Maintenance Accountability Process

Field Data Collection Manual

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Maintenance and Operations Division
Maintenance Office

Washington State Department of Transportation

Maintenance Accountability Process
Field Data Collection Manual

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Maintenance Accountability Process
Field Data Collection

INTRODUCTION

An important part of the Maintenance Accountability Process (MAP) is regular field condition surveys conducted on the highway system. The surveys assess the maintenance service levels that exist at a given point in time. The purpose of this manual is to document the procedures for consistent data collection.

Data Collection Procedures

1. Statistical methods are used to identify approximately 2,200 randomly selected data survey sites around the state. These are 0.10 mile sections (528 feet) selected from the approximately 7,000-centerline miles of state highway inventory.

2. Using Milepost Markers and the vehicles DMI, locate and mark the start and end points for each site. Mark the points with paint at the edge of the shoulder so that they can be located again if needed.

3. If any portion of the site falls on a structure, the site should be moved forward or backward to the next tenth of a mile as necessary to avoid the structure.

4. Sites in construction zones should not be evaluated. Relocate the site outside of the construction area but as close to the original site as possible, using an even tenth-mile section.

5. Sites located in areas not funded **and** maintained by WSDOT shall not be evaluated. Should a site fall inside city limits, measure only activities funded **and** maintained by WSDOT.

6. Activate flashing lights on vehicle, place cones for safety and use appropriate traffic control measures. Always wear required safety equipment, reflective vest, supportive footwear, etc.

7. Conduct field measurements and observations at the sites and record the data. When performing data collection always try to walk facing traffic. On divided highways and freeways it may be necessary to drive around to the lanes in the opposite direction and set points on that side of the road as well. Remember SAFETY FIRST.

General Comments

Cumulative Deficiencies
Pavement deficiencies are cumulative. Where one type of deficiency is found within the area of second type of deficiency both deficiencies are counted independently. For example, a 25 sq. ft. area of alligator cracking may contain a 2 sq. ft. pothole. Do not subtract the 2 sq. ft. of pothole from the 25 sq. ft. of alligator cracking.

Edge lines (Traveled Lane versus Paved Shoulder)
For the purposes of MAP field data collection, the edge line is considered part of the traveled lane. Deficiencies occurring on the edge line are deficiencies of the traveled lane.

Funding and Maintaining – MAP is for measuring the level of service provided by WSDOT personnel using funds allocated by the legislature. If the funding for maintenance activities comes from cities, counties, parks, etc., **do not measure.** If the funding for certain activities comes from the legislature, but WSDOT pays a city, county or other entity to perform the activity, **do not measure.** If you are unsure, discuss with your supervisor prior to conducting surveys.

MAP Field Data Collection Form

Site Number: ____ SR : ____ SRMP: ____ Region: ____ Area: ____ ☐ Moved

Taken By: ____ Date: ____ ☐ QAQC

NUMBER OF LANES

Total Number of Lanes: ____

PAVEMENT - Traveled Lanes

Potholes
Square Feet of Potholes: ____

Rutting
Total Number of Ruts ≥ 3/4": ____

Alligator Cracking
Sq. Ft. of Alligator Cracking: ____

Cracking
Lin. Ft. of Longitudinal Cracking: ____
Lin. Ft. of Transverse Cracking: ____

Humps, Sags And Settlements
Sq. Ft. of Deficiencies: ____

PAVED SHOULDER

Total Width of Paved Shoulders: ____

Shoulder Potholes
Sq. Ft. of Shoulder Potholes: ____

Shoulder Alligator Cracking
Sq. Ft. of Alligator Cracking: ____

Shoulder Cracking
Lin. Ft. of Longitudinal Cracking: ____
Lin. Ft. of Transverse Cracking: ____

Shoulder Edge Raveling
Lin. Ft. of Edge Raveling: ____

Shoulder Edge Drop-Off
Lin. Ft. of Edge Drop-Off ≥ 2": ____

Shoulder Sweeping/Cleaning
Lin. Ft. of Shldr. Debris Build-Up: ____
Width of Shldr. Debris Build-Up: ____

Shoulder Humps, Sags And Settlements
Sq. Ft. of Deficiencies: ____

DRAINAGE

Ditches
Linear Feet of Ditches: ____
Linear Feet of Ditch ≥ 50% Full: ____

Culverts
Number of Culverts: ____
Number of Culverts Deficient: ____

Catch Basins - Inlets
Number of Basins / Inlets: ____
Num. of Deficient Basins / Inlets: ____

Slope Failures
Slope Failure Present ____
1 = Yes 0 = No

ROADSIDE

Total Width of Roadside: ____

Noxious Weeds
Sq. Ft. of Noxious Weeds: ____

Nuisance Vegetation
Sq. Ft. of Nuisance Vegetation: ____

Vegetation Obstructions
Vegetation Obstruction Present ____
1 = Yes 0 = No

Litter
Number of Pieces of Litter: ____

TRAFFIC

Raised / Recessed Pavement Markers
Num. of Raised Pvmt. Markers: ____
Num. of Markers Worn/Missing: ____

Pavement Markings
Number of Pavement Markings: ____
Number of Markings Worn: ____

Guideposts
Number of Guideposts: ____
Num. of GPs Broken/Damaged: ____

Guardrail
Lin. Ft. of Guardrail: ____
Lin. Ft. of Guardrail Damaged: ____

1x 528	6x 3168
2x 1056	7x 3696
3x 1584	8x 4224
4x 2112	9x 4752
5x 2640	

Comments

MAP Field Data Form - EF Revised 1/2006

MAP Bridge Data Collection Form

Bridge Information

Bridge Number: ☐ **Sr:** ☐ **SRMP:** ☐ **Region:** ☐ **Area:** ☐

Taken By: ☐ **Date:** ☐

Bridge Size

Bridge Length: ☐

Bridge Width: ☐

Bridge Deck

Sq. Ft. of Spalling: ☐

Bridge Cleaning

Grates and Drains

Drain_num ☐

Drain_def_num ☐

Decks and Sidewalks

Sq. Ft. of Sand/Debris: ☐

Graffiti

% of Surface Dirty:

- ☐ None 0%
- ☐ Minor 1-10%
- ☐ Moderate 11-30%
- ☐ Major 31-50%
- ☐ Significant >50%

Instructions

When filling out paper form, record the bridge number found on the bridge or on the WSDOT Bridge List. Record the state route, milepost, region, area, names of inspection team members, and date.

When filling out the computer form, type in the bridge number (example 90/327), press enter and state route, milepost, region, area and bridge size will be filled in automatically.

Bridge Deck: Calculate and record the total square feet of spalling at least 36 sq. in. x 1 in. deep (examples: 6 X 6 X 1 "; 3 X 12 X 1") on the bridge deck.

Decks and Sidewalks: Calculate and record the total square feet of sand and debris on the bridge deck and sidewalk.

Graffiti: Estimate and record the percent of bridge surfaces that are covered with graffiti.

Be sure **all** blanks on the form are filled out.

MAP Bridge Data Form - Revised 1/2006

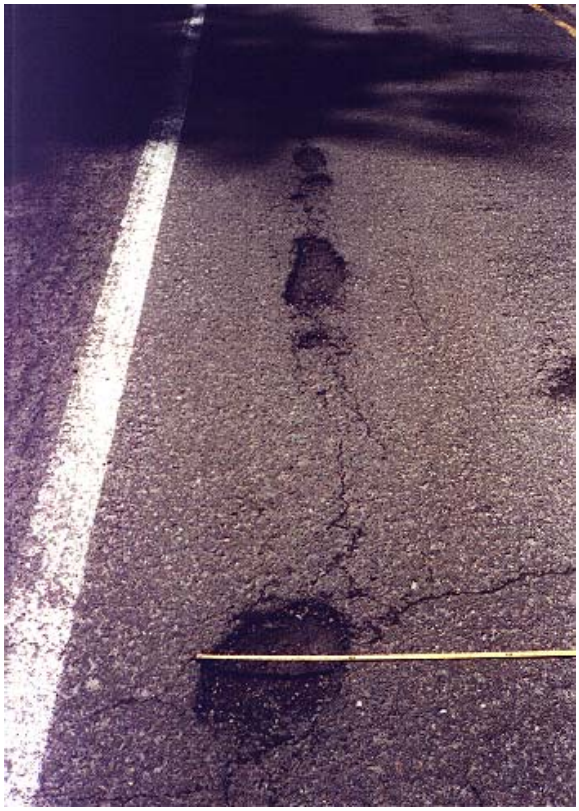
Form Information

Field Data Collection Form
On the MAP Field Data Collection Form, record the site number from the master site list, State Route (SR) number, Mile Post (MP), Region, Area, names of inspection team members and date. Also record the number of lanes.

Bridge Data Collection Form
Record bridge number, names of inspection team members, and date on the MAP Bridge Data Collection Form. The SR, MP, Region and Area will be automatically entered in GoMAP when the bridge number is entered in the correct format, for example 90/327.

II - PAVEMENT (TRAVELED LANE)

A. POTHOLES



Units of Measure: Total square feet of potholes, within traveled way, per 0.10-mile section.

Threshold: Minimum size **-** (36 sq in x 1" depth) or larger – examples: 6 X 6 X 1”; 3 X 12 X 1”; 4 X 9 X 1”.

Methodology: Record the total square feet of all potholes. Round to the nearest whole number. Potholes smaller than the minimum size (36 sq in x 1") are not counted.

Comments: Spalls in concrete pavement are considered potholes when they are a minimum 36 sq in x 1” depth.

B. RUTTING

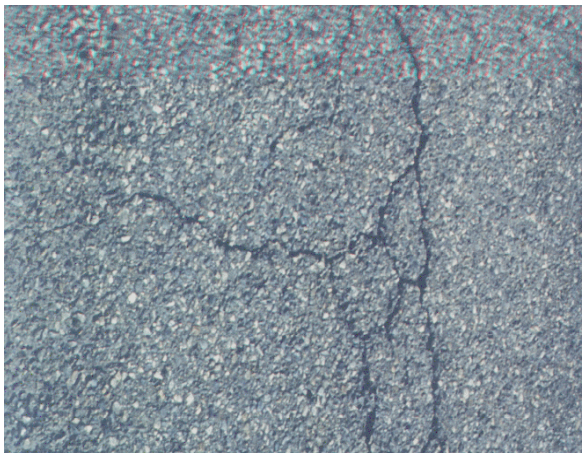
Unit of Measure: Total number of wheel path ruts within the traveled way, per 0.10-mile section. Rutting **must** meet the minimum threshold below.

Threshold: Minimum depth - 3/4" or greater

Methodology: **Measure** to determine if the worst condition of rutting within the wheel path is **3/4 inches or greater**. Count the total number of wheel path ruts meeting the minimum threshold within the section. For consistency, rutting is assumed to be 2 ½ feet in width and the full length of the segment (528 feet). **Do not record the linear feet of rutting**.

Comments: The depth of rutting can be deceptive. Measurements **must** be taken to ensure **accurate** data is gathered.

C. ALLIGATOR CRACKING



Unit of Measure: Total square feet within traveled way, per 0.10-mile section.

Threshold: All <u>unsealed</u> alligator cracking.

Methodology: Calculate the total square feet for all alligator cracking in the section. Use the average width of cracking to calculate square feet.

Comments: Alligator cracking is associated with loading and is usually limited to areas of repeated heavy traffic loading. Most load related cracking of this type begins as a single longitudinal, discontinuous crack within the wheel path that progresses with time and loads to a more branched pattern that begins to interconnect. The stage at which several discontinuous longitudinal cracks begin to interconnect is defined as alligator cracking.

D. LONGITUDINAL CRACKING

Unit of Measure: Total linear feet within traveled way, per 0.10-mile section.

Threshold: All unsealed longitudinal cracking - cracking running generally parallel to the centerline and edge line striping.

Methodology: Measure and record linear feet of all unsealed longitudinal cracking within the section. Sealed cracks are not counted as a deficiency. Previously sealed cracks that have since re-opened are considered a deficiency.

Comments: Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

D. TRANSVERSE CRACKING

Unit of Measure: Total linear feet within traveled way, per 0.10-mile section.

Threshold: All unsealed transverse cracking - cracking running generally perpendicular to the centerline and edge line striping.

Methodology: Measure and record linear feet of all unsealed transverse cracking within the section. Sealed cracks are not counted as a deficiency. Previously sealed cracks that have since re-opened are considered a deficiency.

Comments: Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

E. HUMPS, SAGS AND SETTLEMENTS AFFECTING RIDEABILITY

Humps and Sags

Pavement Delamination

Description: Localized depressions or elevated areas of the traveled way that result from settlement, frost heave, pavement shoving, subgrade swelling, or other displacement due to tree roots, utility line installation, etc. This item also includes other pavement deficiencies such as delamination of asphalt pavement.

Unit of Measure: Total square feet within the traveled way, per 0.10-mile section.

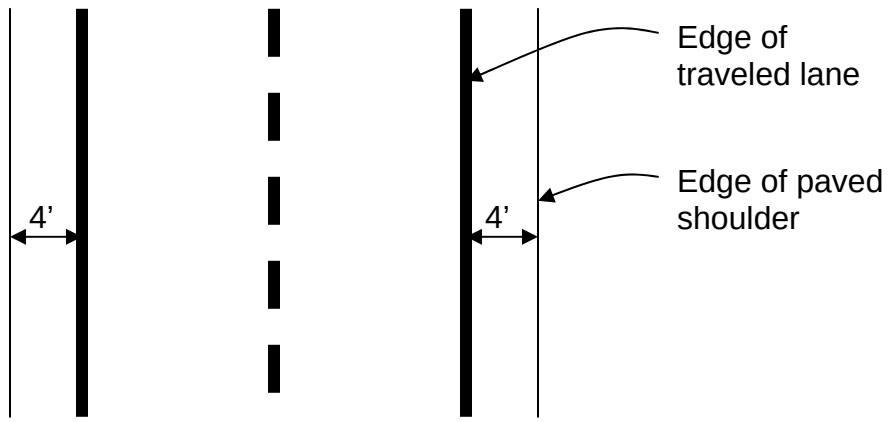
Threshold: Humps, Sags and Settlements: Localized depressions or elevated areas within the traveled way that have an adverse impact on rideability. <u>This is defined as a vertical deviation of 2 inches or greater at the time of the survey.</u>

Other Deficiencies: To be counted as a deficiency delamination must be a minimum of 36 sq. in.

Methodology: Calculate the total square feet for humps, sags, settlements and other deficiencies located within the traveled lanes.

III - PAVED SHOULDERS

General: Record total combined width of paved shoulders for the site. Paved shoulder is defined as going from the edge line to the outer edge of the existing pavement.



Example: 8' total width

A. SHOULDER POTHOLES

Units of Measure: Total square feet of shoulder potholes per 0.10-mile section.

Threshold: Minimum size **-** (36 sq. in. x 1 in depth) or larger

Methodology: Calculate the total square feet for all potholes. Potholes smaller than the minimum size (36 sq inches x 1 in) are not counted as potholes.

B. SHOULDER ALLIGATOR CRACKING

Shoulder Alligator Cracking

Unit of Measure: Total square feet within shoulder area, per 0.10-mile section.

Threshold: All unsealed shoulder alligator cracking.

Methodology: Calculate the total square feet for all unsealed alligator cracking in the shoulder. Use the average width of cracking to calculate square feet.

C. SHOULDER LONGITUDINAL CRACKING

Unit of Measure: Total linear feet of cracking within shoulder area, per 0.10-mile section.

Threshold: All unsealed longitudinal cracking - cracking running generally parallel to the fog line striping.

Methodology: Measure and record linear feet of all unsealed longitudinal cracking within the shoulder area. Sealed cracks are not counted as a deficiency.

Comments: Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

C. SHOULDER TRANSVERSE CRACKING

Unit of Measure: Total linear feet of cracking within shoulder area, per 0.10-mile section.

Threshold: All unsealed transverse cracking - cracking running generally perpendicular to the fog line striping.

Methodology: Measure and record linear feet of all unsealed transverse cracking within shoulder area. Sealed cracks are not counted as a deficiency.

Comments: Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

D. SHOULDER EDGE RAVELING

Unit of Measure: Total linear feet of edge raveling, per 0.10-mile section.

Threshold: Count all shoulder areas where paving material is breaking off into pieces (raveling) or is missing along shoulder edge.

Methodology: Measure and record total linear feet of all edge raveling within shoulder area. All edge raveling is assumed to be 1 foot in width.

Comments: Count only areas where material is actually breaking off (raveling) or missing from the shoulder. Areas that show alligator cracking but are intact should be counted as alligator cracking.

E. SHOULDER EDGE DROP-OFF

Unit of Measure: Total linear feet of shoulder drop-off, per 0.10-mile section.

Threshold: All shoulder edge drop-off 2 vertical inches or greater.

Methodology: Measure and record linear feet of all shoulder edge drop-off 2 vertical inches or greater that occurs within the section. Shoulder drop-off less than 2 inches is not counted.

Comments: In some cases the paved shoulder has been intentionally beveled to produce a gentle transition to the gravel shoulder. A beveled edge is not considered a deficiency. In some case, the shoulder drops off immediately from pavement edge down to ditch bottom or down slope and no shoulder can be built up at the edge of pavement. This will not be considered a deficiency.

F. SHOULDER SWEEPING / CLEANING

Unit of Measure:	Total linear feet of shoulder debris, per 0.10-mile section. Average width of shoulder debris, per 0.10-mile section
Threshold:	All shoulder areas that contain debris or require sweeping/cleaning.
Methodology:	Measure and record linear feet of shoulder debris. Measure and record the average width of shoulder debris.
Comments:	Debris is considered a deficiency if, in the best judgment of the surveyor, it constitutes a safety hazard to the driving public or in some way degrades highway functions.

G. SHOULDER HUMPS, SAGS, AND SETTLEMENTS

Humps and Sags

Delamination

Description: Localized depressions or elevated areas of the shoulder that result from settlement, frost heave, pavement shoving, subgrade swelling, or other displacement due to tree roots, utility line installation, etc. This item also includes other shoulder deficiencies such as delamination of asphalt pavement.

Unit of Measure: Total square feet within the shoulder areas, per 0.10-mile section.

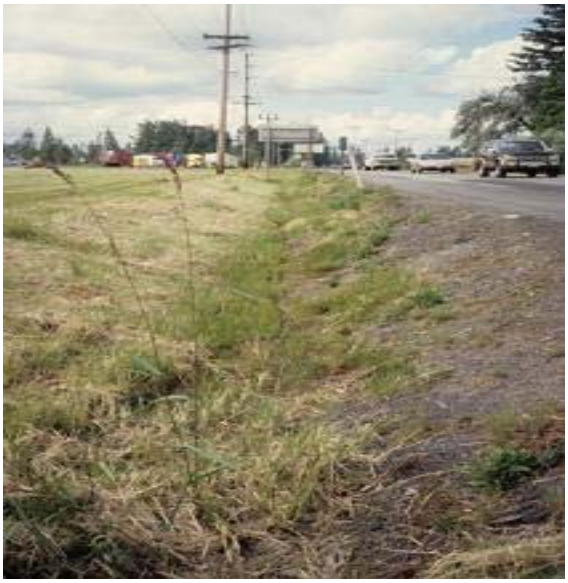
Threshold: Humps, Sags and Settlements: Localized depressions or elevated areas within the shoulder areas. <u>This is defined as a vertical deviation of 2 inches or greater at the time of the survey.</u>

Other Deficiencies: To be counted as a deficiency delamination must total a minimum of 36 sq. in.

Methodology: Calculate the total square feet for humps, sags, settlements and other deficiencies located within the shoulder areas.

IV - DRAINAGE

A. DITCHES



Units of Measure: Total linear feet of ditch, per 0.10-mile section**.** Total linear feet of filled ditch, per 0.10-mile section.

Threshold: Count as deficient all ditches that are 50% or more full.

Methodology: Measure all ditches within the section and record the total linear feet of ditches. Measure and record the linear feet of ditch that is 50% or more full of sediment or other material.

For purposes of this survey, to be considered a ditch the following conditions must exist:

1. Must be designed and constructed to carry water - not a natural swale, or
2. Must be maintained as a ditch by Maintenance.

Comments: Streams adjacent to the roadway are not considered ditches. Standing water (tidal or non-tidal) in ditches is not a deficiency. Vegetation growing in the ditch is not a deficiency. Ditches functioning solely to capture rock fall shall not be considered a ditch for this survey.

B. CULVERTS

Unit of Measure: Total number of culverts, per 0.10-mile section.
Total number of culverts greater than or equal to 50% filled or otherwise deficient, per 0.10-mile section.

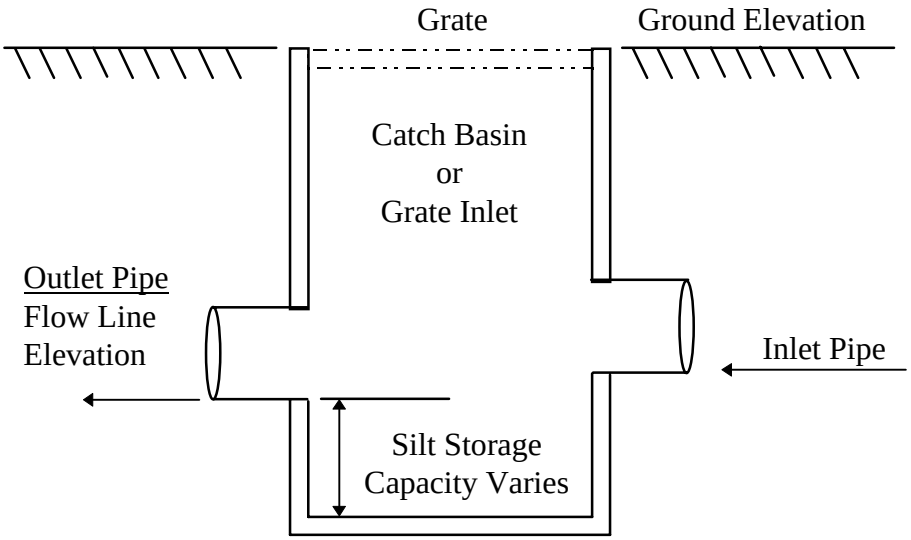
Threshold: Count as deficient if:

1. Any portion of the culvert is 50% or more filled with sediment or debris, or
2. Any end is significantly crushed or deformed, or
3. The volume of the inflow or outflow is reduced 50% or more by obstructions such as rocks, vegetation, or woody debris, or
4. The pipe is separated 1in. or more, or damaged in a way that the function of the culvert is causing significant damage to the roadway prism or adjacent drainage channel.

Methodology: Count and record all culverts within the section. Count and record any culvert that is 50% or greater filled or otherwise deficient. **Evaluate only those culverts that cross state highways or county roads at their intersection with state highways.** ***Do not count culverts under private access roads.***

Comments: Vegetation obscuring the end of a culvert is not a deficiency unless it obstructs the flow of water. Standing water (tidal or non-tidal) in ditches is not a deficiency. Culverts designed to be half filled with gravel for fish habitat should not be rated as deficient.

C. CATCH BASINS / INLETS



Units of Measure: Total number of catch basins and drain inlets, per 0.10-mile section. Total number of catch basins and drain inlets that are deficient.

Threshold: Count as deficient any catch basin or drain inlet that has:
1. 50% or more of the inlet grate blocked with debris, or
2. The catch basin has sediment buildup that reaches or exceeds the flow line elevation of the outlet pipe.

Methodology: Count and record the total number of catch basins and drain inlets in the section. Count and record the number of catch basins and drain inlets blocked by debris or catch basins filled with sediment.

Comments: Both catch basins and drain inlets are rated for blockage of the inlet grate. Only catch basins are rated for sediment build-up. A flashlight and/or probe may be needed to determine if the structure is a catch basin (i.e., has silt storage capacity) and whether it is deficient.

D. SLOPE FAILURES

Unit of Measure: Presence or absence of slope failure in a 0.10-mile section.

Threshold: **ONLY** count as deficient a slide or erosion that is <u>at the time of the inspection</u>:

1. Jeopardizing the structural integrity of the shoulder or traveled lane(s), or
2. Blocking the shoulder or traveled lane(s), or blocking the ditch, or
3. Jeopardizing the structural integrity of guardrail or traffic signs.

Traffic may move slower through the area or lanes may be reduced, causing intermittent stoppages. <u>Erosion or slides not meeting the thresholds above shall not be considered deficient.</u>

Methodology: Determine the presence or absence of slope failures within the survey section. Both fill and cut slopes can be affected. Presence of slope failure is recorded as “1”, absence of slope failure is recorded as “0”.

Comments: Chronic or ongoing slope failures that do not meet the criteria listed above at the time of the survey are not to be counted as failures.

Edge drop-off is not considered a slope failure.

V - ROADSIDE

General: Record the total combined width of roadside. If width of roadside varies use the combined averaged width for the section. Unpaved median areas are considered as roadside and would be added into the width, if present.

A. NOXIOUS WEEDS

Weed Infestation

Units of Measure: Total square feet of infestation, per 0.10-mile section**.**

Threshold: Presence of noxious weeds on the roadside.

Methodology: Survey the entire roadside area and determine the presence of any noxious weeds. Measure the square feet of the infestation. **The total square feet of infestation shall not exceed the total square feet of roadside**.

Comments: Identifying noxious weeds can be difficult and is best done by a person trained in weed identification. For assistance in identifying noxious weeds it is recommended that you consult with your area roadside or spray crew.

B. NUISANCE VEGETATION

Weed Infestation

Weed Infestation

Units of Measure: Total square feet of infestation, within the normally maintained roadside, per 0.10-mile section**.**

Threshold: Presence of nuisance vegetation in the normally maintained area of the roadside.

Methodology: Survey the normally maintained roadside area and determine the presence of any nuisance vegetation. Measure the square feet of the infestation. **The total square feet of infestation shall not exceed the total square feet of roadside.**

Comments: Identifying nuisance vegetation can be difficult and is best done by a person trained in weed identification. For assistance in identifying nuisance weeds it is recommended that you consult with your area roadside or spray crew

Note: For this measurement, the presence of nuisance weeds will only be measured in the roadside area where the area or region policy/practice is to control them. For example, if a region policy is to control weeds only up to ten feet from the paved shoulder, nuisance weeds will only be measured within this area. Nuisance weeds outside of this area are not to be measured.

C. VEGETATION OBSTRUCTIONS

Vegetation Obstruction

Unit of Measure: Presence or absence of vegetation obstructions in 0.10 mile section.

Threshold: Vegetation blocking sight distance to guide or regulatory signs, or intersections as seen from the driver's perspective.

Methodology: Measure and record the presence or absence of vegetation obstructing sight distance to signs or intersections. Absence of vegetation obstruction is recorded as "0", presence of vegetation obstruction is recorded as "1".

Comments: For the purpose of judging adequate site distance for this survey, signs and intersections should be visible from distances of:

Freeways	800 feet min.
Rural roads	500 feet min.
Urban roads	200 feet min.

D. LITTER

Unit of Measure: Total number of litter counted, per 0.10-mile section.

Threshold: Objects approximately 4 in. x 4 in. or larger.

Methodology: Observe and record all litter 4 in. x 4 in. and greater.

VI - TRAFFIC

A. RAISED/RECESSED PAVEMENT MARKERS

Units of Measure: Total number of raised/recessed pavement markers, per 0.10 mile section. Total number of worn or missing markers, per 0.10-mile section.

Threshold: Missing or deficient pavement markers. If the markers are missing or broken, or the reflective surface is non-functional they should be considered as deficient.

Methodology: Count and record all pavement markers that **should be present** within the section. Count and record any markers that are deficient or missing.

Methodology (cont.): In counting markers, it may be helpful to determine the number of markers associated with each pavement stripe (grouping) and then count stripes (groups) to determine the total number of markers that should be present. Markers butted end to end, can, in most cases, be considered as one marker if the normal installation would require only one marker in that location.

Comments: In many instances old markers are not removed as new markers are placed. Do not count old markers as deficient if new markers have been placed next to them.

The number of deficient markers will **not** exceed the number of markers that should be present.

B. PAVEMENT MARKINGS

Units of Measure: Total number of pavement markings, per 0.10-mile section. Total number of worn pavement markings, per 0.10-mile section.

Threshold: Count as deficient any pavement marking that is greater than 25% worn or worn in a way that makes it nonfunctional.

Methodology: Count and record the total number of pavement markings within the survey site. **Markings such as crosswalks and railroad crossings are counted as one pavement marking**. Stop bars are considered a separate marking.

Count and record the total number of markings that are greater than 25% worn or worn in a way that make them nonfunctional.

Do not count culvert, or state patrol markings.

C. GUIDEPOSTS

Units of Measure: Total number of guideposts or fish sticks, per 0.10-mile section. Total number of broken or damaged guideposts or fish sticks, per 0.10-mile section.

Threshold: Count as deficient any guidepost or fish stick that is broken or damaged to the point that the reflectivity or functionality is impaired.

Methodology: Count and record the total number of guideposts and fish sticks within the survey section. Count and record the total number of deficient guideposts and fish sticks within the survey section.

Count only guideposts located on the mainline. Guideposts located around the radii of an at grade intersection are considered a part of the mainline. Guideposts located on ramps or locations other than the mainline are not counted.

Comments: Count only what you see. Do not assume a marker is missing unless you can see evidence that there was, in fact, one there.

D. GUARDRAIL

Units of Measure: Total linear feet of guardrail, per 0.10-mile section. Total linear feet of defective guardrail, per 0.10-mile section.

Threshold: Count as deficient any guardrail, including cable guardrail, which is damaged to the point that the structural integrity is compromised or the functionality is impaired. For beam guardrail, this would include broken or cracked posts, broken, cracked or misaligned blocks, missing bolts, or where the face of the rail is deformed 6 inches or greater. Also count as deficient any portion of rail that has been flattened even if it does not meet the 6 inches of deformation.

For cable guardrail, within the survey section, measure the length between supported posts as deficient. If the cable has been severed, the entire run is deficient.

Concrete barrier is counted as guardrail for the purposes of the MAP survey. To be considered deficient, concrete barrier must be out of alignment by 6 inches or more, or the barrier surface facing traffic must exhibit spalling severe enough to snag a vehicle.

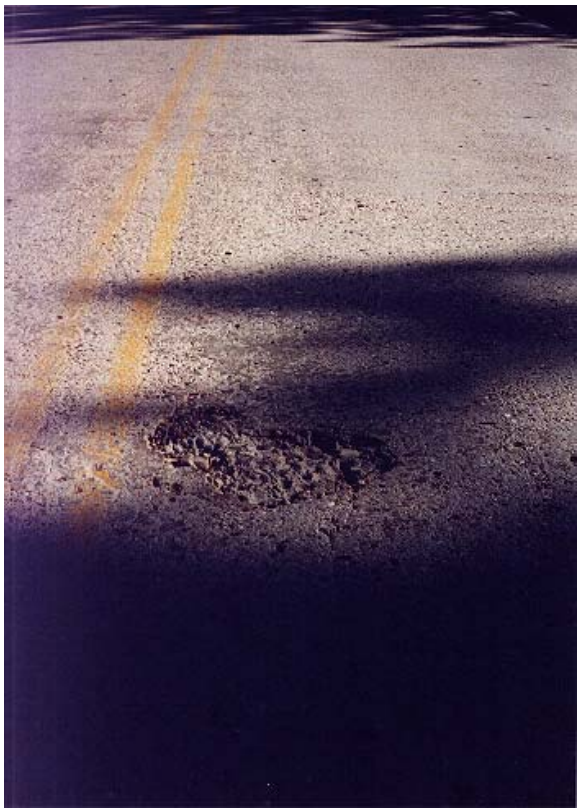
Methodology: Count and record the total linear feet of guardrail within the survey section. Count and record the total linear feet of deficient guardrail within the survey section.

Comments: Count as deficient only the linear feet of damage meeting the threshold. Do not count the linear feet of guardrail that would have to be used for repair, i.e. a rail with 2 feet of damage would be reported as 2 feet of damage, even though the entire 12 foot rail will have to be replaced.

VII - BRIDGES

General: Bridge data is only collected in the fall. The length and width of all bridges are contained in the GoMAP database and will automatically be entered when the bridge number is entered correctly, i.e. 90/357. Use the MAP Bridge Data Collection Form to record data gathered in the field.

A. BRIDGE DECK



Units of Measure: Total square feet of spalling on the bridge deck.

Threshold: Minimum size **-** (36 sq in x 1" depth) or larger

Methodology: Observe the bridge deck, measure and record the total square feet of spalling. Repaired spalls are not counted.

B-1. DECKS & SIDEWALKS

Unit of Measure:	Total square feet of sand or debris on the bridge deck and sidewalk.
Threshold:	Presence of sand or debris.
Methodology:	Measure the length and determine the average width of sand and debris on the bridge deck and sidewalk. Calculate and record the total square feet for all sand and debris.

B-2. GRATES & DRAINS

Unit of Measure: Total number of drains on the structure. Total number of drains that are blocked.

Threshold: Blocked, plugged or covered bridge drains. Drains that are partially blocked are considered as deficient. Catch basins with sediment buildup that exceeds the flow line elevation of the outlet pipe are considered a deficiency

Methodology: Count and record the total number of bridge drains on the structure. Count and record the total number of blocked, plugged or covered bridge drains. A flashlight may be needed to determine if the drain is blocked.

B-3. RAILS, GIRDERS, TRUSSES, PIERS & ABUTMENTS

Unit of Measure: Percent of structure covered with graffiti, moss, rust, etc.

Threshold: Check box for None, Minor, Moderate, Major or Significant severity.

None - 0% severity

Minor - 1% - 10% severity

Moderate - 11% - 30% severity

Major - 31% - 50% severity

Significant - > 50% severity

Methodology: Observe the rails, girders, trusses, piers and abutments to determine the percentage of the structure covered with graffiti, moss, bird droppings, rust or other surface dirt. Check the appropriate box on the form.