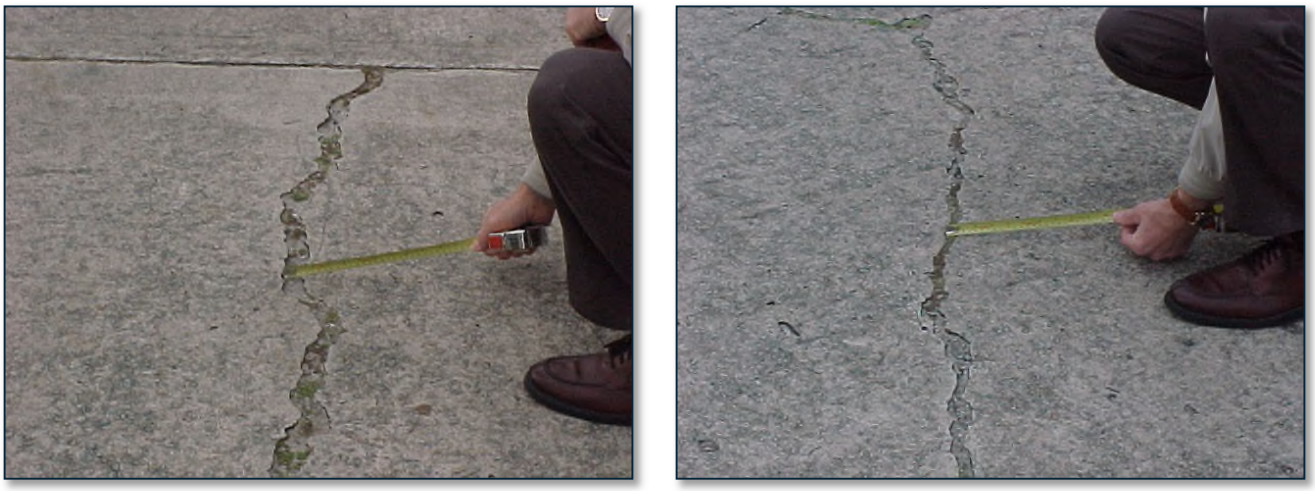
RIGID CRACKING: 90% of the roadway slabs have no unsealed cracks wider than 1/8 inch.

Rigid Cracking – A slab is defined as that area within the existing control joints. Do not include the control joints in the evaluation.

Evaluation: Determine the total number of slabs within the evaluation area. Then determine the number of slabs that have unsealed cracks wider than 1/8 inch. Divide the number of slabs with unsealed cracks wider than 1/8 inch by the total number of slabs within the evaluation area to determine the percentage of slabs with unsealed cracks wider than 1/8 inch. If this percentage is more than 10%, then this characteristic does not meet desired conditions.

Rigid Cracking does not meet MRP standards when the following exist:

1) More than 10% of the slabs have unsealed cracks greater than 1/8 inch.



These pictures show an unsealed crack wider than 1/8 inch in rigid pavement.

RIGID PAVED SHOULDER/TURNOUT

NOTE: *Rate rigid shoulder for pothole, depression/bump and joint/cracking.*
Rate rigid turnout for potholes and cracking only.

RIGID PAVED SHOULDER: Rate rigid paved shoulder for pothole, depression/bump and joint/cracking.

Pothole: No defect is greater than ½ square foot in area, and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Rigid Paved Shoulder does not meet MRP standards for Pothole when any of the following exist:

1) If pervious base is exposed in any hole.
2) If BOTH depth and area are greater than the standard limits.

Depression/Bump: No deviation exceeds 1 inch for any area greater than 1 square foot.
No single measurement shall exceed 3 inches.

Rigid Paved Shoulder does not meet MRP standards for Depression/Bump when any of the following exist:

1) A deviation from design grade greater than 1 inch for any area greater than 1 square foot.
2) A single measurement greater than 3 inches above or below the design grade.

Joint: 75% of the joints appear to function as intended by restricting the intrusion of water and incompressible.

Rigid Paved Shoulder does not meet MRP standards for Joints when any of the following exist:

1) More than 25% of the joints do not function as intended.

Cracking: 80% of the paved shoulder cumulative areas have no unsealed cracks wider than ¾ inch.

Rigid Paved Shoulder does not meet MRP standards for Cracking when any of the following exist:

1) More than 20% of the slabs have unsealed cracks greater than ¾ inch.

RIGID TURNOUT: Rate rigid paved turnout for potholes and cracking only.

Pothole: No defect is greater than ½ square foot in area and no single measurement 1½ inches or greater in depth.
No pervious base is exposed in any hole.

Rigid Turnout does not meet MRP standards for Pothole when any of the following exist:

1) If BOTH depth and area are greater than the standard limits.
2) If pervious base is exposed in any hole.

Cracking: 80% of rigid paved turnout cumulative area has no unsealed cracks wider than ¾ inch.

Rigid Turnout does not meet MRP standards for Cracking when any of the following exist:

1) More than 20% of the cumulative turnout area has unsealed cracks wider than ¾ inch.

These are urban flared turnouts. The area from the back of curb to the front of the sidewalk is to be rated as turnout.

ROADSIDE

THE FOLLOWING CHARACTERISTICS MEET THE DESIRED MAINTENANCE CONDITIONS WHEN:

UNPAVED SHOULDER: No deviation exists across the shoulder width greater than 5 inches above or below the design template.

No shoulder build-up exceeds 2 inches anywhere across the design template for a continuous 25 feet.

No shoulder drop-off exceeds 3 inches deep within 1 foot of the pavement edge for a continuous 25 feet.

No encroachment 12 inches or greater of sand, soil, grasses, or debris on to the outside paved shoulder for 25 continuous feet.

No washboard areas exist having a total differential greater than 5 inches from the low spot to the high spot.

FRONT SLOPE: No deviations exist greater than 6 inches in depth or height.

SLOPE PAVEMENT: No single area of missing, settled or misaligned areas exist greater than 10 square feet.

SIDEWALK: 99.5% of sidewalk area is free of vertical misalignments greater than ¼ inch or horizontal cracks greater than ½ inch, and no visible hazards.

FENCE: No unrestrained entry is allowed.

ROADSIDE

UNPAVED SHOULDER: No deviation exists across the shoulder width greater than 5 inches above or below the design template.

No shoulder build-up exceeds 2 inches across the design template for a continuous 25 feet.

No shoulder drop-off exceeds 3 inches deep within 1 foot of the pavement edge for a continuous 25 feet.

No encroachment 12 inches or greater of sand, soil, grasses, or debris on to the outside paved shoulder for 25 continuous feet.

No washboard areas exist having a total differential greater than 5 inches from the low spot to the high spot.

Unpaved Shoulder - Generally, shoulders are designed to drop at ¾ inch per foot from the pavement edge except in super elevated curves.

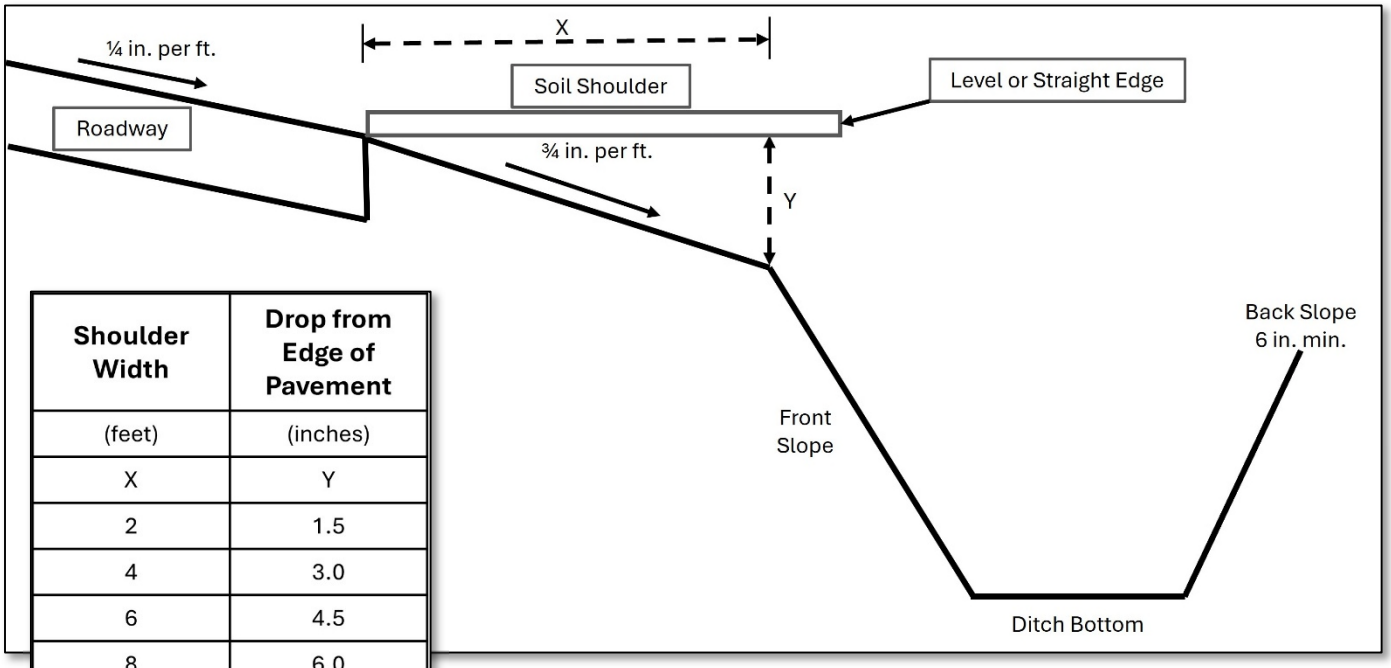
Evaluation: To measure a shoulder drop-off, place a straightedge on the pavement and measure down. If the straight-line diagrams (SLDs) do not indicate an unpaved shoulder in conjunction with a paved shoulder, the first two feet adjacent to the paved shoulder should be rated as unpaved shoulder. This applies to the inside and outside paved shoulder.

Unpaved shoulder does not meet desired maintenance conditions when any of the following exist:

1) Any shoulder drop-off, within one foot of the pavement edge, exceeds 3 inches in depth for 25 continuous feet.
2) Any deviation of shoulder elevation, including the radius at paved turnouts, is greater than 5 inches above or below the design template.
3) Any shoulder build-up exceeds 2 inches across the design template for 25 continuous feet.
4) Any encroachment 12 inches or greater of sand, soil, grasses, or debris on to the outside paved shoulder for 25 continuous feet.
5) Any washboard areas having a total differential greater than 5 inches from the low spot to the high spot.

NOTE: *Utility strips will be evaluated using the CURB/SIDEWALK EDGING characteristic.* Miscellaneous asphalt outside the paved shoulder limits should be rated as un-paved shoulder and/or front slope.

SHOULDER DIAGRAM AND CHART



Shoulder Width	Drop from Edge of Pavement
(feet)	(inches)
X	Y
2	1.5
4	3.0
6	4.5
8	6.0
10	7.5
12	9.0
14	10.5

NOTE: A straight edge placed on the pavement can be used to measure drop-offs within the first 1 foot of pavement edge. A level should be used for other measurements across the soil shoulder width.

Shoulder drop-off. Paved shoulder with soil shoulder. See SLD for dimensions.

Drop-off behind curb. Since this road has curb & gutter this would be evaluated under curb & sidewalk edging.

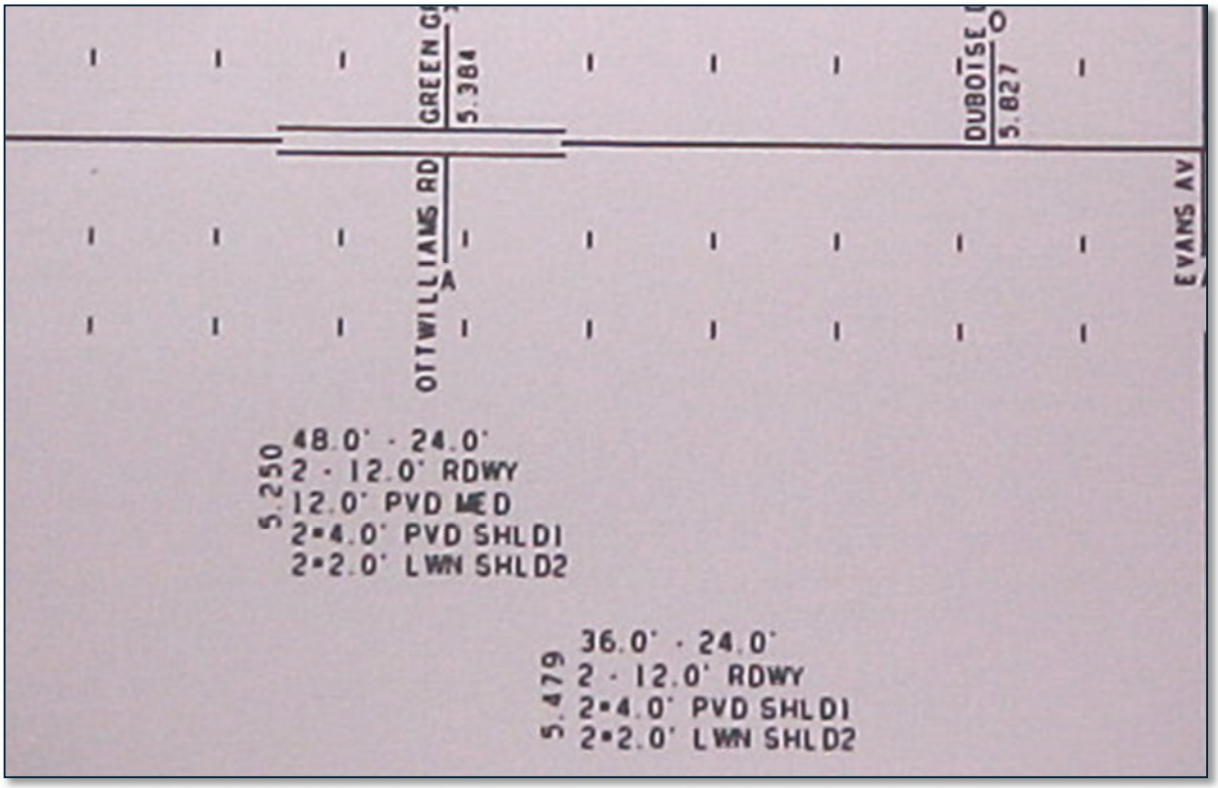
High shoulder 2 inches or more for 25 continuous feet does not meet MRP Standards.

Shoulder drop off greater than 5 inches does not meet MRP Standards.

This is an example of a soil shoulder that meets MRP standards.

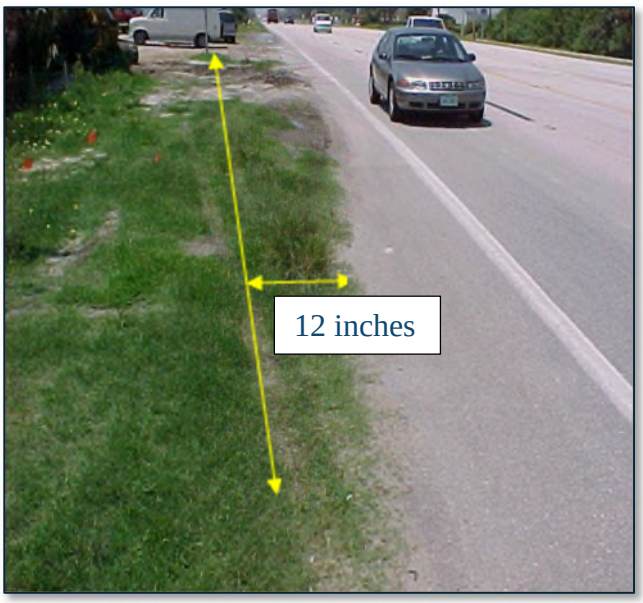
Build-up of sand, soil, and vegetation of unpaved shoulder onto outside paved shoulder.

These pictures are examples of a roadway with a paved shoulder. If the SLDs do not indicate an unpaved shoulder in conjunction with a paved shoulder, the first two feet adjacent to the paved shoulder should be rated as unpaved shoulder.



This is an example of a straight line diagram (SLD) that shows 2-4.0’ paved shoulders and 2-2.0’ lawn shoulders. In this case FLEXIBLE PAVED SHOULDER/TURNOUT and UNPAVED SHOULDER characteristic should be rated.

The asphalt is broken with a deviation greater than 5 inches and would not meet desired maintenance conditions for unpaved shoulder.



Measure encroachment on to the paved shoulder, if it is one foot or greater for more than 25 continuous feet then it would not meet desired maintenance conditions.

FRONT SLOPE: No deviations exist greater than 6 inches in depth or height.

Front slope – Front slopes provide a gradual and contoured transition from the shoulder edge to the roadside ditch or toe of slope in a fill section.

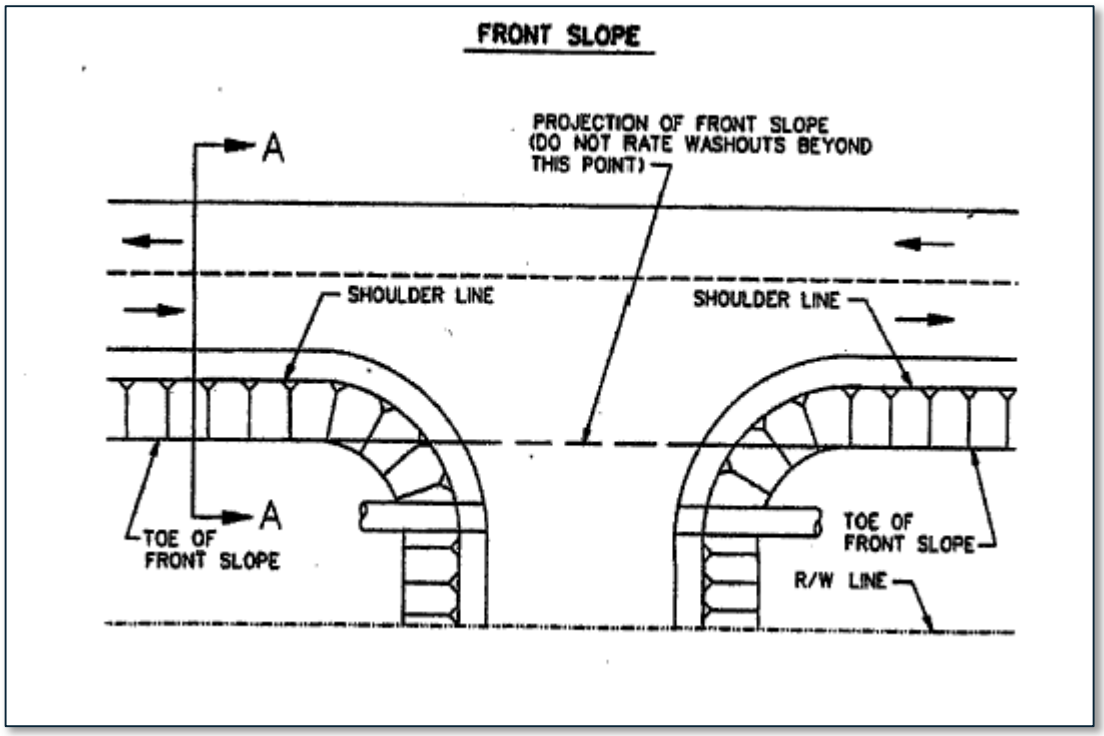
Evaluation – Survey the sample point for deviations which may include ruts, washouts and/or buildups. Any deviation greater than 6 inches does not meet desired maintenance conditions.

When rating front slope washouts in a turnout area, project the roadway toe of front slope across the turnout. Do not rate beyond the toe of slope for washouts in a turnout. Front slopes are evaluated from the shoulder edge to the roadside ditch, to edge of slope in a fill section or to the limits of the right-of-way.

Front slope does not meet MRP standards when any of the following exist:

1) Any deviation greater than 6 inches in depth or height.

These are examples of front slope deviations greater than 6 inches. These conditions do not meet MRP standards.



This is a washout in front of a headwall greater than 6 inches in depth. This would not meet MRP standards.

The asphalt under the guardrail has washed out. The guardrail meets desired MRP standards, however, unpaved shoulder or front slope would not meet desired MRP standards.

SLOPE PAVEMENT: No single area of missing, settled or misaligned areas exist greater than 10 square feet.

Slope Pavement – Any single area of missing, settled or misaligned area of paved slope (includes any paved slope treatment) greater than 10 square feet does not meet desired maintenance conditions (This includes sand cement riprap).

Evaluation: Review the existing slope pavement within the sample area. Measure any missing, settled or misaligned areas.

Slope Pavement does not meet MRP standards when any of the following exist:

1) There is missing slope pavement greater than 10 square feet.
2) There is settled slope pavement greater than 10 square feet.
3) There is misaligned slope pavement greater than 10 square feet.

This is an example of rip-rap slope pavement.

This is an example of concrete slope pavement.

SIDEWALK: 99.5% of sidewalk area is free of vertical misalignments greater than ¼ inch, horizontal cracks greater than ½ inch, or spalled areas greater than ½ inch in depth, and no visible hazards.

Sidewalk – Sidewalk is constructed of various materials and is subject to misalignments caused by growing tree roots, settling or deterioration. This measurement includes the normal sidewalk joint and the sidewalk to curb joint. Sidewalk should be projected across an urban flared paved turnout and that area evaluated as sidewalk. Any bike path located outside the roadway pavement area will be evaluated as sidewalk. Paved utility strips are evaluated as sidewalk if they are intended to be used as sidewalk.

Sidewalk shall not be evaluated across dedicated streets. Spalled areas greater than ½ inch in depth do not meet desired conditions. Uniform deviation from original grade that has vertical misalignments or cracks greater than ¼ inch do not meet desired maintenance conditions. Changes in level up to ½ inch may be beveled with a slope that complies with Fig. 7. For purposes of evaluating this characteristic, one linear foot of misalignment or cracking not meeting desired conditions equals one square foot of sidewalk area. Do not exceed one linear foot of cracking in a one square foot area. Unsealed joints greater than ½ inch do not meet desired maintenance conditions.

For MRP purposes, no rigid objects protruding from concrete greater than ¼ inch in height, or any single misalignment, or deviations greater than 1½ inches.

For MRP purposes if an entire slab is missing in a continuous section of sidewalk, multiply the length of the missing section by the width to get the area missing. For example, if a 5 ft. section of sidewalk 5 ft. wide is missing the area would be 25 sq. ft. If the area missing combined with the total area of cracking is greater than that allowed for the standard then sidewalk does not meet MRP standards.

Evaluation: Measure the length of sidewalk and multiply by the width of sidewalk to determine the total area. Then multiply the total area by 0.005 to determine the maximum area that can have vertical misalignments greater than ¼ inch or horizontal cracks greater than ½ inch. Measure any rigid objects protruding from concrete sidewalk greater than ¼ inch in height, also measure for single misalignment, or deviations greater than 1½ inches.

SIDEWALK TABLE

Total Length (ft)	Width (ft)	Area (sq.ft)	99.5% (sq.ft)	0.5% (sq.ft)
528	6	3168	3152	16
1056	6	6348	6316	32
528	5	2640	2627	13
1056	5	5280	5254	26
528	4	2112	2101	11
1056	4	4224	4203	21

Sidewalk does not meet MRP standards when the following exist:

1) More than 0.5% of the sidewalk area has vertical misalignments greater than ¼ inch, horizontal cracks greater than ½ inch, or spalled areas greater than ½ inch in depth.
2) Any rigid objects protruding from concrete greater than ¼ inch in height, or any single misalignment, or deviations greater than 1½ inches.

Sidewalk cracking. Measure each horizontal crack greater than ½ inch wide. For MRP purposes, each linear foot of horizontal crack greater than ½ inch equals 1 sq. ft. of crack area. Vertical misalignments greater than ¼ inch equals 1 sq. ft. of crack area.

Sidewalk cracking. Measure each horizontal crack greater than ½ inch wide. For MRP purposes, each linear foot of horizontal crack greater than ½ inch equals 1 sq. ft. of crack area.

Any single vertical misalignment measured greater than 1½ inch would not meet desired maintenance conditions.

These pictures are examples of utility strips that have been paved with brick and concrete. For MRP purposes these areas should be rated as sidewalk.

This is an urban flared turnout. The sidewalk should be projected across the turnout and evaluated as sidewalk. In this case turnout would not be evaluated.

Rigid objects protruding from concrete greater than ¼ inch in height.

ADA

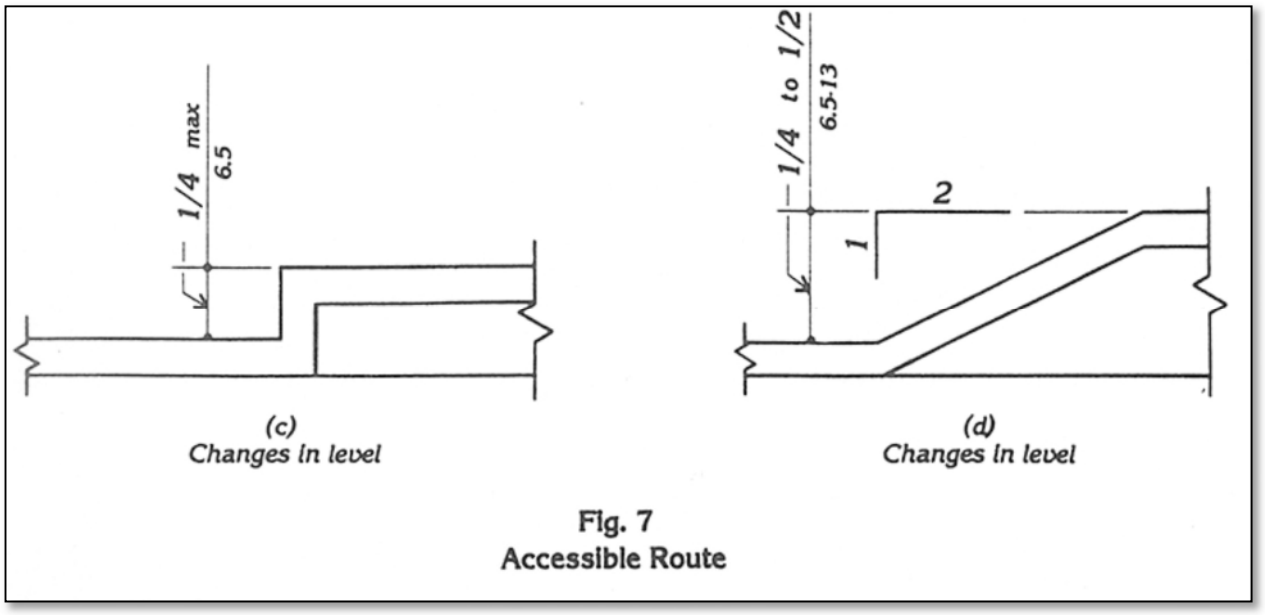


Fig. 7
Accessible Route

Wooden sidewalks/boardwalks: All wooden/sidewalks/boardwalks within the right-of-way, maintained by the department, shall be included in the sidewalk evaluation.

Evaluation: The evaluation shall include inspection of support pilings/posts, "X" bracing (if installed), hardware (nuts, bolts, washers, and fasteners), spindles (if installed), handrails (wood or pipe), and surface deck boards.

Wood sidewalks / boardwalks do not meet MRP standards when the following exists;

1) Any significant visible signs of damage or deterioration of support piling, post. "X" or cross bracing.
2) Any missing hardware.
3) Handrails and supports not secure.
4) All spindles shall be in place and function as intended.
5) No missing surface deck boards, no more than 0.5% of the surface deck boards are loose, have vertical misalignments or horizontal cracks greater than ½ inch.
6) Any rigid objects protruding from the surface greater than ¼ inch in height, or any single misalignment, or deviations greater than 1½ inches.

Wood sidewalk / boardwalk

Spindles or pickets on handrail

Pipe handrail

Wood with pipe handrail

Support piling / post with bracing.

Deterioration of supports.

Surface deck boards with misalignments.

FENCE: No unrestrained entry is allowed.

Fence - Fences are constructed on limited access facilities and restricted areas to discourage people, animals and vehicles from entering the right-of-way at unauthorized locations.

Evaluation: Inspect the fence within the sample area. Any unauthorized opening in the fence line within the Department's right-of-way that allows unrestrained access causes this characteristic not to meet the desired maintenance conditions. Unrestrained access is defined as less than 2/3 (67%) of its original height as measured from natural ground to the top of the fence fabric or any opening in the fence fabric greater than 2 square feet.

Gates may be located in fenced areas. All gates should be closed and locked to prevent people, animals and vehicles from entering the right-of-way at unauthorized locations.

For MRP purposes two posts in a row missing, broken, or fence fabric is not attached does not meet desired maintenance conditions. MRP defines fence post as broken when it is cracked into pieces, splintered or fractured. A broken fence post is considered missing.

A minimum of one continuous strand of barb wire must be in placed at the top of the fence to meet desired maintenance conditions.

Rate fence across an outfall ditch as installed.

Washouts under the fence are not rated in the FENCE characteristic.

If any part of the fence can be reached, then that portion of the fence should be evaluated.

If after a reasonable effort, no portion of the fence can be inspected, do not rate FENCE. Leave it blank.

Fences are to be evaluated according to the Standard Plans that the fence was installed.

Fence does not meet MRP standards when any of the following exist:

1) If there is an opening in the fence greater than ⅓ of its original height as measured from the natural ground to the top of the fence fabric.
2) If there is an opening in the fence fabric greater than 2 square feet.
3) Any open or unlocked gate in the Department owned fence within the sample point.
4) Any open space greater than 6 inches between gates or posts.
5) Two fence posts in a row are missing or broken within the sample.
6) Any two consecutive fence posts where the fabric is not attached.
7) Less than one continuous strand of barb wire is in place at the top of the fence.

Fence fabric should be attached securely to two consecutive fence post. Fence posts should be in place and functioning as intended.

If two consecutive fence posts are missing or broken this would not meet MRP standards

This fence has been cut and is open. This does not meet MRP standards.

This fence has been damaged and is not the correct height. This does not meet MRP standards.

Measure the height of the fence from natural ground to the top of the fence fabric.

Measure the height of the fence from natural ground to the top of the fence fabric.

Both strands of barb wire are missing along top of fence, this would not meet desired maintenance conditions.

Misaligned gates, measure opening to ensure it is not greater than 6-inches.

FLORIDA DEPARTMENT OF TRANSPORTATION
MAINTENANCE RATING PROGRAM STANDARDS

TRAFFIC SERVICES

THE FOLLOWING CHARACTERISTICS MEET THE DESIRED MAINTENANCE CONDITIONS WHEN:

RAISED PAVEMENT MARKERS: 70% of the required markers are functional (reflective). No more than 100 feet of continuous centerline or lane line is without a reflective marker.

STRIPING: 90% of the length and width of each line functions as intended.

PAVEMENT SYMBOLS: 90% of existing symbols function as intended.

GUARDRAIL: Each single run functions as intended.

SIGNS LESS THAN OR EQUAL TO 30 SQ. FT.: 95% of the signs are functioning as intended.

SIGNS GREATER THAN 30 SQ. FT.: 85% of the signs are functioning as intended.

OBJECT MARKERS & DELINEATORS: 80% of the markers are functioning as intended.

LIGHTING: 90% of the total luminaries of the combined sign and highway lighting are functioning as intended.

NOTE:
Nighttime reflectivity checks are required for the following characteristics if daytime conditions are met:

- Raised pavement markers (RPMs)
- Striping
- Pavement symbols
- Signs (Retroreflective sign strips)
- Object markers/delineators.

Conduct nighttime reflectivity checks using low beam headlights only. Ride the same roadway in both directions to check reflectivity.

The nighttime reflectivity check should be conducted when the pavement is dry. Nighttime checks are required for the lighting if daytime conditions are met.

Crash Cushions are not rated for MRP, any deficiencies observed should be reported to the maintaining agencies.

TRAFFIC SERVICES

RAISED PAVEMENT MARKERS: 70% of the required markers are functional (reflective). No more than 100 feet of continuous centerline or lane line is without a reflective marker.

Raised Pavement Marker (RPM) – Raised pavement markers are reflective white, amber or red. Some markers are designed with a reflector on one side only. Raised pavement markers are effective aids for night driving, especially on wet pavement. They are required on ALL FDOT highways to delineate centerline, some curbs, traffic islands and for the transition of roadway or lane width changes.

Evaluation: Daytime – Check to make sure the correct number of markers are installed. Count all the markers that should be present. Then count the number of missing markers. Determine the percentage of markers missing by dividing the number missing by the total number that should be present.

Nighttime – Raised Pavement Marker shall be visible and reflective at night with low beam headlights. Determine if the markers are reflective at night for a distance of 528 feet. Two lane roadways shall be evaluated from both directions.

No more than 100 feet of continuous centerline or lane line should be without a reflective marker.

If RPMs are required on edge lines, they should be rated.

At least 70% of the required markers should be functional (reflective) at a distance of 528 feet.

Refer to the Standard Plans for Raised Pavement Marker placement.

Designed breaks in pavement lines (crossovers, intersections) shall not be included in the 100 feet.

Raised Pavement Markers do not meet MRP standards when any of the following exist:

1) If more than 30% of the required raised pavement markers are missing.
2) If more than 30% of the required markers or 100 continuous feet of centerline or lane line are not functional (reflective) at a distance of 528 feet.
3) If more than 100 continuous feet of centerline or lane line is without a reflective marker.
4) If the raised pavement markers are installed incorrectly (Index 706-001).

Rate Raised Pavement Markers placed on Wrong Way Arrows as percentage of overall required RPMs.
Do NOT rate as part of symbol.

STRIPING: 90% of the length and width of each line is reflective and functions as intended.

Striping – Pavement striping is a 6 inch wide centerline; skip line or edge line.

Evaluation: Daylight and nighttime inspections shall be done. Each line is evaluated independently.

Solid lines - Determine the length and width of each solid line in the sample point. A minimum of 5.4 inches of each line width should be present, visible and reflective at night with low beam headlights. Determine if the lines are reflective at night for a distance of 160 feet. Due to changes in Standard Plans, striping may have been installed at certain locations on some roadways where no striping is installed at similar locations on other roadways. Do not evaluate striping at locations where it has not been installed.

Skip lines – Determine the length and width of each skip line in the sample point. A minimum of 5.4 inches of each line width should be present, visible and reflective at night with low beam headlights. Only evaluate the stripe and not the skip.

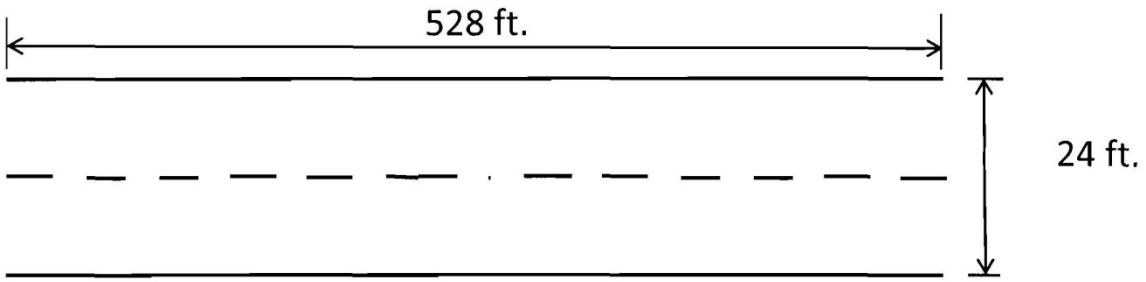
Contrast lines - Black lines are used for contrast only and should not be evaluated for reflectivity. They are rated for length and width only, if present and maintained.

Refer to Standard Plans for Interchange markings and special marking areas.

Striping does not meet MRP standards when any of the following exist:

1) If more that 10% of the length of any line is less than 5.4 inches wide during daylight inspection.
2) If more than 10 % of the length and width of any line is not visible for a distance of 160 feet at night.
3) If more than 10% of the length of any line is missing.
4) If more than 10% of the length of any line is covered by soil, grass, debris, staining, or skid marks.

SKIPLINE CHART



528 ft. ÷ 40 ft./skip = 13.2 skip lines

13 skips X 0.90 = 11.7 skips meet MRP conditions

or

13 skips X 0.10 = 1.3 skips; therefore, More than 1.3 skips do not meet MRP conditions

Striping on a typical four lane divided highway.

These pictures show painted yellow and white edge lines installed on a newly constructed or resurfaced roadway. Evaluate according to the striping characteristic.

Worn out stripping does not meet MRP standards.

Worn out edge line does not meet MRP standards.

Worn out striping in an urban area does not meet MRP standards.

Edge line obscured by soil or other debris does not meet MRP standards.

Edge line does not meet MRP standards.

Edge line obscured by grass does not meet MRP standards.

Existing white edge line on an urban curb & gutter section. This meets MRP standards.

No white edge line on this urban curb & gutter section. This also meets MRP standards.

PAVEMENT SYMBOL: 90% of existing symbols function as intended and 50% or greater of any one symbol functions as intended.

Pavement Symbol - Pavement symbols are used to communicate certain meanings at specific locations. Included in this characteristic are gore area markings, shoulder markings, word and symbol markings, stop bars, all crosswalk lines within the R/W, parking space markings (does not include edge lines that delineate parking), curb markings, painted medians, radius markings, turning guidelines and others.

Evaluation: Determine the total square footage of all symbols within the sample point. Symbols that appear to be abandoned should be verified as such with the area engineer and not be evaluated if determined to be abandoned. Curb markings and crosswalks on connecting side streets are not to be evaluated for nighttime reflectivity. The Standard Plans or the MMS Handbook can be referenced to determine the square footage of symbols.

Pavement Symbols do not meet MRP standards when any of the following exist:

1) If more than 10% of the cumulative symbol area is not functioning as intended during daylight observation.
2) If more than 10% of cumulative symbol area is not reflective for a distance of 160 feet using low beam headlights during nighttime observation.
3) If more than 50% of one symbol is missing or not reflective for a distance of 160 feet using low beam headlights during nighttime observation.
4) If symbols are not installed according to the Standard Plans.

Pavement symbols in good condition, meets MRP standards.

Pavement symbols in good condition, meets MRP standards.

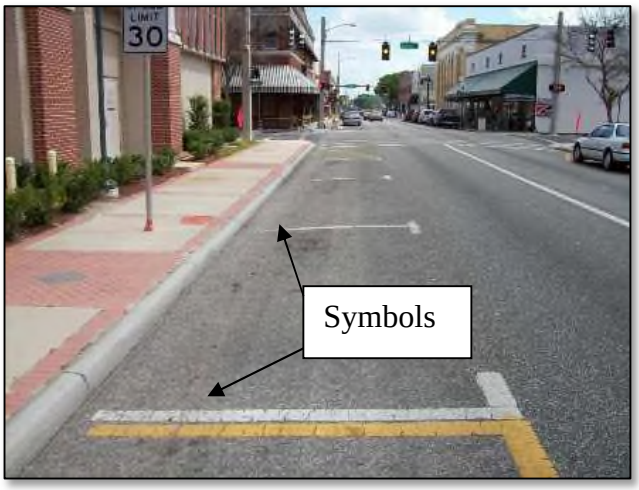
These pictures are examples of worn-out symbols. If more than 10% of the cumulative symbol area or 50% or less of any one symbol is not functioning as intended then this would not meet MRP standards.

Worn and faded pavement symbol, may not meet MRP standards.

These skip lines are an example of radius markings.

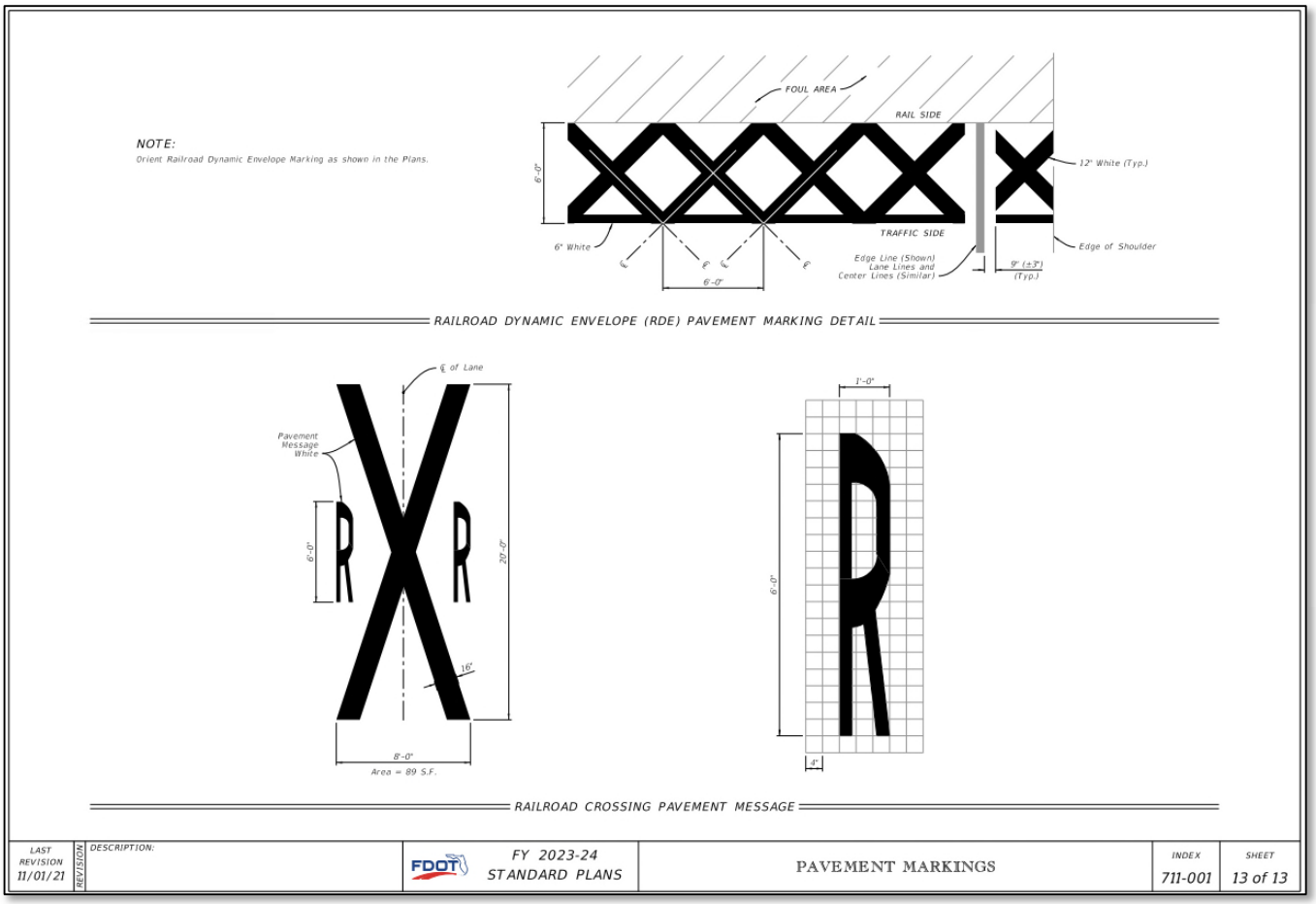
Interstate Exit marking symbol.

Painted curb markings are rated as symbols. Do not rate curb markings for nighttime reflectivity.

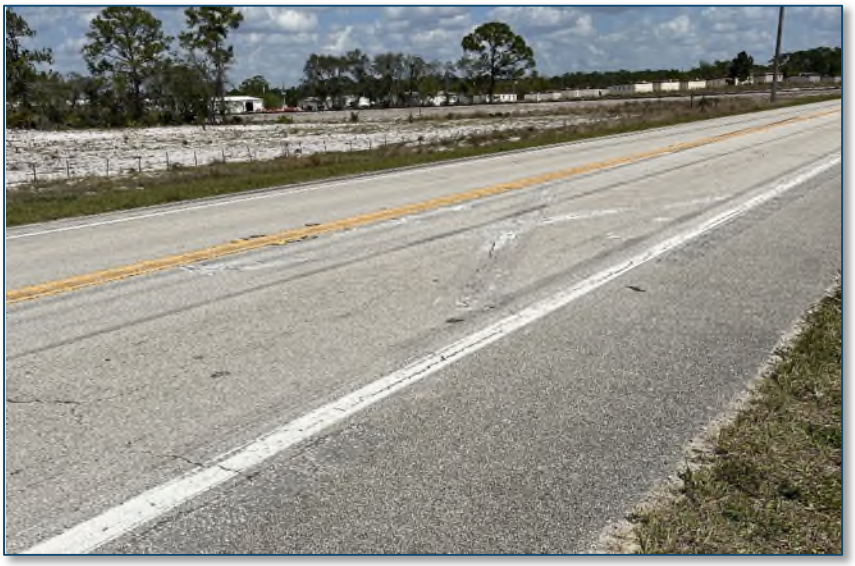


Perpendicular lines marking parking spaces are rated as symbols.

This is an example of a crosswalk symbol.



Special emphasis on the new Railroad Crossing pavement marking from the FY 2023-24 Standard Plans. Consideration should be given to what Standard Plans were used during original construction.



GUARDRAIL: Each single run functions as intended.

Guardrail - Guardrail is installed to guide a vehicle away from various hazards in and adjacent to the travel way and, in most cases, where fill slopes exceed 1:3.

- This characteristic also includes evaluation of cable rail and handrail. Refer to the Standard Plans.
- The function of the bearing plate is to transfer load from the cable to the end anchorage. Bearing plates shall be galvanized, properly oriented, and restrained from turning by acceptable method. The cable on the end anchorage assembly shall be taut with no more than one (1) inch of movement in the cable.

Evaluation: Determine the general condition of the guardrail. Check the guardrail height. Check for damaged rail, missing or damaged posts or blocks, connecting hardware and end sections. Check to make sure guardrail is lapped correctly.

If there is less than 25 feet of guardrail in a sample, then 50% or more of the guardrail must meet the height requirement for this sample point to meet maintenance conditions. All other guardrail criteria shall be rated no matter what the length.

Consideration should be given to what Standard Plans were used during original construction of guardrail.

A previous minor collision may not prevent a guardrail system from functioning as designed and would not cause failure. Installations may vary from roadway to roadway because of design standard changes and should be evaluated using the appropriate design standard.

For MRP purposes do not rate miscellaneous asphalt under guardrail as part of the guardrail. If the miscellaneous asphalt under the guardrail has washed out it should be evaluated as either unpaved shoulder or front slope.

Each single run of guardrail does not meet MRP standards when any of the following exist:

1) Any missing posts, offset blocks, panels or connection hardware.
2) Nuts threaded more than 1 inch to the anchor plate on end treatment cables and anchor rods (measurements should be checked with end treatment cable taut).
3) Any section that is 3 inches above or 1 inch below the desired elevation for 25 continuous feet.
4) The backup plate does not fit snugly behind the rail. There should be some point of contact.
5) The bearing plate is not secured to prevent rotation.
6) End anchorage cable is not drawn taut; with more than 1 inch deflection.
7) Damaged end sections.
8) The rail has been penetrated.
9) More than 10% of the guardrail blocks are twisted.
10) More than 10% of the wooden posts or blocks are rotten or deteriorated.
11) Any panel lapped incorrectly.

Buried end guardrail section. Guardrail shall be evaluated according to the index it was installed under. This may meet MRP standards.

This guardrail section is low and should be measured to determine if it meets MRP standards.

This guardrail section may not meet MRP standards, because the height above the ground is incorrect.

This is a rotten and deteriorated guardrail offset block. It does not meet MRP standards if more than 10% of the blocks are rotten and deteriorated.

This guardrail section has been penetrated due to a crash. This does not meet MRP standards.

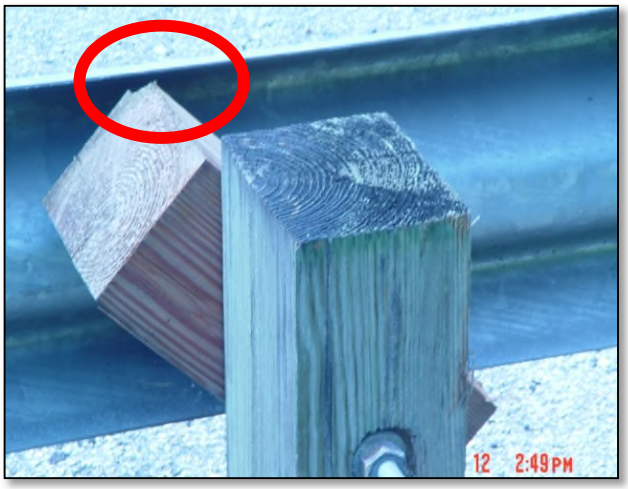
Penetrated guardrail does not meet MRP standards.

This end section has been hit and does not meet MRP standards.

This damaged end section does not meet MRP standards.

The bearing plate must be secured to prevent rotation.

Guardrail offset blocks are not aligned properly. This condition does not meet MRP standards if more than 10% are twisted.



A guardrail block is considered twisted if there is a gap between the top edge of the block and the guardrail.

This guardrail has been damaged by a crash. Several posts are damaged. This does not meet MRP standards.

The offset blocks in these pictures are not aligned properly. If more than 10% of the blocks in a guardrail run are twisted it would not meet MRP standards.

This guardrail section has several problems. The offset block is deteriorated and the rail is lapped incorrectly. This does not meet MRP standards.

This guardrail section is lapped incorrectly. If hit by a vehicle, the rail would not function as designed. This does not meet MRP standards.

This guardrail has been hit by a vehicle. The posts have been knocked out of alignment and may not function as designed. This guardrail does not meet MRP standards.

This guardrail has been hit and several posts are missing. This guardrail does not meet MRP standards.

This guardrail has minor damage to the rail and a missing offset block. This would not meet MRP standards.

This is an approach end guardrail end section. Check to make sure all connecting hardware is in place.

The asphalt under the guardrail has washed out. The guardrail meets desired maintenance conditions; however, unpaved shoulder or front slope would not meet MRP standards.

Damaged guardrail end section. This site does not meet MRP standards.

Cable Rail – Cable Rail is installed to guide a vehicle away from various hazards in medians and adjacent to the travel way.

Evaluation: Determine the general condition of the cable rail. Check the cable rail to ensure the cables are tensioned and weaved correctly (brifen). Check for damaged cable, missing hardware, or damaged posts, and end treatment.

Each single run of cable rail does not meet MRP standards when any of the following exist:

1) Any missing posts, cables or connection hardware.
2) Loose cable, incorrect weave or installation.
3) Damaged end sections.

CASS Cable Safety System: C-shaped posts Installed in a sleeve driven into asphalt or set in concrete foundation. 3 cables in a slot at the Top of the post separated by plastic spacers.

SAFENCE Post installation is similar to CASS but with 4 cables.

End anchor for SAFENCE behind guardrail.

BRIFEN USA end anchor.

BRIFEN USA Post installed in a reinforced Ring set in concrete foundation. 4 cables are placed as follows: #1 in a slot on the top of post, #2 thru 4 are interwoven between all posts on pegs located on the sides of each post. The first 15 posts adjacent to the end terminal do not have top cable/rope slot. The top cable weaves on either side of posts until the first line post with a slot.

BRIFEN USA end anchor.

GIBRALTAR Post installation similar to the CASS and SAFENCE. 3 cables are placed in molded "hairpin" slots or J bolts installed along the sides of the posts.

GIBRALTAR end anchor. This meets MRP standards.

Damaged GIBRALTAR end anchor. This does not meet MRP standards.

Loose cables on GIBRALTAR would not meet MRP standards.

Misaligned cable would not meet desired maintenance conditions.

Handrail – Handrail is installed to protect pedestrians from drop-offs adjacent to sidewalk.

Evaluation: Visually determine the general condition of the handrail within the sample. Check for bent or misaligned handrail as well as missing, cracked, or broken hardware, neoprene/resilient pads or obvious missing sections. Fence attached to the handrail must be in place and securely fastened to meet desired maintenance conditions.

Each single run of handrail does not meet MRP standards when any of the following exist:

1) The handrail is not secured in place, bent or misaligned and does not function as intended.
2) One or more anchor bolts, nuts, or neoprene/resilient pads are missing on the base plate.
3) Missing, cracked, or broken hardware.
4) If fence is attached to the handrail, the fence must be in place and securely fastened to the handrail.
5) It is obvious that handrail was installed but is now missing.

Handrail meets desired maintenance conditions.

Missing handrail, this does not meet MRP standards.

Picket railing protecting drop-off next to sidewalk.

Steel sleeve missing at expansion joint. This does not meet MRP standards.

Handrail meets desired maintenance conditions.

Cracked or broken hardware would not meet desired maintenance conditions.

Broken welds will not meet desired maintenance conditions.

Handrail with wired mesh meets desired maintenance conditions.

SIGNS LESS THAN OR EQUAL TO 30 SQ. FT. 95% of the signs are functioning as intended.

SIGNS GREATER THAN 30 SQ. FT. 85% of the signs are functioning as intended.

Signs - Signs are used to convey information to the motorist so they can travel safely and efficiently on the highway.

According to the Manual on Uniform Traffic Control Devices Section 1A.04, "Placement of a traffic control device should be within the road user's view so that adequate visibility is provided. To aid in conveying the proper meaning, the traffic control device should be appropriately positioned with respect to the location, object, or situation to which it applies. The location and legibility of the traffic control device should be such that a road user has adequate time to make the proper response in both day and night conditions."

Evaluation: Determine the number of signs within the sample point. Inspect the signs and determine the number of signs that do not meet desired MRP conditions. Divide the number of signs that meet MRP conditions by the total number of signs in the sample point. Multiply by 100 to get the percentage of signs that function as intended. If the percentage is less than the standard, then the signs do not meet MRP standards.

Determine what Standard Plans were used during original construction and installation of signs when evaluating for MRP.

Signs shielded by barrier wall or guardrail do not require breakaway support.

For the purposes of evaluating individual sign installations, the following criteria shall apply:

Sign Height:

1. Roads with curb and gutter:
   7 feet minimum height measured from top of curb to bottom of sign (measure from sidewalk, if present).

2. Roads without curb and gutter:
   5 feet minimum height measured from edge of driving lane to bottom of sign.

3. Limited access ramps:
   6 feet minimum height measured from edge of driving lane to bottom of sign.

4. Limited access medians:
   7 feet minimum height measured from edge of driving lane to bottom of sign.

5. Limited access roads:
   7 feet minimum height measured from edge of driving lane to bottom of sign.

Sign Lateral Clearance:

1. Rural roads, urban roads and limited access ramps:
   12 feet minimum offset from edge of driving lane and where 12 feet cannot be met.
   6 feet minimum from edge of paved shoulder to edge of sign.

2. Limited access mainline:
   40 feet minimum offset from edge of mainline driving lane to edge of sign.

3. Roads with curb and gutter:
   2 feet minimum offset from face of curb to edge of sign.

4. Signs behind guardrail:
   2 feet minimum from the face of the rail to the edge of sign.

Sign Tolerances:

1. Height Tolerance:
   A. 3 inch (+ / -) tolerance for all signs except signs over sidewalk and mile markers noted below.
   B. 12 inch tolerance for Type I and III object markers.
   C. 6 inches (+) tolerance for mile markers installed at 4 feet to the bottom of the panel

2. Lateral Clearance Tolerance:
   A. 3 inches in curb and gutter sections and behind the guardrail.
   B. 6 inches on limited access ramps and arterial roads.
   C. 12 inches on limited access mainline.

The Department's Standard Plans (INDEX 700-101) contain information on installation and placement of signs. Consideration should be given to what Standard Plans were used during original construction and installation of signs.

The evaluation of signs greater than 30 sq. ft. includes all over-lane signs with the exception of overhead school signs and county/city signs on signal cables.

Do not rate county/city signs on signal cables. The US 17 route marker would be rated as a sign >30 sq.ft. because it is an over-lane sign.

Many cities and counties and some state and federal agencies install traffic signs and devices adjacent to or on FDOT right-of-way. Warning, Regulatory and Information signs and devices installed and maintained by FDOT are normally identified (front and back) as property of the Florida Department of Transportation and should have an installation date painted on or attached to the sign. **Evaluate only FDOT signs and devices.**

NOTES:

1) Highway signs shall be evaluated using two characteristics:
   - Ground signs greater than 30 square feet (including all over-lane signs).
   - Ground signs 30 square feet or less.
2) **MRP definition of a secondary sign:** A secondary sign is mounted below a primary sign and its message is not related to the primary sign message. Example: A "Do Not Block Intersection" sign mounted with a no U-turn sign below it.
3) The height to the bottom of a secondary sign mounted below another sign may be one foot less than the appropriate height except where signs are over sidewalks (a route marking assembly consisting of a route marker with an auxiliary plate is treated as a single sign).
4) Do not rate overhead school signs or county/city signs on signal cables.
5) Do not rate logo signs.
6) Do not rate wildflower signs.
7) For purposes of these guidelines, a turn lane will be considered a driving lane. Merge, rest area, signs on islands and exit gore signs shall be evaluated according to the Standard Plans.
8) If it is obvious the minimum lateral clearance cannot be met, the sign shall be considered to meet acceptable maintenance conditions. The presence of sidewalk by itself shall not be considered a reason a sign cannot meet the minimum lateral clearance.
9) A sign less than 30 square feet mounted to a sign greater than 30 square feet is evaluated as part of the sign greater than 30 square feet.
10) For MRP purposes, two post installations with round aluminum tubing less than or equal to 3 ½ inches meets maintenance conditions.
11) Signs in the median, as outlined in the Standard Plans are not evaluated for lateral clearance.
12) Do not rate slip bases for shims.
13) Retroreflective strips for signs - The retroreflective sign strips must be fastened in a manner that does not require drilling of holes in the column. Retroreflective sign strips must be 2 inches in width and a height of 5 feet for all signs except for when signs are mounted at 4 feet, then retroreflective sign strip will be 2 feet in height. Match the color of the retroreflective sheeting to the background color of the sign except for YIELD signs and DO NOT ENTER signs, where the color must be red.

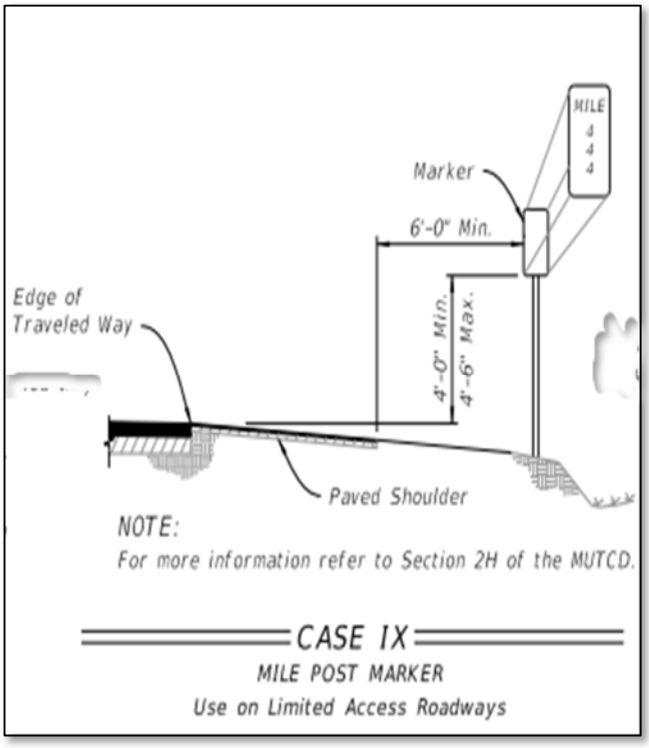
Signs do not meet desired maintenance conditions when any of the following exist:

NOTE: See above for all tolerances.

1) Sign installations including panels and posts leaning more than 1 inch per foot.
2) Missing sign or there is missing connecting hardware, nuts or bolts.
3) Sign panel(s) are attached to column(s) below a fuse cut.
4) Bottom of sign panel is installed more than 2 inches above or below the fuse cut.
5) Aluminum "C" clamps are used to attach a sign panel to a post.
6) Cantilever signs are not installed according to the Standard Plans.
7) Brackets are installed improperly.
8) A cantilever sign is wider than 4 feet that do not meet current .
9) Sign rotation causes the sign message to become unreadable. (Note: In urban areas, "NO PARKING" signs may be rated 30° to 40° toward traffic).
10) Signs fail to convey the intended message due to lack of reflectivity, fading or surface accumulations. (Note: All signs shall be reflectorized or illuminated to show the same shape and color in day and night conditions).
11) Height and offset of mile markers are not installed according to the Standard Plans. (Note: For MRP purposes, a height tolerance of up to 3 inches and an offset tolerance of up to 12 inches are permitted).
12) Aluminum posts greater than 3½ inches in diameter are not installed on a slip base or breakaway support and are not shielded by barrier wall or guardrail.
13) A slip base or breakaway support is covered with soil if not shielded by barrier wall or guardrail.
14) A slip base or breakaway support more than 4 inches from the finished ground as measured at the center.
15) A single post installation is prohibited by the Standard Plans.
16) Single post installations of a sign or sign cluster wider than 60 inches unless specifically allowed by the Standard Plans Index 700-010, or District Design Office.
17) A sign on a slip base is installed without a concrete footing.
18) The edge of a sign panel is installed less than 2 feet from the face of guardrail.
19) The height and lateral offset of a sign panel is not installed according to the Standard Plans.
20) Damage to a sign column that compromises its function.
21) U-channel steel posts heavier than 3 pounds per foot have no breakaway support.
22) U-channel steel post with a non-standard installation where the posts is on the wrong side of breakaway.
23) Steel post support stubs protrude more than 4 inches above the ground.
24) Retroreflective strips for signs must be fastened in a manner that does not require drilling of holes in the column.

Miscellaneous Sign Information

This sign assembly has three (3) messages, but for MRP purposes it should be rated as one sign.



New offset placement of Mile Markers from the FY 2023-24 Standard Plans

Evaluate only FDOT signs. This sign has the proper label indicating when it was installed and that it is the property of FDOT.

Signs should not lean more than 1 inch per foot.

Measuring a sign that is leaning more than1 inch per foot. Using a 2ft. level this sign does not meet desired maintenance conditions.

This sign column has been damaged and does not meet desired maintenance conditions.

This is a flashing school sign. If the panel is in RCI, the sign only will be evaluated. would not be rated under MRP.

Incorrect bracket installation.

Slip base more than 4 inches above the ground. This does not meet MRP standards.

Slip base more than 4 inches above the ground. This does not meet MRP standards.

Measuring a sign post. This post is 4 inches and should be installed with a concrete foundation and breakaway assembly. This sign installation does not meet MRP standards.

This sign foundation is non-standard and, therefore, does not meet MRP standards.

This sign is leaning more than <u>1 inch</u> per foot and does not meet MRP standards.

Do not rate wildflower signs.

Do not rate logo signs.

This breakaway device is covered and does not meet MRP standards unless behind a barrier.

This sign was installed using “C clamps and does not meet MRP standards.

Signs installed below the fuse cut do not meet MRP standards.

This steel flanged channel post is installed greater than 4 inches above the ground and is a non-standard installation does not meet MRP standards.

This Retroreflective panel is the correct color but has been riveted into the post. This would not meet maintenance conditions.

Rate cantilevered signs according to the Design Index used for installation.

Rate ground mounted signs according to Design Index used for installation.

This sign is in good condition but cannot be seen because of a palm tree. The sign meets MRP standards, however tree trimming would not meet MRP standards.

This Retroreflective panel is the correct color and has been mounted to the post correctly. This would meet maintenance conditions.

OBJECT MARKERS
AND DELINEATORS: 80% of the markers are functioning as intended.

Object Markers - According to the MUTCD, "Object markers are used to mark obstructions within or adjacent to the roadway." Section 2C.63
Type 1 object markers are 18 inches by 18 inches.
Type 2 object markers are 6 inches by 12 inches.
Type 3 object markers are 12 inches by 36 inches

Delineators - The MUTCD states, "Delineators are particularly beneficial at locations where the alignment might be confusing or unexpected, such as at lane reduction transitions and curves. Delineators are effective guidance devices at night and during adverse weather. An important advantage of delineators in certain locations is that they remain visible when the roadway is wet or snow covered". Reflective elements for delineators shall have a minimum dimension of 3 inches.

Evaluation: For MRP purposes, Type 2 Object Markers and Delineators are used to mark Department maintained objects or to delineate roadway alignment. This characteristic will include clear or amber "button" type reflectors installed on guardrail and barrier wall systems, button or combination button and reflective sheeting markers used at crossovers and other applications where object or guide marking is used.

Delineators shall be installed with the TOP of the marker approximately 4 feet above the near pavement elevation.

When used for marking objects in the roadway or 8 feet or less from the shoulder or curb, the mounting height to the bottom of the object marker should normally be 4 feet above the surface of the nearest travel lane. When used to mark the objects more than 8 feet from the shoulder or curb, the mounting height to the bottom of the object marker may be 4 feet above the ground.

Except for post mounted delineators on entrance and exit ramps at interchanges all post mounted object markers and delineators installed within plus or minus 1 foot (height and lateral offset) shall meet desired maintenance conditions.

Post–mounted delineators on ramps (see Standard Plans) shall be installed at a uniform distance from the travel lane with a tolerance of 3 inches. The height shall be uniform with a tolerance of 3 inches.

Rate all post-mounted markers except those installed to prohibit unauthorized traffic movements (off-tracking, median crossing, shoulder parking, etc.). Rate post-mounted delineators at major/minor intersections, if installed.

The horizontal placement of post-mounted delineators at crossovers shall be 6 feet with a tolerance of plus or minus 1 foot-6 inches in accordance with Index 700-010. This index shows the edge of pavement as the standard reference point. If curb and gutter is present measure from the top face of the curb. If no curb is present measure from the edge of pavement.

Both day and night observations should have at least 80% of the required markers present, at the recommended height and offset and functioning as intended to meet desired maintenance conditions.

Post-mounted delineators at median crossovers and major and minor roads shall be installed according to Standard Plans. All connecting hardware, nuts and bolts should be installed. Delineators shall not be used as Type 2 object markers (see MUTCD).

Each run of guardrail shall have reflectors according to the Standard Plans. A delineator with 2 reflective sides mounted on top of a double face guardrail is rated as 1 delineator.

Object Markers and Delineators do not meet MRP standards when more than 20% of the following exist:

1) The horizontal placement of post-mounted delineators at crossovers are installed more than plus or minus 1 foot-6 inches from the edge of pavement or top face of curb.
2) If in the roadway or 8 feet or less from the shoulder or back of curb the marker is not installed 4 feet plus or minus 1 foot above the edge of the nearest travel lane.
3) If the bottom of the marker is not installed 4 feet plus or minus 1 foot above the ground when marking objects more than 8 feet from the shoulder or back of curb.
4) Markers are not offset 4 feet plus or minus 3 inches from the shoulder break and installed at a uniform height on interchange ramps as shown in the Standard Plans.
5) Markers or delineators lean more than 1 inch per foot of post length.
6) Required markers are missing.
7) Required markers are not reflective at night.
8) Reflectors are not installed as shown in the Standard Plans.
9) Color of post-mounted delineators are installed facing the wrong way.
10) Missing connecting hardware, nuts and bolts.

Object markers are used to mark obstructions within or adjacent to the roadway. These object markers are marking a manhole, head-wall and U-end wall.

This object marker is for fiber optic cable. It would not be rated since this is not a roadway department maintained object.

These post-mounted delineators would not be rated because they are being used to prohibit unauthorized traffic movements.

Do not rate post-mounted markers installed to prohibit unauthorized traffic movements (off-tracking, median crossing, shoulder parking, etc.)

This object marker was installed but is not needed because the headwall is behind guardrail. Since the object marker is installed, it will be rated. The object marker is installed 2 feet 6 inches from the ground to the bottom of the marker. It should be installed no less than 4 feet plus or minus 1 foot from the ground to the bottom of the marker. This marker does not meet MRP standards.

These post mounted delineators are installed on a ramp according to Standard Plans.

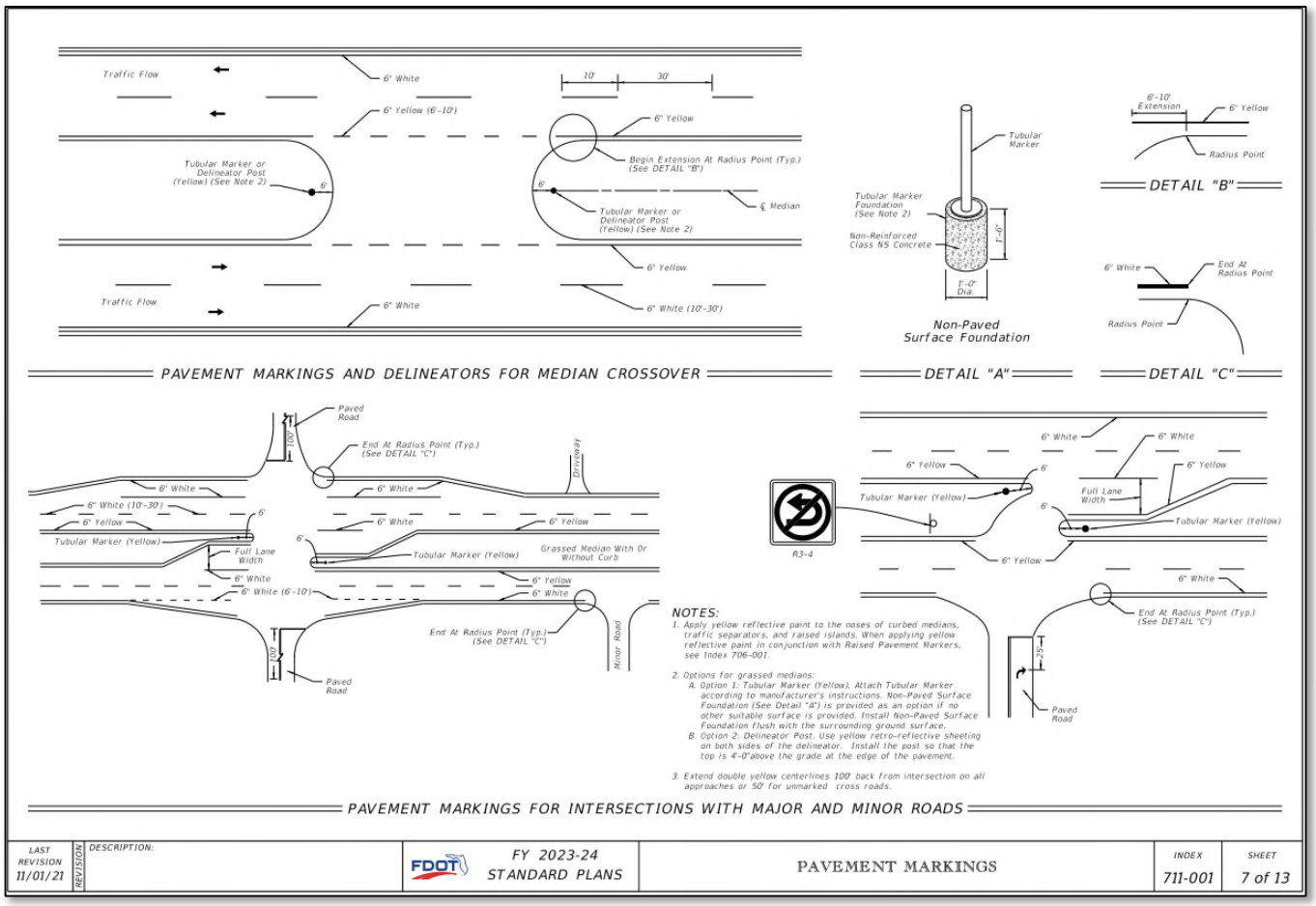
This post mounted delineator is leaning more than 1 inch per foot and does not meet MRP standards.

Post mounted delineators are installed according to the Standard Plans. The index shows the edge of pavement as the standard reference point. If curb and gutter is present measure from the top face of curb. At a curb without a gutter or traffic separator, the face is the edge of pavement (picture on right).

This is a rural crossover with a post mounted delineator installed. According to Standard Plans the delineator should be installed 6 ft. from the edge of pavement to the delineator. MRP has a tolerance of 1 ft. 6 inches. This delineator is installed 8 ft. 6 inches from the edge of pavement. This installation does not meet MRP standards.

Paddle type, high visibility flexible delineators

Type 1 (9 button) object marker. For MRP purposes, an object marker mounted on a post with a sign will be rated as an object marker. Ignore offset distance if object marker is mounted on a post with a sign.



Standard Plans shows the proper placement of delineator posts for median cross-overs and intersections. The horizontal placement of post-mounted delineators at crossovers shall be installed within plus or minus 1 foot 6 inches in accordance with the Standard Plans. The index shows the edge of pavement as the standard reference point.

LIGHTING: 90% of the total luminaries of the combined sign and highway lights are functioning as intended.

Sign Lighting - Illumination of overhead roadway signs may be by means of: a light illuminating the message through translucent material, a source that illuminates the entire face of the sign or some other source such as illuminated tubing or incandescent panels that make the message visible at night. Sign illumination that is present but not functioning should be verified as officially out of service. The area engineer can provide this information.

Highway Lighting - All highway lighting Owned by the Department (DOT forces or contract maintenance) is to be included in the survey. The daytime evaluation should be for missing or damaged poles and missing or damaged luminaries. ANY electrical inspection plate, access panel cover or pull box cover that is not properly secured in place will also cause this characteristic not to meet the desired maintenance conditions. If this characteristic meets the desired daytime conditions, then a nighttime evaluation shall be made.

Evaluation: Determine the total number of luminaries in the sample point. By inspection, determine the number of luminaries that do not meet desired maintenance conditions. Subtract that number from the total number of luminaries. This is the number of luminaries in the sample that meet MRP conditions. Divide this number by the total number of luminaries then multiply by 100 to get the percent of luminaries that meet desired maintenance conditions. If this percentage is equal to greater than the standard, then the point meets conditions for lighting.

Lighting does not meet MRP standards when any of the following exist:

1) Any electrical inspection plate, access panel cover, exposed electrical wire or pull box cover are not properly secured in place. Secure is defined as if plate has 4 slots for Lockdown Bolts, must be in opposing corners. If 2 slots are available, must have 2 Lockdown Bolts.
2) If more than 10% of the total luminaries are missing, damaged, or not functioning.
3) If more than 10% of the poles are damaged or missing.

Any electrical inspection plate, access panel cover or pull box cover that is not properly secured in place will cause this characteristic not to meet the desired maintenance conditions. The light poles shown above are missing the access panel cover and, therefore, do not meet MRP standards.

Standard roadway lighting. Count the number of luminaries within the sample.

Under highway deck lighting should be included in the evaluation of lighting.

This would not meet conditions as properly secured.

Inspection cover is missing screws this would not meet conditions as properly secured.

Overhead sign lighting.

Pull box missing bolts. This would not meet conditions.

FLORIDA DEPARTMENT OF TRANSPORTATION
MAINTENANCE RATING PROGRAM STANDARDS

DRAINAGE

THE FOLLOWING CHARACTERISTICS MEET THE DESIRED MAINTENANCE CONDITIONS WHEN:

SIDE/CROSS DRAIN: 60% of the cross-section of each pipe is free of obstructions and functions as intended.

ROADSIDE/MEDIAN DITCH: The ditch bottom elevation shall not vary from the ditch design elevation more than 1/4 of the difference between the edge of pavement elevation and the ditch design elevation.

OUTFALL DITCH: The ditch bottom elevation shall not vary from the ditch design elevation more than ⅓ of the difference between natural ground and the ditch design flow line.

INLETS: 85% of the opening is not obstructed.

MISC. DRAINAGE STRUCTURE: 90% of each structure functions as intended.

ROADWAY SWEEPING: Material accumulation is not greater than ¾ inch deep for more than 1 continuous foot in the traveled way or shall not exceed 1½ inches in depth for more than 1 continuous foot in any gutter.

NOTE: Please report any suspected Illicit Discharge found during inspections to the respective District National Pollutant Discharge Elimination System (NPDES) coordinator:

District 1	(863) 519-2300
District 2	(386) 758-3700
District 3	(850) 330-1649
District 4	(954) 486-1400
District 5	(386) 943-5000
District 6	(305) 470-5100
District 7	(813) 975-6000
Turnpike	(954) 975-4855

DRAINAGE

SIDE/CROSS DRAIN: 60% of the cross section of each pipe is free of obstructions and functions as intended.

Side Drain – Side drains normally occur under turnouts.

Cross Drain – Cross drains will normally run under a roadway(s) at a perpendicular angle and begin or end in an open roadside ditch. Drains crossing under a roadway that connect to an inlet at both ends shall not be rated.

If a box culvert of any length or width falls within a sample, evaluate as normal and rate the culvert as a cross drain

Evaluation: Determine the diameter of each pipe. A table is provided listing most diameters of pipe used on the FDOT's roadways and includes a measurement to assist in determining whether a pipe is obstructed more than the desired maintenance condition. The measurement will be taken at the deepest point of obstruction within the limits of the pipe including mitered ends. The percentage of open area desired for SIDE/CROSS DRAIN is listed at the top of the table. Determine the pipe diameter, select the diameter in the table and move to the right along that line until under the desired percent open area and read that figure. EXAMPLE: Given an 18 inch diameter SIDE DRAIN pipe, move to the right under 60% open area and read 11 inches. Measure the open area of the pipe being surveyed. If the measurement is less than the table value 11 inches, then less than 60% of this pipe area is open and does not meet the desired maintenance condition.

Grates on pipe end sections must be the correct size and in place to meet maintenance conditions. Grates that are broken will not meet maintenance conditions. In place is defined as properly seated in design cradle and cannot be unseated by normal pedestrian or vehicular traffic. For MRP evaluation purposes, a cross drain must have at least one end open within the sample point. Any missing or broken bolts.

NOTE:

- If the type of structure is not associated with a side/cross drain, then it is rated as a misc. drainage structure and any grating present is rated with, or under misc. drainage using the inlet characteristic for rating. If the structure is associated with a side/cross drain you would rate the grate with the side/cross drain section.
- If the steel grate is missing from a U type concrete end walls and the end wall is designed to cradle a steel grate, (has a channel in the concrete, or bolts are/or were present) then it would not meet conditions.

The reinforced concrete slab around mitered end pipes should be in good condition. Three or more cracks in the concrete slab greater than ½ inch in width and 1 foot in length or more than 33% of the concrete structure/slab is crushed or broken does not meet maintenance conditions.

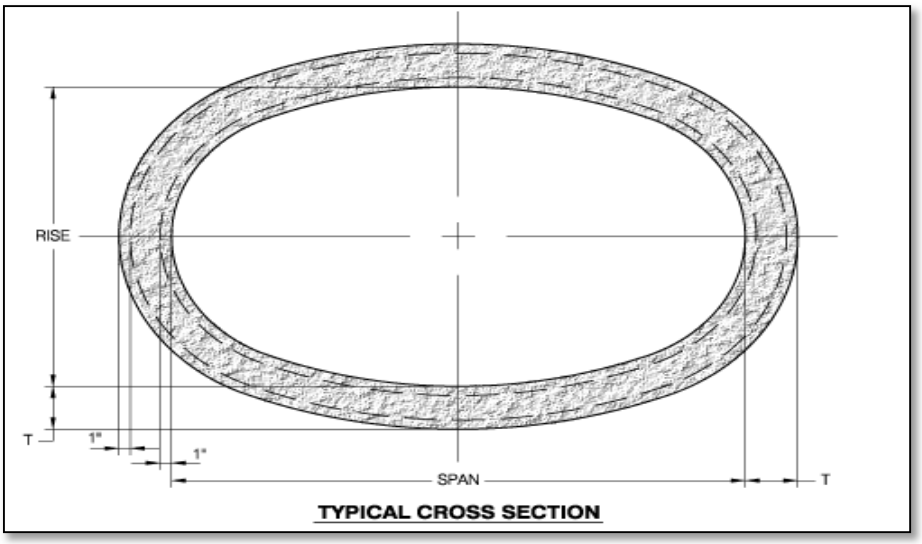
NOTE: Elliptical pipe must be unobstructed more than 40% for both rise and span.

Side/Cross Drain does not meet MRP standards when the following exist:

1) More than 40% of the cross section of the pipe is obstructed.
2) The grates are not the correct type.
3) The grates are not the correct size.
4) The grates are broken.
5) The grates are not in place.
6) The concrete structure around a MES has three or more cracks greater than ½ inch in width and 1 foot in length.
7) If more than 33% of the concrete structure/slab is crushed or broken around a Mitered End Section.
8) Missing or broken bolts.

Side/cross drainpipe with 3 or more cracks > ½ in. wide 1 ft. in length. This does not meet MRP standards.

Side/cross drain pipe with damaged concrete. This does not meet MRP standards.



SIDE/CROSS DRAIN & MISC. DRAINAGE DESIRED % OPEN

Round Pipe* (inches)	60% (inches)		Elliptical Pipe Rise (inches)	Elliptical Pipe Span (inches)	60% Rise (inches)	60% Span (inches)
12	7		14	23	8	14
15	9		19	30	11	18
18	11		24	38	14	23
21	13		29	45	17	27
24	14		34	53	20	32
27	16		38	60	23	36
30	18		43	68	26	41
36	22		48	76	29	46
42	25		53	83	32	50
48	29		58	91	35	55
54	32		63	98	38	59
60	36		68	106	41	64
66	40		72	113	43	68
72	43		77	121	46	73

*Based on inside diameter
% Rounded to nearest inch.

Side drain pipe under turnout.

Side drain pipe with grates.

Side drain.

Side drain.

Cross drain.

Cross drain.

Cross drain

Cross drain

These two pictures show a typical side drain pipe in a roadside ditch. Determine the cross section of the pipe that is not obstructed and functions as intended. If more than 40% of the pipe cross section is obstructed or does not function as intended, then CROSS/SIDE DRAIN does not meet desired maintenance conditions.

This is a side drain pipe with grates. This meets MRP standards.

This is a side drain pipe with missing and damaged grates. This does not meet MRP standards.

Side drain pipe with damaged concrete.

Repaired grate. Epoxy bolt. Meets conditions.

Broken/missing bolts, grate bent. Does not meet conditions.

Broken welds on grate. Does not meet conditions.

Broken bolt, grate bent. Does not meet conditions.

Grate meets conditions.

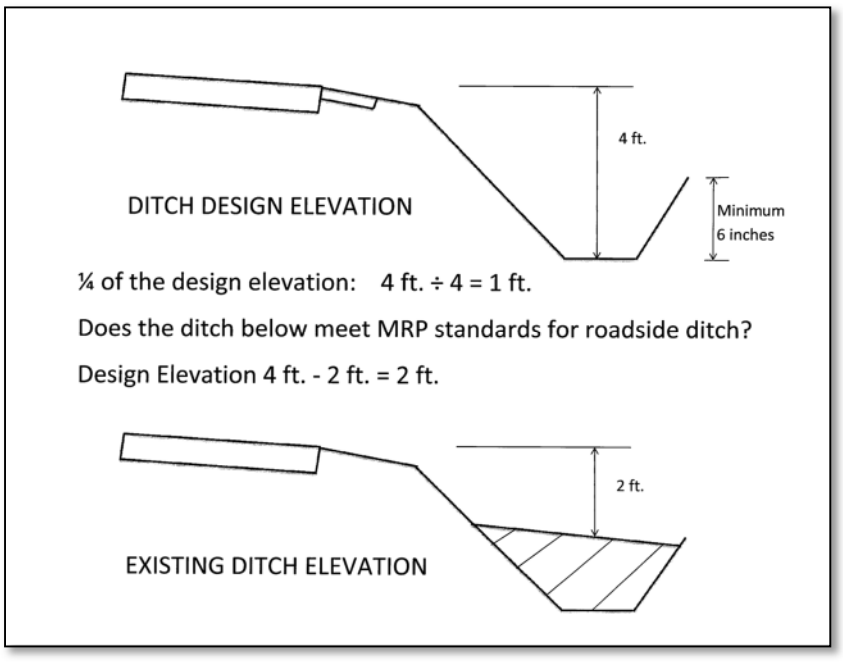
ROADSIDE /MEDIAN DITCH: The ditch bottom elevation shall not vary from the ditch design elevation more than ¼ of the difference between the edge of pavement elevation and the ditch design elevation.

Roadside/Median Ditch (Non-Paved) – In general, a standard roadside ditch (not to include ditch paving) is designed to a minimum depth below the roadway; although, there will occur special ditches or exceptions on some older roadways. A roadside ditch must have a front slope and at least a 6 inch back slope to be considered a ditch. Some roadside canals serve as roadside ditches and have a flat berm on one or both sides. For purposes of this survey, these flat areas will be considered to be front/back slopes. Generally, if the side drain or cross drain does not meet desired maintenance conditions due to siltation buildup, then the ditch will also not meet desired maintenance conditions.

Evaluation: Determine if the ditch has a front slope and at least a 6 inch back slope. If it does, then you would rate the sample for roadside/median ditch. Observation of the ditches throughout the section should provide insight as to the original design of the ditches. If all ditches are the same elevation and provide proper drainage, then they are probably functioning as intended. A check of construction plans will provide an answer when a field determination is not possible. The elevation of the outside edge of roadway (not paved shoulder) will be used to determine the depth of the ditch. A surveyor's handheld level and folding rule or string line level can be used to make measurements along the sample. The construction plans or structures in and adjacent to the ditch can be used to determine the design flow line.

Roadside/Median Ditch does not meet MRP standards when any of the following exist:

1) The ditch bottom elevation varies more than ¼ of the difference between the edge of pavement elevation and the ditch design elevation.
2) There are erosions, washouts, or buildups that adversely affect the flow of water.



The bottom existing ditch elevation does not meet MRP standards.

Roadside ditch with side drain pipe.

OUTFALL DITCH: The ditch bottom elevation shall not vary from the ditch design elevation more than ⅓ of the difference between natural ground and the design flow line. Only those areas listed in the RCI as outfall will be evaluated.

Outfall Ditch – Initial observation of the ditch system, as a whole, can provide an answer as to whether actual measurements of the ditch bottom elevation shall be made. If the ditch grade appears to be higher than constructed, then actual measurements should be made. Structures included in and adjacent to the ditch or construction plans can be used to determine design flow line. After determination of designed ditch elevation, a distance from that elevation to natural ground can be calculated. If any part of the existing ditch grade is above the bottom of the calculated distance, then this characteristic does not meet the desired maintenance condition.

Evaluation: Piped outfall ditches will be evaluated using the SIDE/CROSS DRAIN characteristic. The "60% of the cross sectional area shall be unobstructed" criteria will apply. Paved outfall ditches will be evaluated using the criteria from "miscellaneous drainage structure" (rate as outfall only).

Outfall Ditch does not meet MRP standards when any of the following exist:

1) The ditch bottom elevation varies more than ⅓ of the difference between natural ground and the design flow line.

If the ditch bottom elevation of an outfall ditch is more than 1/3 of the difference between natural ground and the design flow line the outfall ditch does not meet MRP standards.

This outfall ditch appears to meet MRP standards.

INLETS: 85% of the opening area is not obstructed.

Inlets – This characteristic includes all inlets and enclosed junction boxes (manholes). Inlets may be found in curbs, ditches with or without ditch paving, in valley gutters and at other locations that are designed to collect water runoff.

Evaluation: Measure the opening to determine the area. When any inlet structure is unslotted then the grate is the collection area to be measured. Grates and manhole covers must be the correct size and in place to meet maintenance conditions. Grates and manhole covers that are broken will not meet conditions. In place is defined as properly seated in design cradle and cannot be unseated by normal pedestrian or vehicular traffic.

Inlets with exposed steel, or surface damage ½ square foot or more, or any deformation of the inlet that creates a hazard, will also cause this characteristic not to meet desired conditions.

The concrete apron, if present, around ditch bottom inlets should be in good condition. Concrete apron around inlets that has three (3) or more cracks greater than ½ inch in width and 1 foot in length or more than 33% of the concrete apron is crushed or broken does not meet desired conditions.

Gutter grates or gutter cover plates on slotted curb inlets are installed as cleaning or maintenance access and are not to be considered as part of the opening area.

Refer to the Standard Plans to determine if the area around the inlet was designed as part of the inlet. If it was, then include it with the inlet evaluation, not as miscellaneous drainage.

Inlets do not meet MRP standards when any of the following exist:

1) More than 15% of the opening area is obstructed.
2) The grate is broken.
3) Grates and manhole covers are not the correct size and are not in place.
4) Exposed steel with spalling.
5) Any deformation of the inlet that creates a hazard.
6) Surface damage ½ square foot or more.
7) Concrete apron with three or more cracks greater than ½ inch in width and 1 foot in length.
8) If more than 33% of the concrete apron is crushed or broken around inlets.

Measure the opening to determine the area. 85% of the opening area must be unobstructed to meet the inlet characteristic.

Grass covering inlet grate. Determine the percentage of opening area obstructed. If more than the standard, it would not meet MRP standards.

Ditch bottom inlet in good condition. This meets MRP standards.

Exposed steel with spalling in this curb inlet. This does not meet MRP standards for inlets.

This is an obstructed inlet grate. If the opening is obstructed more than 85%, then it would not meet MRP standard for inlets.

Soil buildup at curb inlet. Determine the percentage of opening area obstructed and compare to the standard.

These inlet grates are installed upside-down. This would not meet MRP standards.

The inlet grate on the left is the wrong size. This would not meet MRP standards.

This inlet grate is not seated correctly in the design cradle. This does not meet MRP standards.

This manhole cover is seated correctly in the design cradle. This meets MRP standards.

Inlet grate out of cradle. Does not meet MRP standards.

Blocked inlet grate. Does not meet MRP standards.

If more than 15% of the inlet grating is blocked, then it would not meet MRP standards.

The inlet grate is not fitted into the slot correctly. This would not meet MRP standards.

MISCELLANEOUS DRAINAGE
STRUCTURE: 90% of each structure functions as intended.

Miscellaneous Drainage Structure – This characteristic includes ditch paving, shoulder gutter, flumes, spillways, trench drains, French drains, edge drains, piped slope drains and other miscellaneous drainage structures that are used to enhance or control the flow of runoff or storm drain water, but does not include curb and gutter, retention/detention ponds or siltation devices. A piped slope drain that is connected to a side/cross drain is evaluated as side/cross drain. U-type end walls are not to be evaluated as miscellaneous drainage unless they have baffles or some installed method of slowing the water velocity.

Edge drains shall have galvanized hardware cloth installed according to Standard Plans.

All miscellaneous drainage and inlets that are in RCI will be evaluated. This could involve locations outside the normal right-of-way limits.

Evaluation: To meet the desired maintenance condition, each structure must function at no less than 90% (90% of the length and 90% of the depth). The miscellaneous drainage structure does not meet desired conditions, when it has deteriorations, erosions, washouts or buildups which adversely affect the natural flow of water.

Siltation or other debris built up in valley gutter shall be evaluated under roadway sweeping.

Rate grates which are part of a dedicated miscellaneous drain for miscellaneous drainage except inlet grates.

Miscellaneous drainage structures do not meet MRP standards when any of the following exist:

1) More than 10% of the structure (length and depth) does not function as intended.
2) There is edge drain with no hardware cloth on the end of the pipe.
3) Deteriorations, erosions, washouts or buildups adversely affect the natural flow of water.
4) Missing or damaged grates for dedicated miscellaneous drainage structures.
5) More than 10% of the total weepholes on one side does not function as intended.

Soil buildup in a miscellaneous drainage structure. This does not meet MRP standards for miscellaneous drainage.

This type ‘F’ curb has been damaged. Type ‘F’ curb is not rated in MRP.

These pictures are of edge drains. The edge drain hardware cloth must be in place and functioning as intended to meet MRP standards. These edge drains do not meet MRP standards.

Trench drain in driveway and above shoulder gutter should be rated as miscellaneous drainage.

Some of these weepholes have vegetation growing out of them. If more than 10% are filled on one side, this would not meet maintenance conditions.

U-type end walls are not to be evaluated as miscellaneous drainage unless they have baffles or some installed method of slowing the water velocity.

ROADWAY SWEEPING: Material accumulation is not greater than ¾ inch deep for more than 1 continuous foot in the travel way or shall not exceed 1½ inches in depth for more than 1 continuous foot in all curb and gutter, and paved shoulder on urban limited access.

Roadway Sweeping – This characteristic applies to: all urban limited access roadways and paved shoulders on urban limited access roadways. It also applies to all curb and gutter, valley gutter, barrier wall and intersections of State Roads.

Do not rate curb inlet throats for sweeping.

In areas with curb and gutter and sidewalk, rate sweeping around the returns to the back of the sidewalk. In areas with curb and gutter and no sidewalk, do not rate sweeping around the returns.

Items evaluated as litter will not be included in the sweeping evaluation.

Evaluation: Review urban limited access roadways, and paved shoulders on urban limited access roadways, all curb and gutter, all valley gutter, all barrier wall and all intersections of State Roads to determine the debris buildup. Measure the depth and length of any buildup. If the debris buildup is more than allowed by the standard, it does not meet desired maintenance conditions.

Roadway Sweeping does not meet MRP standards when any of the following exist:

1) The accumulation of material is greater than ¾ inch deep for more than 1 continuous foot in the travel way.
2) The material accumulation exceeds 1½ inches in depth for more than 1 continuous foot in any curb and gutter, or paved shoulder urban limited access.
3) Material accumulation exceeds ¾ inch deep at marked pedestrian crossings and curb ramps.

These pictures show example of sand buildup in an area with curb and gutter and sidewalk. Sweeping should be rated around the returns to the back of the sidewalk.

These photos depict valley gutter which should be rated for roadway sweeping.

Material accumulation exceeds ¾ inch deep at marked pedestrian crossings and would not meet MRP standards.

VEGETATION AND AESTHETICS

THE FOLLOWING CHARACTERISTICS MEET THE DESIRED MAINTENANCE CONDITIONS WHEN:

ROADSIDE MOWING: No more than 1% of vegetation exceeds (varies) inches high. This excludes allowable seed stalks and decorative flowers allowed to remain for aesthetics.

RURAL LIMITED ACCESS	5 inches – 18 inches
RURAL ARTERIAL	5 inches – 12 inches
URBAN LIMITED ACCESS	5 inches – 12 inches
URBAN ARTERIAL	9 inches maximum

SLOPE MOWING: No more than 2% of vegetation exceeds 24 inches high. This excludes allowable seed stalks and decorative flowers allowed to remain for aesthetics. The area shall be evaluated in accordance with "A Guide for Roadside Vegetation Management" as a minimum.

LANDSCAPING: 90% of landscape vegetation is maintained in a healthy, attractive condition.

TREE TRIMMING: No encroachment of trees, tree limbs or vegetation in or over travel way or clear zone, lower than 14½ feet or lower than 8½ feet over sidewalks and curb and gutter clear zones. No vegetation shall violate the horizontal clearance as defined by this standard.

CURB/SIDEWALK EDGE: No encroachment of vegetation or debris onto the curb or sidewalk for more than 6 inches for more than 10 continuous feet.
No deviation of soil of more than 4 inches above or 2 inches below the top of curb or sidewalk for more than 10 continuous feet.

LITTER REMOVAL: The volume of litter does not exceed 3 cubic feet per acre excluding all travel way pavement. No unauthorized graffiti/stickers within the state right-of-way on state owned property. No litter hazards are present in the roadway or on the paved shoulder, or clear recovery zone.

TURF CONDITION: Turf in the mowing area is 75% free of undesired vegetation. Unwanted vegetation found growing on or out of Mechanically Stabilized Earth (MSE) and Sound Wall greater than 6 inches in length and in 8 separate locations, and / or no more than 7-1/2 square feet of unwanted vegetation for any 50 square foot area of paved shoulder, pavement joints, concrete traffic separators, curb/asphalt joints and under guardrail. No vegetation exists causing damage or displacement to the evaluated asset structure. Vegetation damage is defined as defects both greater than 0.5 square feet in area and deeper than 1½ inches when measured. Vegetation displacement is defined as vertical, horizontal, or lateral movement in an MSE / Sound Wall of more than 1 inch or in a Pavement Structure of more than 2 inches.

VEGETATION AND AESTHETICS

ROADSIDE MOWING: No more than 1% of vegetation exceeds (varies) inches high. This excludes allowable seed stalks and decorative flowers allowed to remain for aesthetics.

FACILITY TYPE	CLASSIFICATION	DESIRED HEIGHT
1	Rural Limited Access	5 inches – 18 inches
2	Rural Arterial	5 inches – 12 inches
3	Urban Limited Access	5 inches – 12 inches
4	Urban Arterial	9 inches maximum

Roadside Mowing – This characteristic is the control of planted or natural grasses and vegetation for protection of soil shoulders and slopes, safety and aesthetics purposes.

Evaluation: Calculate the mowing area in the sample point. Determine the area of vegetation above the standard height by measuring with a rule or stick marked at the appropriate heights. Calculate the area of the vegetation that does not meet the standards. Determine the percentage of vegetation that does not meet the standard by dividing the area of vegetation that does not meet the standards by the total mowing area in the sample and multiplying by 100. If more than 1% of vegetation, EXCLUDING allowable seed stalks and decorative flowers which have been allowed to remain for aesthetics, exceeds the appropriate measurement as listed in the standard, then this characteristic does not meet the desired maintenance condition.

Allowable seed stalks are defined as any vegetation not listed as undesirable in turf condition standard.

Spanish Needle is a mowing species and will not be considered an allowable seed stalk, decorative flower, or naturally occurring or planted/ designated wildflower for the purposes of the MRP. Even though Spanish Needle will no longer be considered Undesirable Vegetation, the growth and spread of Spanish Needle may need to be controlled because it could create unacceptable conditions for roadside mowing, turf condition, striping, curb/ sidewalk edging, or other MRP characteristics. Management strategies and practices to control Spanish Needle shall be described in each District's Vegetation Management Plan.

Except for turf mowed by adjoining property owner, turf mowed at less than 5 inches on Facility Types 1, 2 and 3 does not meet desired maintenance conditions.

Do not evaluate mowing areas where wet conditions prevent mowing.

Do not evaluate mowing in areas of natural occurring or designated wildflower planting areas. Mowing should be evaluated by roadway (one pass) and outside the planted or natural area of wildflowers.

Roadside Mowing does not meet MRP standards when any of the following exist:

1) More than 1% of the vegetation varies from the standard height.
2) The turf is mowed less than 5 inches on facility types 1, 2 and 3, except turf mowed by adjoining property owner.

This is a Facility Type 4 (Urban Arterial). The desired roadside mowing height is 9 inches maximum. If the height of vegetation exceeds 9 inches, calculate the area. If more than 1% of the vegetation is over 9 inches high, then this does not meet MRP standards for Roadside Mowing.

SLOPE MOWING: No more than 2% of vegetation is less than 5 inches or more than 24 inches in height. This excludes allowable seed stalks and decorative flowers allowed to remain for aesthetics. The area shall be maintained in accordance "A Guide for Roadside Vegetation Management" as a minimum.

Slope Mowing – This characteristic is the control of planted or natural grasses and vegetation for protection of soil slopes, safety and aesthetic purposes.

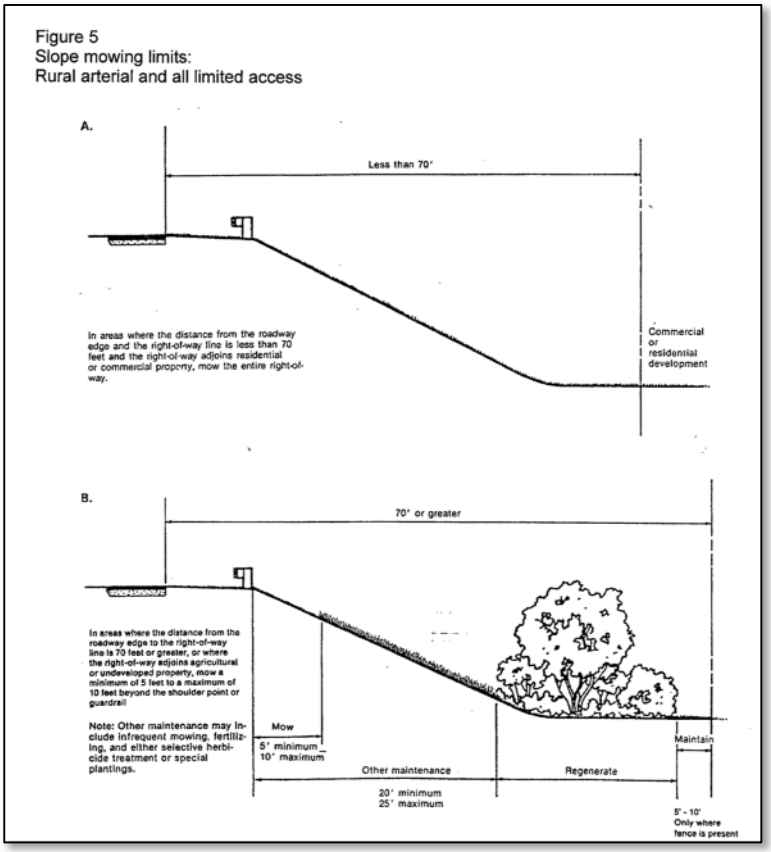
Evaluation: Only evaluate the slope mowing areas as shown in the FDOT "A Guide for Roadside Vegetation Management". Measurements should be made throughout the sample. Slope mowing shall not be evaluated if vegetation has been planted to eliminate the need for slope mowing. Allowable is defined as any vegetation not listed as undesirable in turf condition standard. Except for turf mowed by adjoining property owner, turf mowed at less than 5 inches, on all facility types does not meet desired maintenance conditions.

Determine the slope mowing area in the sample point (steeper than 3 feet horizontal to a 1 foot vertical measurement). Calculate the area of vegetation that does not meet the standard. Determine the percentage of vegetation that does not meet the standard by dividing the area of vegetation that does not meet standards by the total slope mowing area in the sample and multiplying by 100.

Slope Mowing does not meet MRP standards when the following exist:

1) More than 2% of the vegetation is less than 5 inches in height except for turf mowed by an adjoining property owner.
2) More than 2% of the vegetation is more than 24 inches in height, except allowable seed stalks and decorative flowers allowed to remain for aesthetics.

Figure 5
Slope mowing limits:
Rural arterial and all limited access



LANDSCAPING: 90% of landscape vegetation is maintained in a healthy, attractive condition.

NOTE: Rate all landscaping in the sample point located within the limits of the right of way and in RCI.

Landscaping – Landscaping is defined as those areas that have been changed by the placing of ornamental bushes, shrubs, flowers, or plants that require maintenance such as weeding, mulching, trimming, pruning, replacing, fertilizing, insect spraying or edging.

Evaluation: Inspect the landscaped areas. Determine if the plants are being maintained in a healthy attractive condition. Landscaped areas that appear unhealthy or unattractive due to apparent lack of maintenance (presence of weeds, dead or dying plants or overgrown appearance) cause this characteristic not to meet the desired maintenance condition. For MRP purposes, the presence of weeds in more than 10% of the landscaped area is considered undesirable.

NOTE: Landscaping is not evaluated under tree trimming. However, trees within landscaping area are evaluated for tree trimming.

Landscaping does not meet MRP standards when any of the following exist:

1) If more than 10% of the landscaping areas appear unhealthy or unattractive due to the apparent lack of maintenance (presence of weeds, dead or dying plants or overgrown appearance).
2) Any landscaping is within the limits of the clear sight window.

This is an example of landscaping that does not meet MRP standards.

Example of trees included in a landscape area. Rate the area with bushes and mulch under landscape (if in RCI) and rate the trees under tree trimming criteria.

Do not rate mulched areas around landscaping (trees) for landscape area. Landscape plants must be present.

TREE TRIMMING: No encroachment of trees, tree limbs or vegetation in or over the travel way or clear zone lower than 14½ feet or lower than 8½ feet over sidewalks and curb and gutter clear zones. No vegetation violates the horizontal clearance as defined by this standard.

Note: For MRP purposes see page 130 for the tree trimming clear zone limits.

Tree Trimming – This characteristic is the encroachment control of trees or tree limbs within the right-of-way.

Evaluation: All samples are to be evaluated for tree trimming.

Dead or dying trees within the right-of-way that could fall in the clear zone, across the right-of way fence, or present a hazard to vehicles, adjacent property owners or pedestrians does not meet desired conditions.

For MRP purposes, trees to be evaluated should have a diameter greater than 4 inches as measured 6 inches above the ground. Also evaluated for tree trimming, are tree limbs greater than 1 inch in diameter greater than 3 feet above the ground.

In areas with curb and gutter, there should be no vegetation over the roadway lower than 14½ feet from the face of curb to the face of curb.

In areas without curb and gutter, there should be no tree or tree limbs over the roadway and shoulder lower than 14½ feet.

In cases where guardrail is present, there should be no vegetation lower than 14½ feet from the face of guardrail. In areas with sidewalk, there should be no encroachment of trees, tree limbs or vegetation over the sidewalk lower than 8½ feet.

In an area with a bike path, there should be no encroachment of trees~~,~~ or tree limbs over the bike path lower than 8½ feet.

Rate trees in all landscape areas for tree trimming.

Tree trimming does not meet MRP standards when any of the following exist:

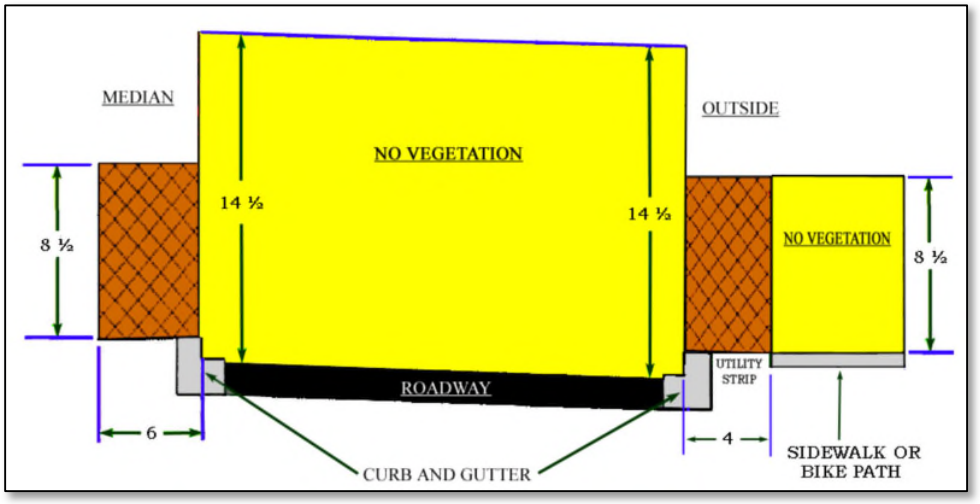
1) In curb and gutter areas, vegetation is lower than 14½ feet over the roadway from the face of curb to the face of curb.
2) In areas without curb and gutter, vegetation over the roadway and shoulder is lower than 14½ feet.
3) In areas with guardrail, trees or tree limbs are lower than 14½ feet from face of guardrail.
4) Vegetation encroachment of trees, tree limbs or vegetation over the sidewalk is lower than 8½ feet.
5) Dead or dying trees within the right-of-way that could fall in the clear zone, across the right-of-way fence or present a hazard to vehicles, adjacent property owners or pedestrians.
6) Trees and/or vegetation that obscure the message of a sign.
7) Encroachment of trees, tree limbs or vegetation over a bike path lower than 8½ feet.

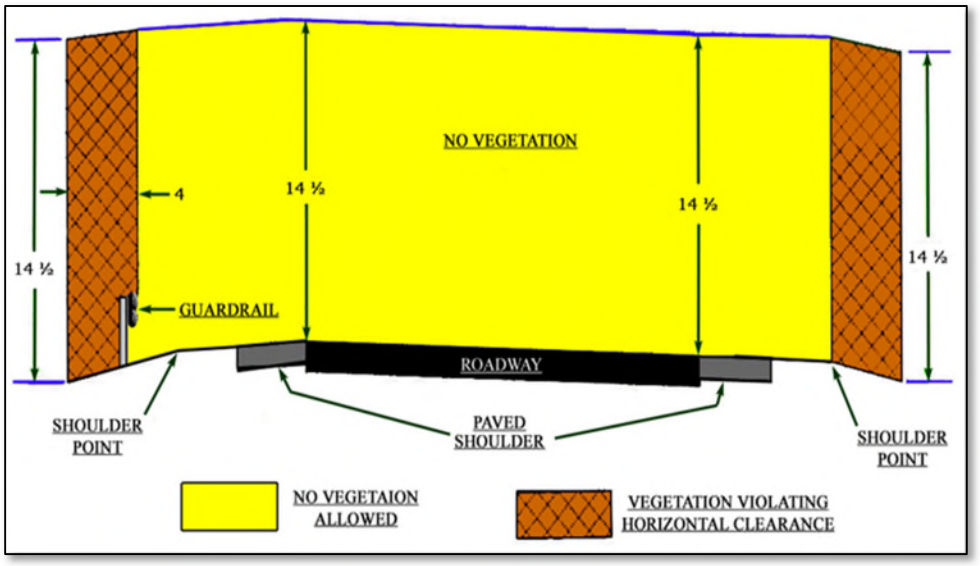
Trees, tree limbs or vegetation should be no lower than 8½ feet over sidewalk. This does not meet MRP standards.

This tree limb appears lower than 8½ feet over the sidewalk. This does not meet MRP standards.

Examples of trees over roadway if measured lower than 14½ feet it would not meet MRP standards.

CLEAR ZONE VEGETATION CRITERIA





Note: The cross hatched areas shown above represent areas to be evaluated for horizontal clear zone violations. Violation of clear zone includes the evaluation of trees that have a diameter greater than 4 inches as measured 6 inches above the ground. It also includes the evaluation of tree limbs greater than 1 inch in diameter greater than 3 feet above the ground.

1. Vegetation shall not block signs
2. Sidewalk to be clear of vegetation.
3. In areas with shoulder gutter and no soil shoulder behind it, the back of the shoulder gutter is to be considered the shoulder point.

CURB/SIDEWALK EDGE: No encroachment of vegetation or debris for more than 6 inches onto the curb or sidewalk for more than 10 continuous feet.
No deviation of soil more than 4 inches above or 2 inches below the top of curb or sidewalk for more than 10 continuous feet.

Curb/Sidewalk Edging – Curb and sidewalk edging, including median curb is performed for safety and aesthetic reasons. Encroachment of vegetation or debris on the sidewalk could cause a hazard.

Evaluation: Review the curb and sidewalk areas within the sample point. Only evaluate sidewalks within the right-of-way and 2 feet behind all curbs.

Edging may be accomplished by mechanical control (cutting or trimming by machine) or chemical control.

Dead or dying vegetation at a curb or sidewalk edge is an indication that a chemical control program is being used. In this case, an evaluation must be made to determine if the soil remaining, after the vegetation is gone, will still cause an encroachment.

This evaluation also includes vegetation growing over the sidewalk more than 6 inches for more than 10 continuous feet.

A utility strip is generally considered to be that unpaved area between the back of a curb and a sidewalk.

In areas with curb and gutter and sidewalk, rate curb/sidewalk edging around the returns to the back of the sidewalk. In areas with curb and gutter and no sidewalk, do not rate curb/sidewalk edging around the returns. In curb and gutter sections, unpaved turnouts will be evaluated by this characteristic. For MRP purposes in evaluating this characteristic, continuous encroachment may not necessarily be solid encroachment.

Any bike paths located outside the roadway pavement area will be included in the evaluation for curb/sidewalk edging.

For MRP purposes, do not rate areas outside the right-of-way.

Curb/Sidewalk Edging does not meet MRP standards when any of the following exist:

1) Any encroachment of vegetation or debris for more than 6 inches onto the curb or sidewalk for more than 10 continuous feet.
2) Any encroachment of vegetation more than 6 inches over the curb or sidewalk for 10 continuous feet.
3) Any deviation of soil of more than 4 inches above the top of curb or sidewalk for more than10 continuous feet.
4) Any deviation of soil more than 2 inches below the top of curb or sidewalk for more than 10 continuous feet.
5) Any defect (not covered by another characteristic) within the clear zone or to the front edge of sidewalk, whichever is greater, and more than ½ square foot in area with a depth of 6 inches or greater.
6) Any encroachment of vegetation or debris for more than 6 inches onto a bike path for more than 10 continuous feet.
7) Any deviation of soil more than 4 inches above the bike path for more than 10 continuous feet.
8) Any deviation of soil more than 2 inches below the bike path for more than 10 continuous feet.

This is an example of a sidewalk that meets MRP standards for curb/sidewalk edging.

These pictures are examples of vegetation encroaching and/or growing over sidewalks and/or curbs. They are all examples that do not meet MRP Standards.

This vegetation is encroaching onto the sidewalk more than 6 inches for a continuous 10 feet.

This vegetation is encroaching the curb more than 6 inches for more than 10 feet.

Vegetation encroachment on the sidewalk does not meet MRP standards for curb/sidewalk edging.

Soil buildup greater than 4 inches in the utility strip. It is built up more than 10 continuous feet and, therefore, does not meet MRP standards.

This vegetation obstructs the use of the sidewalk by pedestrians. If there is encroachment of vegetation onto the sidewalk more than 6 inch it does not meet MRP standards.

LITTER REMOVAL: The volume of litter does not exceed 3 cubic feet per acre excluding all travel way pavement. No unauthorized graffiti/stickers within the state right-of-way on state owned property. No litter hazards are present in the roadway or on the paved shoulder.

Litter Removal – Removal of litter and graffiti from roadway and roadside areas is performed for aesthetic and safety reasons. It is desired to present a pleasing appearance to the motoring and pedestrian traffic but is more important to provide safety. Litter in roadway and on paved shoulders presents an increased possibility of hazards to the traveling public.

Litter or debris may consist of varied sizes of bottles, cans, paper, tires, tire pieces, lumber, building materials, furniture, household items, dead animals, livestock, vehicle parts, metal junk, fallen trees, tree limbs greater than 1 inch in diameter, brush, campaign and advertising signs, and other debris.

Evaluation: The evaluation area for litter includes the mowing areas, parking areas, paved shoulders, crossovers, all medians, sidewalks, bike paths, driveways, traffic separators, gutters, travel way, and drainage structures. The evaluation area for unauthorized graffiti and/or stickers is all surfaces on state owned property within the right-of-way.

Calculation: Determine the number of acres in the **mowing area** within the sample point. Calculate the number of cubic feet of litter within the **right-of-way** of the sample point. If the volume of litter exceeds 3 cubic feet per acre, then the sample point does not meet MRP standards for Litter Removal.

In areas without mowing or areas with less than 1/3 of an acre of mowing limits, litter should not exceed 1 cubic foot.

(The travel way pavement includes through lanes, turn lanes and bi-directional lanes).

Do not include the volume of litter in the portion of the right-of-way that is continually under water.

Litter in the roadway, on the paved shoulder, or clear recovery zone has the potential of being a hazard. For MRP purposes; a hazard is defined as the following:

- In the roadway or on the paved shoulders any object greater than ½ square foot in area and exceeds ½ inch in height.

- Any rigid object above the ground greater than 4 inches in height located in the clear recovery zone.

Note: If the hazard is in the roadway it should be called into the local maintaining maintenance unit, if it can be removed safely from the roadway by the rating team, the object should be placed in a safer location, and rate the characteristic "N" for not meeting.

Items (leaves, bagged trash, tree-trimming residue) that appear to be those which will be picked up during the normal waste collection process will not be considered as litter.

Litter Removal does not meet MRP standards when any of the following exist:

1. There is more than 3 cubic feet of litter per acre within the right-of-way of the sample point.
2. Any object in the roadway, paved shoulder, or sidewalk greater than ½ sq. ft. in area, and exceeds ½ inch in height.
3. Any rigid object above the ground greater than 4 inches in height located in the clear recovery zone.
4. Any form of unauthorized graffiti on any state-owned surface within the right-of-way.
5. 4 or more stickers on any state-owned surface within the right-of-way of the sample point.
6. Any sticker on the message face of a state-owned sign or that interferes with the message of any other state-owned traffic control device.
7. Any sticker within the sample point that is offensive. Please note, although the term "offensive" is subjective, the determination of the MRP Team on whether a sticker is offensive is at the sole discretion of the MRP Team and is considered final.

Litter

Litter Area. Determine the number of acres in the mowing area within the sample point. Calculate the cubic feet of litter within the right-of-way of the sample point. If there is more than 3 cubic feet of litter per acre, then this does not meet desired MRP standards.

Any litter that creates a hazard to motorists or pedestrians does not meet desired MRP standards.

Litter

Sticker placed on structure this would not meet desired MRP standards.

Sticker placed on guardrail this would not meet desired MRP standards.

Spray paint graffiti on sign panel this would not meet desired MRP standards.

Sticker placed on sign panel this would not meet desired MRP standards.

Graffiti on wall, this would not meet desired MRP standards.

TURF CONDITION: Turf in the mowing area is 75% free of undesired vegetation.
Unwanted vegetation found growing on or out of Mechanically Stabilized Earth (MSE) and Sound Wall greater than 6 inches in length and in 8 separate locations, no more than 7½ square feet of unwanted vegetation for any 50 square foot area of paved shoulder, pavement joints, curb/sidewalk joints, concrete traffic separators, curb/asphalt joints and under guardrail. No vegetation exists causing damage or displacement to the evaluated asset structure. Vegetation damage is defined as defects both greater than ½ square foot in area and deeper than 1½ inches when measured. Vegetation displacement is defined as vertical, horizontal, or lateral movement in an MSE / sound wall of more than 1 inch or in a pavement structure of more than 2 inches.

Turf Condition – Turf is grass or other vegetation considered desirable for the particular roadside location. Properly maintained and desired vegetation provides a pleasing appearance but, primarily, it presents less chance of shoulder and slope defects (ruts, washouts, wash boarding), thereby, providing a safe recovery area for motoring traffic.

Unwanted Vegetation – This characteristic is the encroachment untreated, unwanted vegetation growing within the right-of-way on MSE, sound walls, paved shoulders, concrete traffic separators, curb/asphalt joints and miscellaneous pavement under guardrail, cable rail, and barrier wall.

Evaluation: Determine the mowing area within the sample point. Turf condition will normally be evaluated within the established mowing limits. Occasionally, mowing limits are changed and areas are left to regenerate. These areas, in the first stages of regeneration, will appear to be within mowing limits and probably will contain undesirable vegetation.

Rate all MSE, sound walls, paved shoulders, and miscellaneous pavement under guardrail (to include cable rail, traffic separators, and barrier wall) within the sample point.

Each MSE and/or sound wall within the sample point shall have no more than 8 separate locations on the wall with untreated vegetation growing greater than 6 inches in length or height.

No unwanted, untreated vegetation is growing out of the paved shoulders for more than 7½ square feet of any 50 square foot area. No unwanted, untreated vegetation is growing on to, or out of miscellaneous pavement under guardrail, cable rail, traffic separators, perimeter, and/or barrier walls, for more than 7½ square feet of any 50 square foot area.

Measure the length of any cracks, joints, and square foot area with untreated vegetation growing out of the pavement in any 50 square foot area. There should not be more than 7½ square feet of untreated unwanted vegetation growing on the paved shoulder, concrete traffic separators, curb/asphalt joints and/or miscellaneous pavement under guardrail, cable rail, traffic separators, perimeter, and/or barrier walls, for any 50 square foot area.

For purposes of evaluating this characteristic, one linear foot of untreated unwanted vegetation growing in pavement cracks should be calculated as one square foot not meeting desired conditions.

No vegetation exists causing damage or displacement to the evaluated asset structure. Vegetation damage is defined as defects both greater than ½ square foot in area and deeper than 1 ½ inches when measured. Vegetation displacement is defined as vertical, horizontal, or lateral movement in an MSE / Sound Wall of more than 1 inch or in a Pavement Structure of more than 2 inches.

NOTE: Do not evaluate vegetation designed to grow on or cover sound walls.

When mowing limits have been extended due to adjoining property improvement or new development, a transition period (one rating period) is required to establish desirable turf conditions. Considerations should be given when these situations are encountered

Turf in the mowing area should be 75% free of the following undesired vegetation alone or in combination:

1.	Cogon grass	6.	Ragweed	11.	Sandspur
2.	Vaseygrass	7.	Castor Bean	12.	Crowsfoot
3.	Johnsongrass	8.	Maiden Cane	13.	Tropical Soda Apple (TSA)
4.	Broomsedge	9.	Rhodesgrass		
5.	Dogfennel	10.	Goosegrass		

Bare ground is defined as any single area (5 square feet) 95% free of vegetation. Purposely stabilized areas (lime rock, shell, etc.) shall not be considered as bare ground and not included in the turf evaluation.

Turf grasses that appear to be dead may actually be dormant and shall be considered to meet desired maintenance conditions, if in dormant stage.

Calculate the mowing area. Determine the area of undesirable vegetation within the mowing area. Divide the undesirable vegetation area by the total mowing area and multiply by 100. If the resulting percentage is greater than 25%, then the sample does not meet desired maintenance conditions for Turf Condition.

Turf condition does not meet MRP standards when any of the following exist:

1) If more than 25% of the undesirable vegetation is present within the mowing limits of the sample.
2) If more than 50 cumulative square feet of bare ground is present in the turf evaluation area.

Unwanted Vegetation does not meet MRP standards when any of the following exist:

1) When any MSE, and/or sound wall has 8 separate locations with untreated vegetation growing greater than 6 inches in height or length.
2) Paved shoulder areas with more than 7½ square feet of untreated vegetation growing in a 50 square foot area.
3) Miscellaneous pavement under guardrail, cable rail, and/or barrier wall has more than 7½ square feet of untreated vegetation growing in a 50 square foot area.
4) No vegetation exists causing damage or displacement to the evaluated asset structure.

UNDESIRABLE VEGETATION

Cogon grass / *Imperata cylindrica*

Vaseygrass / *Paspalum urvillei*

Johnsongrass / *Sorghum halpense*

Johnsongrass

Dogfennel / *Eupatorium capillifolium*

UNDESIRABLE VEGETATION

Ragweed / *Ambrosia artemisiifolia*

Ragweed

Castor bean / *Ricinus communis*

Castor bean

UNDESIRABLE VEGETATION

Broomsedge / *Andropogon virginicus*

Maidencane / *Panicum hemitomon*

Rhodesgrass / *Chloris gayana*

Rhodesgrass

UNDESIRABLE VEGETATION

Goosegrass / *Eleusine indica*

Goosegrass

Goosegrass.

UNDESIRABLE VEGETATION

Sandspur / *Cenchrus incertus*

Sandspur

UNDESIRABLE VEGETATION

Crowfootgrass / *Dactyloctenium aegyptium*

Tropical Soda Apple / *Solanum viarum*

An example of good turf conditions.

Dog Fennel and Ragweed in the turf. Calculate the percentage of undesirables in the mowing area. If more than the standard, then it does not meet MRP standards.

Measure the area of bare ground. If more than 50 cumulative square feet of bare ground is present within the mowing limits of the sample then the turf does not meet MRP standards.

Example of vegetation growing on an MSE wall.

Example of vegetation growing on paved shoulder and under guardrail.

Examples of unwanted vegetation growing out of cracks in pavement.

Note that this area has vegetation growing around the tree within the sidewalk/utility area. Turf and possibly Curb/Sidewalk Edging would be evaluated for this instance.

Area may not meet maintenance conditions if more than 7½ square feet of unwanted vegetation for any 50 square foot area of curb/asphalt joint and curb/sidewalk joint.