Maintenance Accountability Process
Field Data Collection Manual

June 2018
Maintenance Operations Division - Maintenance Office
# Maintenance Accountability Process
## Field Data Collection Manual

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I – INTRODUCTION

An important part of the Maintenance Accountability Process (MAP) is regular field condition surveys conducted on the highway system. MAP surveys assess the asset conditions that exist at a given point in time. The purpose of this manual is to document the procedures for consistent data collection on paved shoulders, drainage, roadside, traffic items, and bridges.

Data Collection Procedures

1. HATS features were used to identify approximately 400 randomly selected data survey sites around the state. The sites are based on the HATS feature inventory, with the site to include a culvert in the field survey site location. The survey sites are 0.10 mile sections (528 feet) along the centerline of state highway inventory.

2. Each region will dedicate a MAP survey team, two persons per team. Each region will have one or two identified alternate surveyors, to fill in if one regular member is unavailable. These teams will be region wide teams, under regional direction rather than under the direction of an area or section. One member of each team will be a licensed applicator for weed identification purposes. The teams will conduct surveys in their regularly assigned area. Data collection is performed using iPads. MAP sites are loaded and available to crews within a week of the MAP field survey cycle, which is the last three weeks in July.

3. Use the iPad to indicate and locate the MAP field survey location. Once the cross culvert has been located, measure off 528 feet in the increasing direction, or if there are more MAP Field Survey features, measure 528 Lft. in the decreasing direction of the culvert to locate and mark the start and end points for each site. Whichever direction is chosen ensure you mark the correct direction under the state route and milepost direction. Mark the points with paint at the edge of the shoulder so that they can be located again if needed. Sites are generally in the increasing direction from the starting milepost. For example: site location is 43.2. Survey site is from 43.2 to 43.3.

4. **USE YOUR EXPERIENCE AND FIELD JUDGEMENT.** If a MAP site is identified by an approach culvert or a pipe, indicate that it is not a cross culvert. You may move the site or complete the existing site. If you complete the site, try to make sure there are some existing roadway features, like barrier, pavement markings, etc.

5. If any portion of the site falls on a **structure**, move the site forward or backward to another site location that contains as many highway features as possible such as; a culvert or traffic barrier to avoid the structure.

6. Sites in construction zones will **not** be evaluated. Relocate the site outside of the construction area, but as close to the original site as possible, using the criteria of a cross-culvert being present and as many highway features as possible.

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

8. Prior to conducting surveys, review the Pre Activity Safety Plan for MAP surveys. Ensure that all appropriate personal protective equipment and traffic control devices are available. Determine what the individual site may require before beginning each survey.

9. 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.

10. 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

Beginning with the fall 2006 survey, pavement deficiencies (MAP Activity 1A1) were no longer collected in the traveled lane with MAP field surveys. WSPMS began rating paving deficiencies and these were used for MAP LOS ratings until 2011. Beginning in 2011, pavement deficiencies in the traveled lane were no longer reported as a MAP activity, but were part of an integrated pavement management rating thru the WSPMS condition reporting.

MAP Activity 4A1- Bridge Deck data and MAP Activity 4A- Structural Bridge Repairs are no longer collected during the Bridge Field Survey, but have become a part of an integrated bridge management rating. This data comes from the bridge inspections done through the Bridge Preservation Office on the total square feet from the bridge inventory.

Cumulative Deficiencies
Shoulder pavement deficiencies are cumulative. Where one type of deficiency is found within the area of a second type of deficiency, both deficiencies are counted independently. For example, a 25 sq. ft. area of alligator cracking may contain a two sq. ft. pothole. Do not subtract the two sq. ft. of pothole from the 25 sq. ft. of alligator cracking. Use your field experience and judgment.

Edge lines
For the purposes of MAP field data collection, the edge line is considered part of the paved shoulder. Deficiencies occurring on the edge line are deficiencies of the paved shoulder.

Funding and Maintaining – The purpose of MAP is to measure the level of service provided by WSDOT personnel using funds appropriated by the legislature. If the funding for maintenance activities comes from cities, counties, parks, etc., do not measure. If you are unsure, discuss with the supervisor prior to conducting surveys.

Field data collection will be performed using iPads.

The Regional MAP Survey Crews will complete bridge Cleaning and Rest Area field data collection.

Questions or comments about this should be directed to Kelly Shields at 360-705-7860; cell 360-580-5621; or email address- Shieldk@wsdot.wa.gov or Jeffrey Gibson at 360-705-7813; cell 360-470-6488 or email address -GibsonJ@wsdot.wa.gov.
II- PAVED SHOULDERS

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

As a reminder on multi-lane highways, the total width also includes any median paved shoulder width, besides the outside shoulders in both directions.

**Update:** When a site has pullouts, use the average width of shoulder before and after the pullout, DO NOT average the pullouts into the paved shoulder width.

Example: 8’ total width

Example: 16’ total width
**A. SHOULDER POTHOLES**

**Unit 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 (36 sq. in size example 6”x6”)

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

**Comments** The total square feet of potholes should be recorded as a whole number. The minimum size that may be recorded is 1 s.f. (144 sq. in.) If the total square inches measured of all potholes is not a whole number, round up to the nearest whole number of square feet.
B. SHOULDER ALLIGATOR CRACKING

Unit of Measure: Total square feet of alligator cracking within the paved 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 paved shoulder. Use the average width of cracking to calculate square feet.
C. SHOULDER LONGITUDINAL CRACKING

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

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

Methodology: Measure and record linear feet of all unsealed longitudinal cracking within the paved 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 overlaid on concrete pavement, unsealed cracks in the asphalt pavement shall be counted as a deficiency.

D. SHOULDER TRANSVERSE CRACKING

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

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

Methodology: Measure and record linear feet of all unsealed transverse cracking within the paved 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 overlaid on concrete pavement, unsealed cracks in the asphalt pavement shall be counted as a deficiency.

CHANGE: In 2016, all cracking was rolled up under one field; Shoulder Cracking. The definitions were left as a reference on the criteria for collecting the different types of cracking on the paved shoulders.

CHANGE: Also the cracking should be a minimum width of 1/4” or the width of what you could stick a pencil or pen into. The width of 1/4” is what WSPMS uses for rating our highway lanes, so this is the criteria we will use for rating the paved shoulders.
Longitudinal Cracking

Transverse Cracking
E. 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 the edge of paved shoulder.

Methodology: Measure and record total linear feet of all edge raveling within shoulder area. All edge raveling is assumed to be one 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 will be counted as alligator cracking.
F. 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 two vertical inches or greater.

Methodology: Measure and record linear feet of all shoulder edge drop-off two vertical inches or greater that occurs within the section. Shoulder drop-off less than two 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 cases, 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. Also, drop off by design (contract paving does not extend out to edge of existing pavement) will not be counted as a deficiency.
G. Shoulder Edge Buildup

Unit of Measure: Total linear feet of buildup of sand, dirt and/or vegetation at the edge of pavement, per 0.10-mile section

Threshold: All shoulder buildup greater than two vertical inches.

Methodology: Measure and record linear feet of all shoulder buildup two vertical inches or greater, occurring at the edge of pavement within the survey section, including areas under guardrail.

Comments: Shoulder buildup less than two vertical inches is not considered a deficiency.
H. 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 paved 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: Shoulder debris is based on the length of all combined shoulders, with one average width, i.e., 0.10 mile section on a two lane road is 1056 linear feet, if the debris is two feet on one side and four feet on the other, the average width entered would be three feet.
I. SHOULDER HUMPS, SAGS, SETTLEMENTS and OTHER

Humps and Sags

Description: Localized depressions or elevated areas of the paved 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 delamination and any other deficiencies that do not fit in another category.

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

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

Delamination: must total a minimum of 36 sq. in.

Other deficiencies: include unique deficiencies that do not fit in another category.

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

Comments: The minimum size of delamination that can be recorded is 1 square foot. For example, a delaminated area larger than 36 sq. inches (6”x6” or 3”x12”) will be counted as 1 square foot. If two delaminated areas of similar size exist together the two can equal 1 square foot.
III – 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 the total linear feet of 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 1 inch 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 culverts is not a deficiency. Culverts designed to be half filled with gravel for fish habitat should not be rated as deficient.
Common Indicator there is a cross culvert.

**HATS:** Culverts can be represented by either a linear feature type or a single point feature type, since a lot of our culverts were collected as single point features in the pasts with PDA’s.

See **Appendix A** for the diagrams for culverts vs. pipes with definitions.
C. 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, at the time of the survey:
1. Jeopardizing the structural integrity of the paved shoulder or traveled lane(s), or
2. Blocking the paved shoulder or traveled lane(s), or blocking the ditch, or, Jeopardizing the structural integrity of guardrail, traffic signs or culverts, etc.
3. Erosion can either be on the upside or downside of the roadway. Erosion that is distinctive.

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

Methodology: Determine the presence or absence of slope failures within the survey section. Both fill and cut slopes can be affected.

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. All slope failures should be documented with a photo.
IV - ROADSIDE

General: Record the total combined width of right of way/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. If in doubt about where the right of way line is, contact the local shed. DOES NOT INCLUDE ANY PAVED AREAS.

A. NOXIOUS WEEDS

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

Threshold: Presence of legally designated noxious weeds (dead or alive) on the roadside.

Methodology: Survey the entire roadside area and determine the presence of any legally designated noxious weeds, dead or alive. 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 to be done by a person trained in weed identification. For MAP purposes, the weed list as noted in the Area IVM plans will identify the weeds to be counted as noxious.
B. NUISANCE VEGETATION

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

Threshold: Presence of nuisance vegetation (dead or alive) on the roadside.

Methodology: Survey the entire roadside area and determine the presence of any nuisance vegetation (dead or alive). Measure the square feet of the infestation. The total square feet of infestation shall not exceed the total square feet roadside area.

Comments: Identifying nuisance vegetation can be difficult and is to be done by a person trained in weed identification. For MAP purposes, the weed list as noted in the Area IVM plans will identify the weeds to be counted as noxious.
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 when waiting to enter or cross the highway.

Methodology: Measure and record the presence or absence of vegetation obstructing sight distance to signs or intersections.

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 pieces 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.
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.

Patterns or groups of RPM’s should be collected in the present standard. Coordination with the Regional striping and button crew is encouraged.

The “bumps” on a plastic profile line are **not** to be counted as RPM’s.
**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 culverts or state patrol markings.
Do not count skip stripes.
Do not count gores or wide line.
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 that is broken or damaged to the point that the reflectivity or functionality is impaired.

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

Comments: Count only guideposts and fish sticks 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.

Beginning in 2007, guidepost locations will be marked with a dot on the pavement. This dot will be maintained to allow the identification of missing guideposts.

Reflectivity can be impaired when the sheeting is dirty or damaged.
D. Traffic Barrier (Guardrail)

Units of Measure: Total linear feet of barrier which includes beam guardrail, cable barrier, concrete barrier, impact attenuators, per 0.10-mile section. Total linear feet of defective barrier in the 0.10-mile section. Barrier types have been pulled out and separated on the HATS form. Collect all types or indicate none if appropriate.

Threshold: Count as deficient any portion of barrier (guardrail) to include guardrail (w-beam), cable barrier, and concrete barrier, which is damaged to the point that the structural integrity is compromised or the functionality is impaired.

Beam Guardrail: For beam guardrail, this would include broken or cracked posts (cracked blocks or posts must be cracked all the way thru the wood, not just surface cracks), broken, cracked or misaligned blocks, missing bolts, or where the face of the rail is deformed six inches or greater. Do count as deficient any portion of rail that is flattened from top to bottom and the “w” is not present. DO NOT count as deficient any portion of rail that has been partially flattened, does not meet the six inches of deformation, and is still functional and structurally sound.

Cable Barrier: For cable barrier, any damage within the survey section where the cable is intact, but the posts or hardware are compromised, measure the length between supported posts as deficient. If the cable has been severed, the entire survey section is deficient.

Concrete Barrier: 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 six 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 barrier (guardrail) within the survey section. Count and record the total linear feet of deficient barrier within the survey section. Cable Barrier is to be collected separately.
Comments: Count as deficient only the linear feet of damage meeting the threshold. Do not count the linear feet of barrier (guardrail) that would have to be used for repair, i.e. a rail with two feet of damage would be reported as two feet of damage, even though the entire twelve-foot rail will have to be replaced.

Identify, on the iPad, the type of barrier on site, and record the amount of each type of barrier and how much deficient if any of each type of barrier. The types of barrier include cable barrier, beam guardrail, and concrete or jersey barrier.
D. Traffic Barrier (Guardrail) cont.

Partially flattened, but still functional.

Out of alignment, flattened, not functional.
VI - BRIDGES

General: Bridge data is collected in the same time period as the field surveys. The length and width of all bridges are contained in the MAP database as attributes. If there is a missing field, i.e. bridge length disregard and finish MAP survey. Any missing data will be corrected by HQ. Use the MAP Bridge Data Collection Form in HATS to record data gathered in the field.

MAP Bridge Data Collection Form

Bridge Information
Bridge Number: ___________ SR: ___________ SRMP: ___________ Region: ___________ Area: ___________ Date: ___________

Bridge Size
Bridge Length: ___________
Bridge Width: ___________

Bridge Cleaning
Grates and Drains
Drain_num: ___________
Drain_def_num: ___________

% of Surface Dirty: None 0% Minor 1-10% Moderate 11-30% Major 31-50% Significant >50%

Decks and Sidewalks
Sq Ft of Sand/Debris: ___________

Instructions
When filling out the 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 82/139), press enter and state route, milepost, region and bridge size will be filled in automatically.

Grates and Drains: 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. Drains that are partially blocked are considered deficient. Catch basins with sediment buildup that exceeds the flow line elevation of the outlet pipe are considered deficient.

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

Graffiti, moss, rust, etc.: Estimate and record the percent of bridge surfaces that are covered with graffiti, moss rust, bird droppings or other surface dirt.
A. DECKS & SIDEWALKS

Unit of Measure: Total estimated/percentage of sand or debris on the bridge deck and sidewalk.

Threshold: Presence of sand or debris.

Condition 1 – Free of visible sand and debris.

Condition 2 – Less than 10% of surface are covered with sand or debris.

Condition 3 – Less than 20% of surface are covered with sand or debris.

Condition 4 – Less than 40% of surface are covered with sand or debris.

Condition 5 – More than 40% of surface are covered with sand or debris.

Methodology: There are two ways to complete this survey; measure the sand and debris width and length for total square feet. Then get the bridge length and width from the attributes of the feature and get total square feet by multiplying, then get percentage. The second method is to simply estimate by visual inspection. Check the appropriate box on the form.
B. GRATES AND DRAINS

Unit of Measure: Percent of drains that are partially or completely blocked, covered, or plugged with debris.

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

Condition 1 – free of visible sand and debris.
Condition 2 – Less than 5% blocked or partially blocked.
Condition 3 – Less than 10% blocked or partially blocked.
Condition 4 – Less than 20% blocked or partially blocked.
Condition 5 – More than 20% blocked or partially blocked.

Methodology: Count and record the percentage of bridge drains on the structure that are partially or completely blocked, plugged or covered with debris. Catch basins with sediment buildup that exceed the flow line elevation of the outlet pipe are considered deficient. Check the appropriate box on the form.
C. RAILS, GIRDER, TRUSSES, PIERS & ABUTMENTS

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

Threshold: Presence of graffiti, moss, rust, bird droppings, etc.

Condition 1 – Bridge surface free of graffiti, moss, rust, etc.

Condition 2 – Less than 10% of bridge surface covered with graffiti, etc.

Condition 3 – Less than 30% of bridge surface covered with graffiti, etc.

Condition 4 – Less than 50% of bridge surface covered with graffiti, etc.

Condition 5 – More than 50% of bridge surface covered with graffiti, etc.

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.
VII Rest Areas

**General:** Rest Area data is collected in the same time period as the field surveys. The visual assessment is based on the field data collection sheet as shown below. Use the iPad to complete the MAP Rest Area Form in HATS, under “MAP Surveys” to record data gathered in the field.

The Rest Area surveys will be completed based on the category; Condition 1 thru Condition 5 on the Rest Area Form. For explanation of each category please reference the descriptions for each condition for the category of work the surveyor is reviewing.

The MAP field surveyors are to complete any Rest Area surveys in their Region, through their travels.

### Rest Area Field Data Collection Sheet

<table>
<thead>
<tr>
<th>Category</th>
<th>Janitorial Services</th>
<th>Building &amp; Utilities</th>
<th>Site</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition 1 (Excellent)</td>
<td>Rest rooms are clean and sanitary. Room smells fresh/sanitized. No graffiti or litter is visible. Walls, counter tops and floors are clean and dry. Soap &amp; paper supplies are full. Trash containers are less than 1/4 full.</td>
<td>Building is in good repair, partitions, doors, dispensers, and hand dryers in place without defects. Walls, roof, plinths/functional and few of defects. RV dump station functional and clean. Push buttons on all components to make sure all are functional (i.e., potable and renewable/safe).</td>
<td>Landscape plantings healthy, lush &amp; free of weeds. Lawns mowed. Sidewalks &amp; parking areas clean and free of defects. Picnic tables clean and free of defects. Site free of noticeable litter.</td>
<td>Rest area open 24 hours a day, 365 days a year</td>
</tr>
<tr>
<td>Condition 2 (Good)</td>
<td>Rest rooms are clean and sanitary with no unacceptable odor. No graffiti or litter is visible. Walls, counter tops and floors are clean, but may have a minor amount of water spots or small puddles. Soap &amp; paper supplies have adequate supply. Trash containers are less than 1/2 full.</td>
<td>Building is in good repair, with some minor surface defects but functional partitions, doors, dispensers and hand dryers in place. RV dump station functional, not all components functioning, i.e., potable water.</td>
<td>Landscape plantings healthy may have a minor amount of weeds. Lawns mowed. Sidewalks &amp; parking areas clean but exhibit some minor defects. Picnic tables clean w/ minor of defects. No noticeable litter.</td>
<td>Rest area closed due to seasonal closure, and signed with advanced warning.</td>
</tr>
<tr>
<td>Condition 3 (Fair)</td>
<td>Rest rooms appear clean with no unsanitary odor. A minor amount of graffiti is visible. Walls, counter tops and floors are clean, but have a significant amount of water spots. Floors contain a minor amount of litter. Soap &amp; paper supplies available. Trash containers are less than 2/3 full.</td>
<td>Building with some moderate surface and minor functional defects. One partition door may be missing, one dispenser or hand dryer may be non-functional. A light may be out, mirrors missing. Odors present from building or system not functioning correctly. RV dump station functional, with some components not functional (i.e., potable water).</td>
<td>Landscape plantings exhibit some stress with moderate weeds and damaged or dying branches. Lawns dry and infrequently mowed. Sidewalks &amp; parking clean with noticeable defects. Picnic tables clean w/ minor of defects. Minor amount of noticeable litter.</td>
<td>Rest area closed due to seasonal closure, and NOT signed with advanced warning.</td>
</tr>
<tr>
<td>Condition 4 (Poor)</td>
<td>Rest rooms appear somewhat dirty and unsanitary, and may exhibit and understandable odor due to lack of janitorial services. A significant amount of graffiti may be visible. Counter tops are wet and water spotted. Floors are wet and dirty. Soap &amp; paper dispensers may be empty. A substantial amount of litter is visible on the floor. Trash containers are more than 2/3 full.</td>
<td>Building with some significant surface and moderate functional defects. More than one partition door may be missing, dispenser or hand dryer non-functional, light out, mirrors missing. Odors unsanitary. Strong, direct result from building system not functioning correctly. RV dump station temporarily out of order. RV dump pad has odors and visible waste material present. Components of RV dump not functional.</td>
<td>Landscape plantings with noticeable weeds, damaged or dying branches. Lawns unmowed. Sidewalks &amp; parking noticeably dirty with major defects. Picnic tables need cleaning and exhibit major defects. Significant noticeable litter.</td>
<td>Rest area closed temporarily for unplanned repairs, not to indicate planned maintenance. Signing not in place to warn the traveling public that the Rest Area is closed. This would take into account against any claims for repairs whether planned or not.</td>
</tr>
<tr>
<td>Condition 5 (Not Acceptable)</td>
<td>Portable toilets &amp; paper provided only. Trash containers more than 2/3 full.</td>
<td>Building closed because of a utility or building deficiency. RV dump closed.</td>
<td>Landscape plantings with significant weeds, damaged or dying branches. Lawns dry and unmowed. Sidewalks &amp; parking significantly dirty with major defects. Picnic tables need cleaning and exhibit major defects. Extensive litter.</td>
<td>Rest area closed permanently.</td>
</tr>
</tbody>
</table>

**Condition Total:**

<table>
<thead>
<tr>
<th>Condition Total</th>
<th>Janitorial Services</th>
<th>Building &amp; Utilities</th>
<th>Site</th>
<th>Operations</th>
</tr>
</thead>
</table>

Survey taken by ___________________________ Date: ___________________________
VII – MAP iPad

The Maintenance Accountability Process (MAP) iPad program is being developed to input the information from field condition surveys conducted on the highway system. The intent is that the HATS forms will be used for inputting data as the surveyor walks the site. The HATS forms do not do the math as the PDA did, so a calculator is needed. Data is not validated upon saving; so MAP surveyors are to review the MAP Field Form upon completion, which permits the surveyor to review any questionable data while still on site.

This application is unique in that two surveyors, using two iPad’s, can collect data on the same site, then the data is merged when downloaded to the server. Each surveyor chooses one of the following categories Roadway/Traffic (paved shoulders, guideposts, etc.) or Roadside/Drainage (Nuisance/Noxious Weeds, drainage, etc.) they will be collecting data on. Only one surveyor can collect data in each category. Surveyors should pick the category they will use for the MAP Season. This should give consistency to what is being collected and leave the licensed sprayer available for completing the Roadside/Drainage Form.

To Begin: The next step is to get the MAP sites.

A. MAP SITES

Make sure the iPad screen is set to Planned/Pending screen. The iPad will have the MAP Survey Sites whether R for Roadway/Roadside field surveys or B for Bridge. The next step once near the site is to tap on the icon and then tap the site.
At this time the site chosen will come up with the information as shown below:

Then once you touch the Activity tab inside the WSDOT ID number box, the “Select Planned Activity Type” box will then pop up.
At this time, you complete the activity record for the activity or type of Field Survey you will be completing.
The Field Surveyor will choose the form for the type of survey that they will be completing. Remember to be in HATS production not Beta. The attached forms are for reference only.

Regardless of what form the MAP surveyor will fill out the following:
Any fields with a red * are required fields.

MAKE SURE you select whether you move the site or not. This is there for tracking any changes that were required in the field.
The Roadside form has an entry that has total width of Roadside. This is for calculating the percentage of Noxious and Nuisance weeds. REMEMBER this does not include any paved surfaces.

Once you have completed whichever form, you are working on; Save Record.
Once this is complete and before you leave the site, concur with the other MAP surveyor on some of the main areas of the survey, like paved shoulder widths, roadside widths, etc.

This can be completed by tapping on: Saved Records
Then tap on the activity record under Pending Activity Records Saved and choose the MAP site record and review the other MAP surveyor’s field survey, for an on-site QA check.

Quality Assurance starts with you- Once the field survey has been completed and checked by the other MAP surveyor proceed to the next MAP site.

C. Bridge Site Surveys

The Bridge MAP Surveys are accessed the same way as the MAP Field Surveys. Only one of the MAP team members needs to complete this form. Please see the Help Text at the end of the form for what is to be collected.

The bridge survey has the bridge number, length, and width under attributes; only fill out the site condition questions in the activity form.
---Estimate and record the percentage of total square feet of sand and debris on the bridge deck and sidewalk---

Deck and Sidewalks:

Please select one.

- Condition 1: Free of visible sand and debris
- Condition 2: Less than 10% of surface area covered with sand or debris
- Condition 3: Less than 20% of surface area covered with sand or debris
- Condition 4: Less than 40% of surface area covered with sand or debris
- Condition 5: Greater than 40% of surface area covered with sand or debris

---Count and record the percentage of bridge drains on the structure that are partially or completely blocked, plugged, or covered with debris. Catch Basins with sediment buildup that exceed the flow line elevation of the outlet pipe are considered deficient---

Grates and Drain Condition:

Please select one.

- Condition 1: Free of visible sand and debris
- Condition 2: Less than 5% blocked or partially blocked
- Condition 3: Less than 10% blocked or partially blocked
- Condition 4: Less than 20% blocked or partially blocked
- Condition 5: More than 20% blocked or partially blocked

---Estimate and record the percentage of bridge surfaces that are covered with graffiti, moss, rust, bird droppings, or other surface dirt---

Bridge Condition:

Please select one.

- Condition 1: Free of graffiti, moss, bird droppings, or other surface dirt
- Condition 2: Less than 10% of bridge surface covered
- Condition 3: Less than 30% of bridge surface covered
- Condition 4: Less than 50% of bridge surface covered
- Condition 5: More than 50% of bridge surface covered
Rest Area:

The Rest Area Form will be accessed differently under other activities. Rest Areas are not a feature; this is an activity record only. Click on MAP survey and the “Rest Area” form will be there. Only one of the MAP team members needs to complete this form. Please see the Rest Area Field Data Collection Sheet under File Library for help with what must be collected.
Please note, once your region and area have been selected, the Rest Area list will be available by rest area name.
QA:

Once again- Quality Assurance starts in the field.

Please review all saved records prior to “leaving the MAP field survey site, bridge site, or rest area and prior to “syncing” your records for the day.

Key to QA- Pictures

Pictures are key, snap pictures of your sites, both in good and bad shape. As requested in the training, also include pictures of all slope failures, blocked culverts, deficient guardrail, vegetation obstruction, infestation of noxious weeds, etc.

This adds to your survey and shows the site in the condition you saw it, as we all know, things can change over time. This will save each regional area time, when looking over the sites that fell in their areas, to help evaluate the condition a feature during the time of survey.

Moving a Site-

If moving a site due to construction, no existing highway features, etc. simply relocate to a new location and indicate that the site was moved on the MAP feature location, by updating the state route and milepost. If possible, stay on the same state route, or one that is similar, whether two lane or four lane, etc.
Reviewing/Editing MAP Sites on the Desktop:

Go to the Maintenance Operations Portal at: [http://webapps.wsdot.loc/Maintenance/portal/](http://webapps.wsdot.loc/Maintenance/portal/)

**Maintenance Operations Portal**

This system is designed to be a single pc

---

**HATS Web**

HATS

- HATS Home
- Search Inventory
- Current Feature Records
- Current Other Records
- Add Roadkill Record
- Add Snow & Ice Record
- Estimates

Once the website is up click on HATS Home under the HATS Web icon. The HATS program will now come up:

Click on the “Activities” tab and the drop down will show up and there will be choices for both Feature Activities, Other Activities, etc. MAP Field surveys are a feature so the features activities menu will be used to view records. Click on Feature Activities and then current records. Then filter by date, orgcode, surveyor’s last name, route, etc. Whatever makes it easiest to find the record you’re looking for.
Click on “current records” and the screen below will pop up.

Under Choose Type: Select MAP Field Survey- Field
At this point you can search for a MAP field survey feature by orgcode, last name, activity, SR, Feature Number, and Record ID- basically any field shown below.
At this point, you would click on View/Edit (Pencil Icon) and the feature activity record will open. Any corrections can be completed in the fields needed and then saved and closed.

As a reminder, the field surveyor can make any changes to the feature activity record needed up to 14 days after the record was saved. After this point, the Regional MAP coordinator can make changes or anyone else with Editor Rights. HQ MAP coordinators can also be contacted to assist or make any updated changes that may be needed.