TAMC PASER
Training Manual

Manual prepared by:
Center for Technology & Training (CTT)
Michigan Technological University

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INTRODUCTION

The Pavement Surface Evaluation and Rating (PASER) system is a visual survey method for evaluating the condition of roads. The method was developed by the University of Wisconsin Transportation Information Center to provide a simple, efficient, and consistent method for evaluating road condition. Michigan’s Transportation Asset Management Council (TAMC) has adopted the PASER system for measuring statewide pavement conditions in Michigan.

This manual describes the requirements and processes involved in collecting PASER data for TAMC in conjunction with the RPO/MPOs. It also includes information on how to split segments, rate sealcoats, and double-check collected PASER in Roadsoft.

Part of TAMC’s mission is to obtain accurate PASER that provides a clear view of the condition of the road network in Michigan. TAMC uses these ratings to communicate the condition of Michigan roads to the Michigan Legislature. At the local level, this data serves as the foundation upon which to build cost-effective pavement maintenance strategies.

TAMC chose Roadsoft—a roadway management system for collecting, storing and analyzing data—for use in developing its statewide pavement rating collection strategy. Roadsoft is funded through the Michigan Department of Transportation (MDOT) and developed, supported, and distributed by Michigan Technological University’s Center for Technology & Training (CTT).

TAMC also works in conjunction with Michigan’s Regional/Metropolitan Planning Organizations (RPO/MPO) to collect PASER data. Although these regional organizations operate under many different names and serve a variety of different areas, they all participate in coordinating and performing PASER data collection.
DATA COLLECTION REQUIREMENTS & GUIDELINES
According to Act 51 (P.A. 499 2002, P.A. 199 2007) each local road agency shall annually report the mileage and condition of the road and bridge system under their jurisdiction to TAMC. To fulfill the requirement of this Act each year TAMC sets requirements for road condition data collection and submission by road-owning agencies in Michigan. Road condition rating is eligible for reimbursement from TAMC if the required training is attended and proper documentation is submitted at the end of the collection process (see Data Collection Procedures section for details).

**Roads that Must be Rated**

**Paved Roads:** At least 50% of Federal-aid eligible, paved roads must be rated each year. Each rated roads with a paved surface requires three categories of data:

1. Surface Type
2. PASER number
3. Number of Lanes

**Unpaved roads:** Unpaved road inventory should be collected for unpaved roads in the Federal-aid-eligible system; these roads only require surface type data. Collection teams will collect all information on unpaved road types (unpaved roads with an unimproved earth surface or with a gravel surface can be classified at the local agency’s discretion) within their network (50% of the Federal-aid eligible) for collection each year. Based on current estimates, unpaved roads is approximately 4% of the Federal-aid system.

**Definition of “Federal-aid Eligible”**

According to Title 23 of the United States Code¹, Federal-aid eligible roads are “highways on the Federal-aid highway systems and all other public roads not classified as local roads or rural minor collectors.” This definition can be stated in terms of National Functional Classification (NFC), where the NFC is 1, 2, 3, 4, 5 for rural/urban or 6 for urban only where one or both sides of the road on or in an urban boundary (RU_L > 1 or RU_R > 1). NFC codes are defined as:

<table>
<thead>
<tr>
<th>NFC Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Interstates</td>
<td>5 – Major Collectors</td>
</tr>
<tr>
<td>2 – Other Freeways</td>
<td>6 – Minor Collectors</td>
</tr>
<tr>
<td>3 – Other Principal Arterials</td>
<td>7 – Local</td>
</tr>
<tr>
<td>4 – Minor Arterials</td>
<td>0 or uncoded – not a certified public road</td>
</tr>
</tbody>
</table>

RU_L | 1 Rural/Urb. designation left
RU_R | 1 Rural/Urb. designation right

<table>
<thead>
<tr>
<th>Urban Area Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Rural area</td>
<td>3 – Small urbanized area (50,000 to 199,999)</td>
</tr>
<tr>
<td>2 – Small urban area (5,000 to 49,999)</td>
<td>4 – Large urbanized area (200,000 or more)</td>
</tr>
</tbody>
</table>

For paved Federal-aid data collection, the council collects PASER data based on the above definition of Federal-aid eligible so you will not be collecting PASER data on Rural Minor Collectors. Using the Roadsoft query of “Federal Aid = True” will take this change into account and give you the correct network conforming to the current definition.

**BASIC PAVEMENT INFORMATION**

The three main PASER manuals used by Michigan are for asphalt, concrete, and sealcoat pavements. The PASER manual for brick is also used as brick is reported, but it is not widely needed. These can be found at [http://www.ctt.mtu.edu/asset-management-resources](http://www.ctt.mtu.edu/asset-management-resources) or [http://michiganltap.org/paser-resources](http://michiganltap.org/paser-resources).

**Asphalt**

Hot mix asphalt is a pavement type with the top structural layer being HMA. Generally, a structural hot mix asphalt layer has a thickness of 1.5” or more.

Composite pavements should be rated with the asphalt rating system, but be inventoried as a composite pavement. A composite pavement is an old concrete pavement that has an asphalt overlay.

A chip seal or a sealcoat on top of an asphalt pavement should also be rated with the asphalt rating system. This type of pavement is not considered a sealcoat pavement because the asphalt below is considered the structural layer.

**Concrete**

A concrete pavement is a pavement composed of riding surface of concrete. This pavement should be rated using the rating system outlined in the Concrete PASER Manual.

**Sealcoat**

A sealcoat pavement is an unpaved road with a sealcoat (chip seal) surface treatment. There is no full-width structural layer of asphalt in a sealcoat pavement. This pavement should be rated with the modified Michigan sealcoat rating system, which uses a 1-10 scale.

**Brick**

The rating scale in the Brick & Block PASER manual is 1-2-3-4. To be consistent with other pavement rating scales, the brick and block scale must be doubled resulting in 2, 4, 6, and 8 as
ratings while maintaining the original definitions from the manual. A rating of 10 is reserved for brick and block pavements that are in ‘like new’ condition and less than one year old.

**PASER DESCRIPTORS VS. TAMC DEFINITIONS AND MICHIGAN-SPECIFIC INFORMATION**

The PASER system was created for use in Wisconsin and not for the Michigan TAMC. When using the PASER system in Michigan, data collectors need to be aware of a few changes. These changes provide simplified and uniform data collection and increases reporting accuracy to the Michigan Legislature.

Each rating in the PASER Manuals includes written descriptors (Excellent, Very Good, Good, Failed, etc.) that are part of the rating category name and give an overall impression of the state of each rating. These descriptors are as follows for asphalt and concrete pavements:

<table>
<thead>
<tr>
<th>Rating</th>
<th>PASER</th>
<th>TAMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 &amp; 9</td>
<td>Excellent</td>
<td>Good</td>
</tr>
<tr>
<td>8</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td>7 &amp; 6</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>5</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fair</td>
<td>Poor</td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Very Poor</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Failed</td>
<td></td>
</tr>
</tbody>
</table>

The PASER manual descriptors are not based on any formal definition relating to the quality of the pavement and they should not be confused with the formal definitions of “Good, Fair and Poor” that TAMC has developed and uses for reporting.

TAMC groups the 1-10 rating scale into three categories (Good 8-10, Fair 5-7, Poor 1-4) based upon a definition that relates to the type of work that is typically required for each rating grouping (Routine Maintenance, Capital Preventive Maintenance, and Structural Improvement).

Routine maintenance is the day-to-day, regularly-scheduled activities to prevent water from seeping into the surface. These activities include street sweeping, drainage clearing, gravel shoulder grading, and sealing cracks. PASER 8, 9, and 10 are included in this category. This category also includes roads that are newly constructed or recently seal coated. They require little or no maintenance. In TAMC nomenclature, these roads are considered “Good.”
Capital preventive maintenance (CPM) is a planned set of cost effective treatments to an existing roadway that slows further deterioration and maintains or improves the functional condition of the system without significantly increasing the structural capacity. The purpose of CPM fixes is to protect the pavement structure, slow the rate of deterioration, and/or correct pavement surface deficiencies. PASER 5, 6, and 7 are included in this category. Roads in this category still show good structural support but the surface is starting to deteriorate. CPM is intended to address pavement problems before the structural integrity of the pavement has been severely impacted. These roads are considered “Fair.”

Structural improvement is necessary when roads require structural improvement such as resurfacing or major reconstruction. Alligator cracking is evident. Rutting is beginning to take place; road rutting is evidence that the underlying structure is beginning to fail and it must be either rehabilitated with a fix like a crush and shape or totally reconstructed. PASER of 1, 2, 3, or 4 are included in this category. According to TAMC, these roads are “Poor.”

**Michigan-specific Sealcoat Road Rating Guide**

The PASER system rates a sealcoat road (sealcoat over a gravel base) on a scale of 1 to 5; however, TAMC modifies this rating system to a 1 to 10 scale. Thus, all surface types in the paved road network are rated on the same, standardized rating scale. In Michigan, the sealcoat scale is based on the relative percent of distress observed in the pavement.

**Using a Percentage Approach**

The Michigan sealcoat scale assesses the percentage of distress over a cross section of the total length of the segment under consideration. The observed distresses are:

- Edge distress
- Lane distress (including rutting)
- Raveling
- Rutting

These percentages are not cumulative. If none of the observed surface distress percentages exceeds the upper limit of a rating description outlined in the sealcoat rating chart, then that description rating is your selection. For example, consider a cross section of the roadway segment; it can be 50 ft. long or 1 mile long. A sealcoat with a rating of 5 allows up to 20% raveling, 20% edge distress, or 20% lane distress. If your assessment yields 10% raveling, 5% edge distress and 20% lane distress, the rating is 5 because none of the distresses exceeds 20%. It is not a rating of 6 because the 20% lane distress exceeds the 10% criteria, and it is not a rating of 4 because edge distress and lane distress percentages do not exceed the 20% limit for 5. Cumulative total distress is irrelevant for this rating system.
Consult the table—Michigan Sealcoat Rating Guide Table—on the following page for specific rating criteria.
# Michigan—Sealcoat Rating Guide Table

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
<th>Condition / defects</th>
<th>Remedy / action</th>
<th>Typical age in years *</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Excellent</td>
<td>New construction</td>
<td>None</td>
<td>&lt; 1 year</td>
</tr>
<tr>
<td>9</td>
<td>Excellent</td>
<td>Like new</td>
<td>None</td>
<td>1 to 3</td>
</tr>
<tr>
<td>8</td>
<td>Very good</td>
<td>First signs of distress &lt;br&gt; Limited edge distress</td>
<td>Routine maintenance&lt;br&gt; Minor edge seal</td>
<td>3 to 5</td>
</tr>
<tr>
<td>7</td>
<td>Good</td>
<td>Minor distress &lt;br&gt; Edge distress with limited lane distress &lt;5% &lt;br&gt; Raveling &lt; 5%</td>
<td>Minor asphalt or spray-injection patching&lt;br&gt; Possible single application sealcoat</td>
<td>4 to 6</td>
</tr>
<tr>
<td>6</td>
<td>Good</td>
<td>Moderate distress &lt;br&gt; Edge distress up to 10% &lt;br&gt; Lane distress up to 10% &lt;br&gt; Raveling up to 10%</td>
<td>Moderate asphalt or spray-injection patching&lt;br&gt; Single application sealcoat</td>
<td>5 to 7</td>
</tr>
<tr>
<td>5</td>
<td>Fair</td>
<td>Distressed &lt;br&gt; Edge distress up to 20% &lt;br&gt; Lane distress up to 20% &lt;br&gt; Raveling up to 20%</td>
<td>Moderate asphalt or spray-injection patching&lt;br&gt; Single application sealcoat&lt;br&gt; With up to 50% double application sealcoat</td>
<td>6 to 8</td>
</tr>
<tr>
<td>4</td>
<td>Fair</td>
<td>Edge distress up to 30% &lt;br&gt; Lane distress up to 30% &lt;br&gt; Rutting of ½” to 1”</td>
<td>Asphalt or spray-injection patching and double application sealcoat</td>
<td>7 to 9</td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
<td>Edge distress up to 50% &lt;br&gt; Lane distress up to 50% &lt;br&gt; Rutting of 1” to 2”</td>
<td>Wedge and/or asphalt or spray-injection patching and double or triple application sealcoat&lt;br&gt; May be necessary to crush and reshape prior to new sealcoat surface</td>
<td>8 to 10</td>
</tr>
<tr>
<td>2</td>
<td>Very poor</td>
<td>Edge distress &gt; 50% &lt;br&gt; Lane distress &gt; 50% &lt;br&gt; Rutting greater than 2”</td>
<td>Reconstruct by crush and shape prior to new sealcoat surface, possible return to gravel</td>
<td>&gt; 9</td>
</tr>
<tr>
<td>1</td>
<td>Failed</td>
<td>Extensive distress &lt;br&gt; &gt; 50% of surface area</td>
<td>Reconstruct by crush and shape prior to new sealcoat surface, or return to gravel</td>
<td>&gt;10</td>
</tr>
<tr>
<td>0</td>
<td>Not rated</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Michigan-specific Asphalt Road Rating Guide**

**Extent of Rutting**

In both the Asphalt PASER Manual and the Revised 2013 edition of the Asphalt PASER Manual, the extent of rutting for PASER 4 should be revised to ½”-1” and PASER of 3 should be revised to rutting of 1”-2” for Michigan-specific data collection (see the table, *Asphalt Road Rating Guide: Changes for Michigan-specific Assessment of the Extent of Rutting*, below). Please note this in your PASER Manual and refer to the PASER Cheat Sheet (see Appendix A) for additional information.

<table>
<thead>
<tr>
<th>Asphalt PASER Manual</th>
<th>Michigan-specific Asphalt Road Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASER 4</td>
<td>MI PASER 4</td>
</tr>
<tr>
<td>≤ ½ inch deep rutting</td>
<td>➞ ½” – 1” deep rutting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt PASER Manual, Revised 2013</th>
<th>Michigan-specific Asphalt Road Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASER 4</td>
<td>MI PASER 4</td>
</tr>
<tr>
<td>≤ ½ inch deep rutting</td>
<td>➞ ½” – 1” deep rutting</td>
</tr>
<tr>
<td>PASER 3</td>
<td>MI PASER 3</td>
</tr>
<tr>
<td>½” – 2” deep rutting</td>
<td>➞ 1” – 2” deep rutting</td>
</tr>
</tbody>
</table>

**Extent of Block Cracking**

Because the descriptor “50% of the surface” is undefined for Michigan’s data collection, both versions of the Asphalt PASER manual should be revised as follows: PASER 6—“Initial block cracking (6’-10’ Blocks)”, PASER 5—“Moderate block cracking (1’-5’ blocks)”, PASER 4—“Severe block cracking (less than 1’ blocks)”, and PASER 3—“Severe block cracking (alligator)” (see the table, *Asphalt Road Rating Guide: Changes for Michigan-specific Assessment of the Extent of Block Cracking*, below). Please note this in your Asphalt PASER Manual and refer to the PASER Cheat Sheet for additional information.
### Asphalt Road Rating Guide: Changes for Michigan-specific Assessment of the Extent of Block Cracking

<table>
<thead>
<tr>
<th>Asphalt PASER Manual (both versions)</th>
<th>Michigan-specific Asphalt Road Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASER 6</td>
<td>revise to</td>
</tr>
<tr>
<td>Block cracking up to 50% of the surface</td>
<td></td>
</tr>
<tr>
<td>PASER 5</td>
<td>revise to</td>
</tr>
<tr>
<td>Block cracking (over 50% of the surface)</td>
<td></td>
</tr>
<tr>
<td>PASER 4</td>
<td>revise to</td>
</tr>
<tr>
<td>Severe block cracking</td>
<td></td>
</tr>
<tr>
<td>PASER 3</td>
<td>revise to</td>
</tr>
<tr>
<td>Severe block cracking</td>
<td></td>
</tr>
</tbody>
</table>

### Michigan-specific Concrete Road Rating Guide

**PASER 9 and Joint Rehabilitation**

In the Concrete PASER Manual on page 17, the bottom photograph includes the description “RATING 9 Recent joint rehabilitation. Like new condition.” This example should be crossed out or noted as an extremely unlikely situation due to the fact that, by the time a concrete pavement requires joint rehabilitation, the original concrete slabs are rarely in a “like new condition” (without any distresses).
RATING ROADS EFFECTIVELY

How to Rate Road Effectively

Speed
Rating roads at high speeds can cause inaccuracy. Reviews conducted by the CTT’s PASER trainers have shown that teams that view roadways at lower speeds are much more likely to rate them accurately. Rating roads at high speeds can cause distresses to be missed and ratings to be higher than appropriate.

Lighting Conditions
Changes in lighting conditions and the time of day can influence how some distresses are perceived. Bright sunlight directly overhead may make surface texture defects or fine cracking hard to discern. Rating early in the morning or late in the afternoon on a sunny day while driving into the sun may also make it difficult to rate roads effectively. If lighting conditions are poor, slow down or stop to make sure that you are not overlooking any visual cues.

Trees cause shadows that can appear to be road distresses. Tree shadows on the road make for very difficult rating conditions. Options are to return to the location at a different time or drive at lower speeds.

Inclement Weather
PASER is a visual assessment system. Trying to rate pavement in the rain is ineffective. Road surfaces look different when they are wet—cracks look larger, puddles can hide distresses, and so forth. Teams should not rate roads when they are wet.

Group Dynamics
Teams need to be aware of group dynamics in their vehicles. Condition rating is supposed to be a group process. However, the process also needs to conform to PASER procedure. Teams should read the PASER descriptions closely and refer to the reference sheets for clarification.

Road Ownership, Use or Importance
Do not rate an important road less than the actual PASER. Do not confuse a management decision with rating. Road ownership, use or importance does not change its distress rating.
Road Construction Projects

When rating a road currently under construction where the old pavement is gone, the road should be rated as if the construction were complete. Rate the existing pavement if construction limits are not established by road work (more than traffic control devices).

What to Assess to Rate Roads Effectively

Rate What You See

Don’t anticipate the next PASER number based on previous PASER data. Rate what you see. The value of the actual rating is a usable record of road improvements and ratings for managing costs and extending service life.

Rate the Worst Lane

If there is a difference in quality, select the worst lane for your rating.

Rate Distress, Not Ride Quality

Just because a road rides well does not mean that it has no distresses in need of capital preventative maintenance or structural improvement. This is especially true on a road with rutting and cracking in the wheel path, both of which can cause rapid deterioration. Conversely, an asphalt surface in relatively good condition with sealed longitudinal cracks often makes quite a bit of noise as tires pass over the expanded crack seal. More noise does not always mean severe distress. Do not let ride quality distort your ratings.

Make Careful Distress Observations on Light-colored Pavement

Oxidized pavements can be very light and often look gray or off-white, which causes distresses to be less visible. Flat lighting on an oxidized pavement can also hinder visibility of distresses.

Measure Rutting

It can be difficult to detect rutting when moving at high speeds on a sunny day. To help avoid incorrect rutting assessments, each regional office has a six-foot aluminum T-bar. By using this bar in conjunction with a tape measure, teams can quickly get a tangible assessment of the extent of rutting on a road where it is practical and safe to do so. It is the rating team’s decision to choose whether to measure rutting by physical assessment.
Paved Shoulders

For paved shoulders, rate the pavement from edge line to edge line and omit the shoulder condition. Shoulders are not rated because they are constructed differently than the traveled way; they typically have a thinner structural layer so deterioration is different.

BOUNDARY SEGMENTS

Boundary roads (roads that fall between jurisdictions) often have non-standard characteristics and splits on the Roadsoft map. As a result, it may be unclear which jurisdiction is responsible for rating a boundary road. To eliminate potential data collection issues when rating boundary roads, follow these two rules:

**Rule 1:** Follow the Data Collection Procedures section carefully. The steps for collecting and submitting TAMC data are laid out in a specific order to prevent rated roads from being overwritten by unrated roads. If you deviate from the documented procedure, some of your rating data may be overwritten by unrated roads.

**Rule 2:** Rating teams should rate all boundary roads in their data collection networks regardless of ownership or maintenance responsibilities.

SPLITTING SEGMENTS

If a team encounters an undocumented change in the surface type or layout of a road (such as number of lanes), they should create a split in the Roadsoft map to reflect the change. Although the Roadsoft map initially splits all street and road segments on an intersection-to-intersection basis (node to node) or by using Act 51 boundaries (township/city/county), agencies can add road segment splits to denote changes in surface types or conditions.

Rating teams should respect segment splits previously created within Roadsoft by local agencies. However, the following guidelines will help you decide if introducing new splits is warranted and will direct you in introducing new splits if necessary while collecting TAMC data.

**Guidelines for Splitting Segments**

- If the area in question has received rehabilitation or reconstruction separate from the framework segment from which it came, then the segment in question should be split from the framework segment into its own designated rating segment.

- Avoid splitting segments into lengths of less than ¼ mile.
Good Reasons for Splitting Segments

Change in Surface Type
If the road surface changes (e.g., from asphalt to gravel, asphalt to chip seal, chip seal to gravel), then splitting a segment to reflect a change in surface type can ensure that the inventory collected is representative of the actual road conditions.

Number of Lanes
Commercial or development activity may require the addition of through lanes or continuous left turn lanes within a given framework segment. Splitting a segment to reflect this addition will ensure that Roadsoft’s lane mileage inventory reflects the true mileage.

Intersection as a Unique Facility
Many intersections within a county/city system are extensions of segments, meaning their design, surface type, service life, and number of lanes is no different than the segment they stem from. However, some intersections have significant changes in surface type and/or geometry. In these cases, it may be best to designate the intersection as a unique facility by making it a distinct segment.

Environmental Factors
Environmental factors can have a significant impact on a segment of road. For example, regular flooding or exceptional frost heave can cause severe damage to the roadway. Although this type of deterioration is rare, these segments should be designated as their own segment if they are longer than a ¼ of a mile. This helps to isolate the area needing rehabilitation or reconstruction.

Bad Reasons for Splitting Segments
The following cases do not affect the network as a whole and, therefore, do not warrant segment splitting:

- Change in PASER over a short stretch (e.g., 50 feet)
- Short right or left turn bay
- School zone
- Traffic count segments
SAFETY CONCERNS

General Safety
During data collection, you will be merging in and out of traffic, slowing down, pulling off to the shoulder for team discussions, and so forth; always take safety precautions! Driving the team vehicle is not something to be taken lightly. All the vehicles must be equipped with a warning light bar. Warning garments should be worn by raters that get out of the vehicle to view distress better or to measure rutting better. Above all, be sure to comply with your employer’s warning garment and safety procedure requirements.

Seating within the Vehicle
The best configuration for a three-person team is the rater in the front passenger seat, and the data entry person in the back seat. If the data entry person sits in the front seat with a laptop, they could be injured by an airbag discharge and can be distracting to the driver.
DATA COLLECTION PROCEDURES
TAMC/MICHIGAN PASER DATA COLLECTION DETAILS

Federal-aid Data Collection versus Paved Non-Federal-Aid Data Collection
The Michigan TAMC collects data for Michigan’s Federal-aid road network. In addition, TAMC requests submission of PASER data collected with or without reimbursement for Michigan’s paved non-Federal-aid road system. Submitting data sets for these two networks gives TAMC a better understanding of Michigan road conditions. However, these two networks have different collection procedures—broken down into Federal-aid procedures (Steps 1-6, coded blue in this manual) and Paved Non-Federal-Aid procedures (Steps 1-5, coded green in this manual)—by which you are to collect data in the Laptop Data Collector for import into Roadsoft; during the data submission process (coded blue in this manual) both sets of collected data can then be imported together into Roadsoft (Step 7), exported into the regional version of Roadsoft (Steps 8 and 9), and submitted to TAMC (Step 10).

Collection Timeline
- Data collection begins: April 1 of every year
- Data collection completed by: Last Friday in November
- Data submitted to the Center for Shared Solutions (CSS) by: First Friday in December

To schedule your Federal-aid PASER data collection, contact your RPO or MPO. See the maps in Appendix B, Appendix C, and Appendix D to determine your jurisdiction’s planning office. See http://miregions.com/michigan-planning-regions/ if you need contact information for an RPO or http://www.mtpa-mi.org/members.asp if you need contact information for an MPO.

Rating Teams
Federal-aid rating teams should be comprised of one member from MDOT, one member from the Act-51 jurisdiction’s RPO/MPO, and one member from the jurisdiction being rated (County, City, or Village). Non-Federal-aid data collection only requires one trained person from the agency or their representative.

Required training sessions
Anyone who participates in the annual PASER data collection of the Federal-aid system and who influences the rating activity must attend on-site PASER training in the same year the data collection occurs. In addition to attending one on-site session, raters who did not attend PASER training the year prior must attend one supplemental PASER webinar session.
TAMC has instituted a testing and certification program for PASER data collectors who attended PASER training and collected PASER data for multiple years. The certification allows experienced raters to opt out of training in future years. The full certification/training requirement policy and a link to TAMC policy is attached as Appendix E for the Federal-aid system and as Appendix F for the paved, non-Federal-aid road system.

**Quality control**

The RPO or MPO coordinating PASER collection must review the collected data before sending it to the CSS. This quality control procedure is described in detail in Step 10 of the data-collection submission process.

**Required Tools**

**Computer hardware**

Data collection teams receive a laptop computer and a GPS unit from their RPO/MPO. However, it is best to have a second laptop in the vehicle just in case something goes wrong. Many county road commissions and cities now have laptop computers; consider using a second laptop for backup.

**Computer software and data sets**

Before you begin collecting road data for the data collection season, ensure that you are using the newest versions and latest frameworks of Roadsoft and Laptop Data Collector, which are released by April 1 of the collection year. Visit [http://www.roadsoft.org/Downloads](http://www.roadsoft.org/Downloads) for the newest version or for Roadsoft updates. If you have any questions or concerns, please call Roadsoft support at (906) 487-2102. The data collection process needs to start with the local agency’s Roadsoft data set, not with a regional version of Roadsoft. Collection teams should therefore use local data – not regional data – as a starting point.

Note that changes to data will only be sent to TAMC if they were collected in the LDC. Rating and changes in ratings should be initially entered in the LDC (not in Roadsoft) or data will not be reported.

**Replacement vehicles**

If you need another vehicle, either use one from the county road commission or rent one. If you need to rent a vehicle, the MDOT rater should sign the rental agreement and purchase the extra insurance.
Corrections for the Framework Map

If a team suspects that they have discovered a needed correction in their jurisdiction’s map, they should first place a short notation in the LDC memo field for that segment (select the Inventory tab). Consistent use of a tag such as “correction” can simplify creating a Roadsoft report containing these errors and the road segments where they are located. This information can be passed on to the CSS for correction.

Next, a team should fill out the Asset Management Change Request for Michigan Geographic Framework (see Appendix G) and submit it to:

Joshua Ross  
Michigan Center for Shared Solutions  
Romney Building, 10th Floor  
111 S. Capital Ave  
Lansing, MI 48933

You can also request changes by contacting Mr. Ross at (517) 373-7910 or rossj@michigan.gov.

Reimbursement

Data collection for federal aid is reimbursable for qualified individuals. Non-Federal-aid collection reimbursement can be given if previously approved by TAMC coordinator. Requests for prior approval to collect non-Federal-aid data for reimbursement and invoices for rating efforts (see Appendix H) should be submitted through your RPO/ MPO to:

Roger Belknap  
Michigan Department of Transportation  
PO Box 30050  
425 W. Ottawa St.  
Lansing, MI 48909

Unpaved inventory collection on the non-Federal-aid system will not be reimbursed. See current TAMC policies for current correction and reimbursement rules.

Working with Smaller Cities and Villages

Smaller cities and villages are often enthusiastic about the data collection process. However, it can be time consuming to visit smaller communities (i.e., communities that have 10 or 20 miles of Federal-aid eligible roads) in order to set up a Roadsoft network. If an agency has a limited number of miles in its jurisdiction, two options exist for including them in the data collection process.

In the latest versions of Roadsoft and the LDC, data collection exports from the LDC can be provided to small agencies as a means for transferring recently collected PASER data that were collected using an export from the county version of Roadsoft. This option should only be used for small cities and villages with their permission because the historical road splits and historical...
data present in the small local agencies’ Roadsoft database will not be available to assist in collection activities. Medium to large cities and villages should collect data using an export from the agency’s version of Roadsoft as you would with a county.

Another option for dealing with very small agencies is to provide them with a report (i.e., of the PASER for the physical reference segment) and have them manually enter data in their version of Roadsoft.

Both of these options allow data collectors to use the collection networks that they build at their road commission without having to stop and upload data for these small agencies. Data collection should be dealt with on a case-by-case basis.

**DATA COLLECTION CYCLE**

This figure shows the data collection cycle for assessing a road network; the steps in this figure correspond to the steps outlined in this section of the manual. Keep in mind that saving a backup during Step 6, signified by the green arrow (⇒) above, is crucial: this backup file creates a save point that allows recovery of data from a previous save point or reverting of data to a previous save point. Make a copy of the backup file you exported in Step 6 and save it outside of Roadsoft. This backup of Roadsoft data must be done prior to importing.
Step 1: Identify your TAMC network for data collection

Make sure you are using the local agency’s copy of Roadsoft at the road commission, city, or village for which you will be collecting data. The decision of how to develop a TAMC network is being left up to agencies and Regional Coordinators. Remember that networks must include at least 50% of Federal-aid eligible road networks. These would include all roads that were not collected in the previous year.

In Roadsoft, create your TAMC network\(^2\) for your current year (CYYY):

i. Select the Road layer in the Map Layers window.

ii. Select Filter Builder:
   a. Right-click anywhere on the map.

iii. Add a criterion \textit{Federal Aid} = \textit{True}:
   a. Select Federal Aid from the fields list.
   b. Select equals (=) as the Operator.
   c. Select True as the Value.
   d. Select the Add button.

iv. Add a criterion of \textit{TAMC Collection Year} \textit{<> PYYY} (where PYYY should be your previous year):
   a. Select TAMC Collection Year from the fields list.
   b. Select not equals (<> or ≠) as the Operator.
   c. Select PYYY as the Value.
   d. Select the Add button.

v. Save this Road Layer Filter:
   a. Select the Save option at the top of the dialogue box.
   b. Give the filter a name such as “CYYY TAMC Network”.
   c. Select the Save button.

⇒ This filter creates your new TAMC network.

\(^2\) If you are collecting data for a paved non-Federal-aid project, follow the steps in the Paved Non-federal-aid Data Collection section, which begins on page 37.
vi. Apply your new CYYY TAMC network as a selection:
   a. Select **Replace Selection**.
      ⇒ The *Selection Information: Road* window will populate with selection data.

vii. Examine your CYYY TAMC network on the map:
   a. Visually verify the selected segments are appropriate for rating this year: you should be collecting data for all roads not rated in PYYY. A full Federal-aid collection consists of PYYY data *and* CYYY data.

If you have any questions or issues creating your TAMC network for your current year, please refer to the Roadsoft Manual help documentation:


Or, please call Roadsoft technical support at (906) 487-2102.
NOTE: For this step, do not select Export for LDC from the LDC menu; this method will code your data for local use only and will not transmit your data to TAMC.

In Roadsoft, export your TAMC network for use with the LDC:

i. Open the Export to LDC dialogue box (see image below):
   a. Select the TAMC menu from the main menu options (Roadsoft menu bar).
   b. Select 1 - (County/City Does This) Export Data for LDC.
      ⇒ This opens the Export to LDC dialogue box.

ii. Locate the new TAMC network that you wish to export:
   a. Select Export Network in the Export to LDC window.
   b. Select the Select button that appears.
   c. Locate the TAMC network that you saved in Step 1:
      • Type the name in the search field.
      • OR: Scroll through the list until you locate your network.
   d. Select the network.
   e. Select the Ok button.

continued on next page
iii. Define an *Export Path*:

*Tip* The Export Path is the location on your hard drive where you want to save the export file.

a. Select the folder icon (button) to browse your hard drive for the location where you want the export to be saved.

OR: Type/paste your desired path into the textbox.

iv. Save the export file to the location you specified:

a. Select the **Export** button.

b. Select the **Ok** button to close the window confirming a successful export.

Roadsoft creates two files in the location you specified:

- RStoLDC_[jurisdiction]_[date]_(time).ldcz
- RStoLDC_[jurisdiction]_[date]_(time).zip

v. Copy the .ldcz file to a CD, flash drive, or other portable storage device.

*Tip* You will be transferring the .ldcz onto the laptop that has the LDC installed on it. **You will also be sending the .zip file to TAMC for the purposes of 50% network reporting.**
CSS requests data before and after collection. Therefore, your agency should submit a copy of the exported TAMC network to the CSS before beginning data collection.

i. Open your web browser (e.g. Microsoft Edge, Internet Explorer, Mozilla Firefox) and go to: http://www.mcgi.state.mi.us/mitrp/Council/Default_Council.aspx.

ii. Select the Investment Reporting menu; then, select Data.

iii. Log in using your user ID and password.

iv. Select the Send sub-tab.

v. Select the Other File button.

vi. Select your jurisdiction from the dropdown menu.

vii. Select Browse to attach the .zip file you created in Step 2.

viii. Select Upload to submit the data to TAMC.

ix. Finally, you must Update Status to notify TAMC you are complete.
Step 4: Import the network into the Laptop Data Collector (LDC)

In the LDC, import your TAMC network for data collection:

i. Connect the portable storage device containing the export file to your laptop.
   - The export file is the .ldcz file (not the .zip file) created in Step 2 by the local agency.

ii. Complete the Roadsoft Laptop Data Collector v# Login dialogue box:
    a. Start the LDC.
       ⇒ The Roadsoft Laptop Data Collector v# Login dialogue box (see image below) will open.
    b. Enter the Crew (name/names of the person/people rating).
    c. Select a DB (database) by selecting the folder icon (button) to locate the export file on the portable storage device.
       - If you want to change your database while inside the LDC, select the File option from the main menu and then select Change DB (Import Data from Roadsoft).
    d. Select the Ok button.
       ⇒ This will import the network created in Step 1 into the LDC.
A. Connect the GPS:

Complete the procedure below outside and free from buildings or other possible signal obstructions.

i. Open the LDC on the laptop.

ii. Make sure your GPS device is turned off; then, connect the GPS to your laptop using the serial or USB connection.

   If your GPS is on before connecting it, your mouse pointer may jump around erratically. If this happens, turn off your GPS, leave it connected, and restart your laptop.

iii. Turn on your GPS and wait for it to acquire a position (this could take a couple of minutes).

iv. Establish communication between the GPS and the LDC:

   a. Select the GPS option from the main menu in the LDC.

   b. Select Start/Stop GPS Connection.

   c. Wait a few minutes for the GPS and the LDC to locate your current position.

   \( \Rightarrow \) The LDC’s GIS map will snap to the GPS position.

   If your GPS fails to connect, wait several minutes and try to connect again. For additional assistance, please consult the Roadsoft Manual at: http://roadsoft.org/sites/roadsoft/files/manual/Laptop_Data_Collector_(LDC)/Getting_Started/Prepare_for_LDC_Data_Collection/Prepare_for_LDC_Data_Collection.htm. Or, please contact Roadsoft technical support if the problem persists.

NOTE: If you are on or near a road segment that is NOT part of the network that you imported into the LDC, the LDC will not snap to a segment on the map. Drive your vehicle toward a road that is part of the network so that the vehicle marker can snap to it. If this does not happen, restart the LDC or contact Roadsoft technical support.

continued on next page
B. Collect data:

i. Use the following shortcut keys to enter data into the LDC’s Road window Rating tab:

<table>
<thead>
<tr>
<th>Keyboard Shortcuts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl + S</td>
<td>Surface Type</td>
</tr>
<tr>
<td>Ctrl + 0-9</td>
<td>PASER</td>
</tr>
<tr>
<td>Ctrl + +/-</td>
<td>Zoom In/Out</td>
</tr>
<tr>
<td>Shift + Ctrl + 0-9</td>
<td>Number of Lanes</td>
</tr>
<tr>
<td>Ctrl + Arrow keys</td>
<td>Pan the GIS Map</td>
</tr>
<tr>
<td>Ctrl + Space bar</td>
<td>Hold/Release Segment</td>
</tr>
</tbody>
</table>

For a complete list of shortcut keys, select the Help menu and then select Shortcut Keys.

IMPORTANT: While collecting data, back up every hour or as often as conveniently possible. From the main LDC menu, select the File menu and then select Backup Database to create a data save point. If data collection spans multiple days, export the data every day and save a copy of the data file with a naming scheme of LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs (inserting appropriate identifiers in place of bracketed text) to a CD or flash drive.

NOTE: The History tab provides a history of PASER for the current segment. Viewing past PASER data before rating a segment can influence the rating. To avoid possibly influencing the current rating based on past ratings, this grid will not be visible until you submit a rating for the segment.

ii. Verify that there are no unrated roads in your TAMC network:

   a. Select the File option from the main menu.
   b. Select Current DB Statistics.
   c. Verify that the Total Miles Not Yet Rated field displays 0.

   ⇨ If the field is zero, you have completed the data collection process and may proceed to Step 6 on page 35. Otherwise, continue to step iii in this ‘Collect data’ process.

iii. Rate any remaining unrated segments:

   a. Select the File option from the main menu.
   b. Select Check for Unrated Segments.

   ⇨ The Unrated Segments dialogue box (see image right) will open.
   c. Highlight a row in the Unrated Segments dialogue box.

   ⇨ This selects the corresponding segment on the map.
d. Enter a rating for the segment in the *Road* window.

e. Repeat steps c and d until the list of unrated segments is completed.

f. Use the **Refresh** button to update the form.

> When there are no more records in the grid, all segments have been rated and you may proceed to Step 6 on page 35.

---

**Scenario A: Agencies that must define their Federal-Aid Unpaved Road Network inventory**

Teams must drive the non-paved roads segments on the federal-aid system and verify the pavement type on the road segment if they have not done this already. Road segments that have a surface type currently set as “Undefined” must be validated by changing the surface subtype to the appropriate subtype. Select the **Validate Surface Type** button to save the data.

If the start- and end-point inventory data for the unpaved road segments are already current, teams can select each individual unpaved segment (which will be colored orange—see E. Sucker Creek Rd., which extends to the right in the image above) in the LDC and can then select the **Validate Surface Type** button without having to drive the entire segment.
Scenario B: Agencies that have already defined their Federal-Aid Unpaved Road Network inventory

If the start- and end-point inventory data for unpaved road segments are already current and accurate, a tool to mass-validate these segments can be found in the File menu of the LDC. Select the File menu and choose Check for Unvalidated Non-Paved Segment from the dropdown menu.

In the Unvalidated Non-Paved Segments dialogue box, place a checkmark in the checkboxes next to each segment that will be validated using this tool. After checking all or some segments, select Validate Checked Segments to submit an inventory validation for the checked segments. All orange segments that are checked with this tool should now be colored green on the map to indicate that they have been validated.

NOTE: Only agencies that have accurate unpaved-road inventories for the federal-aid system should use this tool.
In the LDC, export your TAMC data collection for use in Roadsoft:

i. Select the **File** option from the main menu in the LDC.

ii. Select **Export DB/Data to Roadsoft**.

   ⇒ The *Export Data to Roadsoft* window (see image below) will open.

![Export Data to Roadsoft Window](image)

iii. Save the export file on your hard drive:

   a. Enter a location on your hard drive in the *Export Path* field.

      OR: Select the folder icon (button) to browse your hard drive and find a location.

   b. Select the **Export** button.

   c. Select the **Ok** button once the *Export Complete* notice displays.

iv. Copy the “LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs” file to a portable storage device.

**VERY IMPORTANT:** The “LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs” file functions as a data save point that can be useful for data recovery/reversion purposes. The Roadsoft team strongly recommends that you save a copy of the file in a permanent archive every day to facilitate data recovery. This file can also be used to update small cities and villages with limited Federal-aid miles.

**PROCEED TO COLLECTED DATA SUBMISSION PROCESS – STEPS 7-10** (pages 51-61) if you are not collecting and submitting paved non-Federal-aid data. Alternatively, proceed to the Non-Federal-Aid Data Collection section (Steps 1-5 on pages 39-48) if you are collecting and submitting paved non-federal aid data.
NON-FEDERAL-AID DATA COLLECTION
Step 1: Identify your local (or non-Federal-aid) network for data collection

Non-Federal-aid data collection can be either reimbursable or non-reimbursable (see Reimbursement on page 20); the collection process is the same regardless of reimbursement. While agencies are not required to collect non-Federal-aid data, agencies may find non-Federal-aid or local data to be useful for agency-specific needs or initiatives. Therefore, the process for developing a local collection network in Roadsoft is left up to the local agency’s discretion.

In Roadsoft, create your non-Federal-aid network:

i. Select the Road layer in the Map Layers window.

ii. Select Filter Builder:
   a. Right-click anywhere on the map.

iii. Add a criterion Federal Aid = False:
   a. Select Federal Aid from the fields list.
   b. Select equals (=) as the Operator.
   c. Select False as the Value.
   d. Select the Add button.

iv. Optional: Add any other criteria that you want to use in defining your network.

v. Save this Road Layer Filter:
   a. Select the Save option at the top of the dialogue box.
   b. Give the filter a name such as “CYYY Local Network” or “CYYY Non-Fed-Aid Network” (where CYYY should be your current year).
   c. Select the Save button.
   ⇒ This filter creates your new local (or non-Federal-aid) network.

vi. Apply your new CYYY Local (or Non-Fed-Aid) Network as a selection:
   a. Select Replace Selection.
   ⇒ The Selection Information: Road window will be populated with selection data.

continued on next page

3 If you are collecting data for a Federal-aid project for TAMC, use the steps for the Federal-aid Data Collection track, which begins on page 23.
vii. Examine your CYYY Local (or Non-Fed-Aid) Network on the map:
   a. Visually verify the selected segments are appropriate for rating this year.

If you have any questions or issues creating your local or non-Federal-aid network for your current year, please refer to the Roadsoft Manual help documentation:


Or, please call Roadsoft technical support at (906) 487-2102.
Step 2: Export local (or non-Federal-aid) network for use with the LDC

There are two ways of exporting a local or non-Federal-aid collection network from Roadsoft for use in the LDC. The first option is TAMC Export, which allows you to gather road rating and number of lanes; the second is Export for LDC, which allows recording of more data. Although both options can be used to collect road ratings, use the Export for LDC option when the collection requires more than road rating and number of lanes. Agencies should choose the process that best fits their needs.

A. TAMC Export Option

The TAMC Export Option, will automatically tag your data for TAMC. You can use this option for all non-Federal aid collection. However, this option allows you to gather road rating and number of lanes data only.

i. Open the Export to LDC dialogue box (see image below):
   a. Select the TAMC menu from the main menu in Roadsoft.
   b. Select 1 - (County/City Does This) Export Data for LDC.
   ⇒ This opens the Export to LDC dialogue box.

ii. Find the non-Federal-aid network that you wish to export:
   a. Select Export Network in the Export to LDC window.
      Select the Select button that appears.

continued on next page
b. Locate the non-Federal-aid network you saved in Step 1:
   - Type the name in the search field.
   - OR: Scroll through the list until you locate your network.

c. Select the network.
d. Select the Ok button.

iii. Define an Export Path:

   The Export Path is the location on your hard drive where you want to save the export file.

   a. Select the folder icon (button) to browse your hard drive for the location where you want the export to be saved.
   OR: Type/paste our desired path into the textbox.

iv. Save the export file to the location you specified:

   a. Select the Export button.
   b. Select the Ok button to close the window confirming a successful export.

   Roadsoft creates two files in the location you specified:
   - RStoLDC_[jurisdiction]_[date]_[time].ldcz
   - RStoLDC_[jurisdiction]_[date]_[time].zip

v. Copy the .ldcz file to a CD, flash drive, or other portable storage device.

   You will be transferring the .ldcz file onto the laptop that has the LDC installed on it.

B. Export for LDC Option

The Export for LDC Option does not automatically tag your data. This option is useful for collecting additional data like signs, guardrails, and culverts for local purposes. During this process, you will have an opportunity to opt for automatic tagging of your data for TMC (see Step 2.B.i.c on page 43 and Step 7.iii on page 52).

i. Open the Export to LDC dialogue box (see image below):

   a. Select the LDC menu from the main menu in Roadsoft.
   b. Select Export for LDC.

   A message box will open asking “Are you collecting Road Data for TMC?”

continued on next page
c. Confirm whether this data collection is for TAMC:
   - Select the Yes button if this non-Federal-aid data collection is specifically for TAMC; then, refer to Step 2.A.ii.
     
     **Tip**
     The History tab provides a history of PASER for the current segment. Viewing past PASER data before rating a segment can influence the rating. To avoid possibly influencing the current rating based on past ratings, this grid will not be visible until you submit a rating for the segment.
   
   - OR: Select the No button if this non-Federal-aid data collection is specifically for local use; then, refer to Step 2.B.ii.
     
     **Tip**
     Note that local-use data can still be sent to TAMC (Step 7.iii’s Note on page 52). Selecting the No button will allow you to edit all road inventory data and to view historical ratings prior to entering a rating.

   ⇒ The Export to LDC dialogue box will open.

ii. Select the Road checkbox in the Export to LDC dialogue box (see image below).

iii. Locate the non-Federal-aid network that you wish to export:
   a. Locate the non-Federal-aid network you saved in Step 1:
     
     - Type the name in the search field.
     - OR: Scroll through the list until you locate the network.

   continued on next page
b. Select the network.

c. Select the **Ok** button.

iv. Define an *Export Path*:

   The Export Path is the location on your hard drive where you want to save the export file.

   a. Select the folder icon (/button) to browse your hard drive for the location where you want the export to be saved.

   OR: Type/paste your desired path into the textbox.

v. Save the export file to the location you specified:

   a. Select the **Export** button.

   b. Select the **Ok** button to close the window confirming a successful export.

   ⇒ Roadsoft creates one file in the location you specified:

   • **RStoLDC_[jurisdiction]_[date]_[time].ldcz**

vi. Copy the .ldcz file to a CD, flash drive, or other portable storage device so you can transfer it onto the laptop that has the LDC installed on it.

   ⇒ You will be transferring the .ldcz onto the laptop that has the LDC installed on it.
In the LDC, import your non-Federal-aid network for data collection:

i. Connect your portable storage device containing the export file to your laptop.

   Insert the portable storage device that contains your export file—the .ldcz file (not the .zip file) created in Step 2—from the local agency.

ii. Complete the Roadsoft Laptop Data Collector v# Login dialogue box:

   a. Start the LDC.

      ⇒ The Roadsoft Laptop Data Collector v# Login dialogue box (see image below) will open.

   b. Enter the Crew (name/names of the person/people rating).

   c. Select a DB (database) by selecting the folder icon (button) to locate the export file on the portable storage device.

   d. Select the Ok button.

      ⇒ This will import the network created in Step 1 into the LDC.

NOTE: If you want to change your database while inside the LDC, select the File menu and then select Change DB (Import Data from Roadsoft).
A. Connect the GPS:

Complete the procedure below outside and free from buildings or other possible signal obstructions.

i. Open the LDC on the laptop.

ii. Make sure your GPS device is turned off; then, connect the GPS to your laptop using the serial or USB connection.

If your GPS is on before connecting it, your mouse pointer may jump around erratically. If this happens, turn off your GPS, leave it connected, and restart your laptop.

iii. Turn on your GPS and wait for it to acquire a position (this could take a couple of minutes).

iv. Establish communication between the GPS and the LDC:
   a. Select GPS option from the main menu in the LDC.
   b. Select Start/Stop GPS Connection.
   c. Wait a few minutes for the GPS and the LDC to locate your current position.

The LDC’s GIS map will snap to the GPS position.

If your GPS fails to connect, wait several minutes and try to connect again. For additional assistance, please consult the Roadsoft Manual at: http://roadsoft.org/sites/roadsoft/files/manual/Laptop_Data_Collector_(LDC)/Getting_Started/Prepare_for_LDC_Data_Collection/Prepare_for_LDC_Data_Collection.htm. Or, please contact Roadsoft technical support if the problem persists.

NOTE: If you are not on or near a road segment that is part of the network that you imported into the LDC, the LDC will not snap to a segment on the map. Drive your vehicle toward a road that is part of the network so that the vehicle marker can snap to it. If this does not happen, restart the LDC or contact Roadsoft technical support.

continued on next page
B. Collect data:

i. Use the following shortcut keys to enter data into the LDC’s Road window Rating tab:

- Ctrl + S: Surface Type
- Ctrl + +/-: Zoom In/Out
- Ctrl + 0-9: PASER
- Ctrl + Arrow keys: Pan the GIS Map
- Shift + Ctrl + 0-9: Number of Lanes
- Ctrl + Space bar: Hold/Release Segment
- Ctrl + Enter: Submit (save) Data

For a complete list of shortcut keys, select the Help menu and then select Shortcut Keys.

IMPORTANT: While collecting data, back up every hour or as often as conveniently possible. From the main LDC menu, select the File menu and then select Backup Database to create a data save point. If data collection spans multiple days, export the data every day and save a copy of the data file with a naming scheme of LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs (inserting appropriate identifiers in place of bracketed text) to a CD or flash drive.

ii. Verify that there are no unrated roads in your local (or non-Federal-aid) network:

   a. Select the File option from the main menu.
   b. Select Current DB Statistics.
   c. Verify that the Total Miles Not Yet Rated field displays 0.

   If the field is zero, you have completed the data collection process and may proceed to Step 5. Otherwise, continue to step c in this ‘Collect data’ process.

iv. Rate any remaining unrated segments:

   a. Select the File option from the main menu.
   b. Select Check for Unrated Segments.

   The Unrated Segments dialogue box (see image below) will open.
   c. Highlight a row in the Unrated Segments dialogue box.

   This selects the corresponding segment on the map.
   d. Enter a rating for the segment in the Road window.
   e. Repeat steps c and d until the list of unrated segments is complete.
   f. Use the Refresh button to update the form.

   When there are no more records in the grid, all segments have been rated and you may proceed to Step 5.
In the LDC, export your data collection for use in Roadsoft:

i. Select the **File** option from the main menu in the LDC.

ii. Select **Export DB/Data to Roadsoft**.

   ⇒ The *Export Data to Roadsoft* window (see image below) will open.

iii. Save the export file on your hard drive:

   a. Enter a location on your hard drive in the *Export Path* field.

   OR: Select the folder icon (button) to browse your hard drive and find a location.

   b. Select the **Export** button.

   c. Select the **Ok** button once the *Export Complete* notice displays.

iv. Copy the “LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs” file to a portable storage device.

**VERY IMPORTANT:** The “LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs” file functions as a save point that can be useful for data recovery/reversion purposes. The Roadsoft team strongly recommends that you save a copy of the file in a permanent archive every day to facilitate data recovery.

**PROCEED TO COLLECTED DATA SUBMISSION PROCESS – STEPS 7-10** (pages 51-61) if you are not collecting and submitting paved Federal-aid data. Alternatively, proceed to the Federal-aid Data Collection section (Steps 1-6 on pages 25-36) pages if you are collecting and submitting paved Federal-aid data.
COLLECTED DATA SUBMISSION PROCESS
Step 7: Import the collected data to Roadsoft

IMPORTANT: Before you import new data into Roadsoft, create a data save point for your existing Roadsoft database. To do so, select the Tools menu and then select Backup Roadsoft Database from the dropdown menu. Select a location where you would like to save your file using the file folder icon at the end of the Backup File field to set the location; select the Ok button. Then, select Create Backup.

i. Open the Import Data From LDC dialogue box (see image below):
   a. Select the TAMC menu from the main menu in Roadsoft.
   b. Select 2 - (County/City Does This) Import TAMC PASER Data from LDC.

   ⇒ The Import Data From LDC dialogue box will open.

ii. Import your LDC data:
   a. Select the Browse for LDC Export button.
   b. Locate the “LDCtoRS_[jurisdiction]_[date]_[time].ldc2rs” file.
   c. Select Import LDC Data.

   ⇒ The Import LDC Data dialogue box (see image below) will open.
IMPORTANT: If the network being imported was created using the Export for LDC process and you selected the No button in the TAMC road data message box (see pages 42-43), two windows come up to clarify whether the included data is to be submitted to TAMC: the Submit PASER Data to TAMC? window and the TAMC PASER Rating Requirements window.

iii. The Submit PASER Data to TAMC? window (see top image below) requires Yes/No verification:

   Tip: This window should not appear for Federal-aid submission; if it does, the Federal-aid network was set up incorrectly and was not created as a TAMC Export.

   a. Select the Yes button if you plan to submit the data to TAMC.
   b. Select the No button if you do not want the data included in the TAMC submission in Step 8.

iv. The TAMC PASER Rating Requirements window (see bottom image below) will open if the Yes button was selected.

   a. Select the Yes or No button as appropriate to reflect whether the data meets non-Federal-aid road PASER data collection requirements;

   This will determine whether the data will be included in the TAMC submission in Step 8.

continued on next page
v. Back up your LDC data prior to importing:
   a. Select the Yes button in the Import LDC Data dialogue box to open the Roadsoft Database Manager and create a backup; proceed with importing your collected data.

   OR: Select the No button to skip the backup and continue with the import.

   ⇒ Roadsoft will automatically restart when the import process is complete.
i. Open the *Export TAMC Data to Region* dialogue box (see image below):
   a. Select the **TAMC** menu from the main menu in Roadsoft.
   b. Select **3 - (County/City Does This) Export TAMC PASER Data to Region**.
      ⇒ The *Export TAMC Data to Region* dialogue box will open.

 ![Image of the Export TAMC Data To Region dialogue box]

ii. Define an *Export Path*:
  - The Export Path is the location on your hard drive where you want to save
    the export file.
  a. Select the folder icon (button) to browse your hard drive for the location
    where you want the export to be saved.
     OR: Type/paste your desired export path into the textbox.
  b. Select the **Export** button.

iii. Confirm the successfully completed export:
   a. Select the **Ok** button when the export confirmation dialogue box opens.
      ⇒ Roadsoft will create a file named “TAMC_[jurisdiction]_[date]_[time].tamz” in
         the location you specified.

iv. Copy this .tamz file to a portable storage device.
   - This .tamz file will be sent to your region for import into their Roadsoft
     database.
**Step 9: Import Roadsoft asset management data from the local agency into the regional version of Roadsoft**

**NOTE:** This step is not performed in the field; it should be performed at the regional office to import inspection data from individual agencies.

**IMPORTANT:** Before you import new data into Roadsoft, back up your existing Roadsoft database. To do so, open the Tools menu and then select Backup Roadsoft Database from the dropdown; select Create Backup. Select a location where you would like to save your file using the file folder icon at the end of the Backup File field to set the location; select the Ok button. Then, select Create Backup.

i. Open the Import TAMC Data From Local Jurisdiction dialogue box (see image below) in the regional Roadsoft database:
   a. Select the TAMC menu.
   b. Select 4 - (Region Does This) Import TAMC PASER from County/City.
   \(\Rightarrow\) The Import TAMC Data From Local Jurisdiction dialogue box will open.

![Import TAMC Data From Local Jurisdiction](image)

ii. Find the local agency’s Roadsoft data collection that you wish to import:
   a. Select the Browse For LDC Export button
   b. Locate the “TAMC_[jurisdiction]_[date]_[time].tamz” file.
   c. Select the Import LDC Data button.
   \(\Rightarrow\) An import dialogue box will open.

*continued on next page*
iii. Back up your Roadsoft data prior to importing:
   a. Select the Yes button in the import dialogue box to open the Roadsoft Database Manager and create a backup; proceed with importing the collected data.
   OR: Select the No button to skip the backup and continue with the import.
   ⇒ Roadsoft will automatically restart when the import is complete.

**NOTE:** The Import Roadsoft Data screen lists the last four folders that you imported from. If this is the first time you are importing data, the screen will appear blank.
NOTE: Once your regional data are complete, export the regional shape file to the CSS.

i. Verify your regional data before proceeding:
   a. Follow the steps in PASER Data Quality Control Guide (next page).

ii. Open the Export TMC ShapeFile Data for Council dialogue box (see image below):
   a. Select the TMC menu from the main menu in Roadsoft.
   b. Select 5 - (Region Does This) Export TMC Shape File to Council (Individual County Files).

\[\Rightarrow\] The Export TMC ShapeFile Data for Council dialogue box (see image below) will open.

NOTE: Do not use the standard Roadsoft shapefile export procedure [File > Export layer to File (Shapefile)] as it is different than TMC export.

iii. Define your export variables in the Export TMC ShapeFile Data for Council dialogue box:
   a. Select the county you wish to export using the dropdown menu in the County tab.
   b. Define your Export Path:
      - Select the folder button the right of the Export Path field to browse your hard drive for the location where you want the export to be saved.

continued on next page
c. Select the **Export** button.

   This will export the data to the specified export path. The filename that is created will contain the county and year of data (e.g. AlconaCYYY.zip, where CYYY should be your current collection year).

iv. Upload the exported file to TAMC through the CSS Investment Reporting Tool (IRT):

   a. Repeat Step 3 from the Federal-aid Data Collection on page 29; however, you must choose the **PASER** button rather than **Other File** in Step 3v.
PASER Data Quality Control Guide

It is important to ensure that your PASER data are accurate and comprehensive. It is easiest to check for errors in data at the local and regional levels before submitting data to TAMC. Data quality control can be performed by entering a series of queries into the Filter Builder in Roadsoft. The following steps will guide you through this process and ensure that your agency has a complete set of PASER data.

NOTE: Changes to data will only be sent to TAMC if they were collected in the LDC or hand-entered in the region version of Roadsoft. Rating and changes in ratings should be initially entered in the LDC (not in Roadsoft) or data will not be reported. Data entered into Roadsoft (rather than being collected in the field) will result in missing data when the final collection file is sent to TAMC.

Step 1: Determine the total length of your network

i. Open the Filter Builder either by clicking with your right mouse button on the map in the Map window and selecting Filter Builder, or by selecting the map toolbar’s Filter button and selecting Filter Builder.

ii. In the Filter Builder window, select Open to open the Load Saved Filter window.

iii. Select your saved TAMC network for the current collection year and select the Ok button.

iv. Look at the bottom left of the Filter Builder window (see image below) and record the number of total Miles. You will use this number, along with additional criteria, to verify that your regional PASER data are correct.

continued on next page…
PASER Data Quality Control Guide, continued

Step 2: Determine the total length of paved segments in your network

i. Open the Filter Builder either by clicking with your right mouse button on the map in the Map window and selecting Filter Builder, or by selecting the map toolbar’s Filter button and selecting Filter Builder.

ii. In the Filter Builder window, select the Open button to open the Load Saved Filter window.

iii. Select your saved TAMC network for the current collection year and select the Ok button.

iv. Add Criteria of Surface Type = Asphalt, Concrete, Seal Coat, Brick and select the Add button. Look at the bottom left of the Filter Builder window. Record the number of Paved Miles. You will use this number, along with additional criteria, to verify that your regional PASER data are correct.

![Image of Filter Builder window with 441 Segments Found, 155.171 Miles]

Step 3: Verify that your agency’s TAMC data are accurate

Using the filter criteria provided in the Table of Quality Control Queries (next page), you will be able to detect missing or incorrect data by comparing the miles in a particular query against your original Miles (generated in Section 5, Step 1, above).

In the Table of Quality Control Queries:

- Check: lists the potential error that the criteria checks for
- Criteria: lists the criteria that need to be entered into the network and Filter Builder
- Expected Output: lists the segments/mileage that should display at the bottom left of the Filter Builder after adding the criteria
- Troubleshooting: lists the most likely reason for not getting the expected outcome and steps to take to fix/obtain any inaccurate/missing data.

continued on next page...
Table of Quality Control Queries

Ensure you have recorded the miles within your TAMC network (Section 5, Step 1, above) before you use the following table. When your miles are used in combination with these queries, these figures will help you verify the accuracy and completeness of the data you collected for TAMC.

<table>
<thead>
<tr>
<th>Check</th>
<th>Criteria</th>
<th>Expected Output</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check to see that all mileage in TAMC network have been rated</td>
<td>TAMC Collection Year = current year</td>
<td>Number of miles recorded in Step 1</td>
<td>There are segments that did not receive a rating. Missing rating data must be collected and entered in the LDC.</td>
</tr>
<tr>
<td>Check to see if all submitted segments have a valid surface type</td>
<td>TAMC Collection Year = current year</td>
<td>Number of miles recorded in Step 1</td>
<td>There are undefined roads in the network. Validate these segment types using the LDC.</td>
</tr>
<tr>
<td>Surface Type &lt;&gt; Undefined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check to see if all submitted paved segments have a valid surface rating</td>
<td>TAMC Collection Year = current year</td>
<td>Number of miles recorded in Step 2 (Paved Miles)</td>
<td>There are segments that have an invalid rating. These segments should be reviewed and rated in the LDC.</td>
</tr>
<tr>
<td>Latest Surface Rating &gt;= 1-Failed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check to see if all submitted segments have a valid number of lanes</td>
<td>TAMC Collection Year = current year</td>
<td>Number of miles recorded in Step 1</td>
<td>There are segments that have an invalid number of lanes. Segments with invalid lanes should be reviewed and corrected in the LDC.</td>
</tr>
<tr>
<td>Number of Lanes &lt;= The highest number of lanes within your TAMC network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*An unusually high number of lanes in the drop down list could signify an error in entry</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDICES
## APPENDIX A - PASER MICHIGAN-SPECIFIC CHEAT SHEET

### Asphalt PASER Cheat Sheet

<table>
<thead>
<tr>
<th>Asphalt 10</th>
<th>New construction</th>
<th>No defects</th>
<th>Less than 1 year old</th>
<th>Only a 1/10” for 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remedy/Action</td>
<td>No action required</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 9</th>
<th>Occasional transverse crack &gt;40 apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remedy/Action</td>
<td>No action required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 8</th>
<th>Occasional transverse crack &gt;40 apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remedy/Action</td>
<td>No action required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 7</th>
<th>Transverse cracks 10'-40' apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>First signs of wear</td>
<td>Little or no crack erosion</td>
</tr>
<tr>
<td>Little or no raveling</td>
<td>Few if any patches in good condition</td>
</tr>
<tr>
<td>Remedy/Action</td>
<td>Maintain with crack seal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 6</th>
<th>Transverse cracks less than 10' apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial block cracking (6'-10' blocks)</td>
<td>Sound structural condition</td>
</tr>
<tr>
<td>Blocks are large and stable</td>
<td>Stitch to moderate polishing or flushing</td>
</tr>
<tr>
<td>No patches or few in good condition</td>
<td>Slag raveling</td>
</tr>
<tr>
<td>Remedy/Action</td>
<td>Maintain with sealcoat</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 5</th>
<th>Secondary cracks (crack raveling)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate block cracking (1’ - 5’ blocks)</td>
<td>Sound structural condition</td>
</tr>
<tr>
<td>First signs of longitudinal cracks at edges</td>
<td>Crack open &gt;15”</td>
</tr>
<tr>
<td>Remedy/Action</td>
<td>Reconstruction with base repair</td>
</tr>
<tr>
<td>Crush and shape possible</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 4</th>
<th>Longitudinal cracking in the wheel paths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rutting 1” - 1” deep</td>
<td>(Error in the PASER manual)</td>
</tr>
<tr>
<td>Severe block cracking (&gt;1’ blocks)</td>
<td>First signs of structural weakening</td>
</tr>
<tr>
<td>Severe surface raveling</td>
<td>Multiple longitudinal &amp; transverse cracks with slight crack erosion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 3</th>
<th>&lt; 25% alligator cracking (first signs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate rutting 1’ - 2’ deep</td>
<td>(Error in Revised 2013 PASER Manual)</td>
</tr>
<tr>
<td>Severe block cracking (&gt;Alligator)</td>
<td>Longitudinal &amp; transverse cracks showing extensive crack erosion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 2</th>
<th>25% alligator cracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe rutting distance &gt;2’</td>
<td>Closely spaced cracks with erosion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asphalt 1</th>
<th>Loss of surface integrity</th>
</tr>
</thead>
</table>

### General TMC PASER Rating Q & A

**Reimbursement for Rater’s Time**
Q. Who qualifies for reimbursement as a rater?
A. For TMC reimbursement policies, please visit the TMC Policies site (tmc.moj.org/state.mi.us/MTDRP/Council/Policies.aspx) where you can find information regarding reimbursement for federal aid and non-federal aid.

**Rate Distress, Not Ride**
Q. The road surface has significant cracks, but it rides just fine. Should I rate it higher?
A. NO. Rate surface distress, not ride quality. Be aware of cracks in the wheelpath, they can be hard to see and don’t affect the ride.

**Rutting**
Q. How do I know if rutting is greater than 1/2”?
A. Look for visual cues described during the training. Get out and measure using a straight edge and tape measure. Use caution!

**Road Ownership, Use, etc.**
Q. Does importance of the road influence the rating? For example, should a state trunkline be rated using a different standard than a county road?
A. NO. Roads are rated the same regardless of their use, ownership or functional class.

**Concrete Joint Repairs**
Q. If all the joints of an old concrete pavement have had full depth repairs and the surface was diamond ground to fix surface texture problems, how should I rate this?
A. The highest rating a repaired concrete pavement can receive is a 9. No other defects can be present and the condition is “like new.” However, this is not what the PASER Manual says.

**Error in the Asphalt PASER Manual Rating 3 and 4**
Q. In the PASER Manual (Revised 2013), the limits for the extent of rutting for ratings 3 (1/2” deep or less) and 4 (greater than 1/2” but less than 2” deep) are different from previous versions of the manual and this Cheat Sheet. What limits of the extent of rutting should be used for rating 4 and 3?
A. For the data to remain consistent with previous years use the extent of rutting limits specified on this Cheat Sheet. Rating 4 (rutting 1” - 2” deep) and rating 3 (moderate rutting 1” - 2” deep). Make these corrections in your manual.

**Crush & Shape**
Q. Do you consider a crush and shape a reconstruct?
A. NO. A treatment is considered a reconstruct only if the base material is replaced or rehabilitated.

**Multiple Lanes**
Q. The road has multiple lanes where one lane is in much better condition than the other?
A. Rate the lane with the worst condition.

**Sealcoat Percentages**
Q. The modified sealcoat manual rates distress by percentage of the road surface covered—it states that a rating of 6 can have 10% raveling, 10% edge distress, or 10% lane distress. Are these percentages cumulative? (i.e. Can a 5 have 30% total distress?)
A. NO. A 6 can only have a total of 10% distress, regardless of whether it is edge distress, lane distress or raveling.

---

February 2016
## Concrete PATER Cheat Sheet

<table>
<thead>
<tr>
<th>Concrete 10</th>
<th>Concrete 9</th>
<th>Concrete 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>New construction</td>
<td>Joint rehabilitation, only if no other defects are present</td>
<td>Joints all in good condition</td>
</tr>
<tr>
<td>No defects</td>
<td>Like NEW</td>
<td>Partial loss of joint sealant</td>
</tr>
<tr>
<td>Less than 1 year old</td>
<td>Slight traffic wear in wheel path</td>
<td>No transverse cracks</td>
</tr>
<tr>
<td>Recent reconstruction</td>
<td>Slight map cracking</td>
<td>Mirror surface defects - pop outs, map cracking or slight scaling</td>
</tr>
<tr>
<td>Only a “10” for 1 year</td>
<td>Few pop outs</td>
<td>Isolated meander cracks (well sealed or tight)</td>
</tr>
<tr>
<td>Remedy / Action</td>
<td>Recent concrete overlay</td>
<td>Light surface wear</td>
</tr>
<tr>
<td>No action required</td>
<td>Remedy / Action</td>
<td>Isolated cracks at manholes (well sealed or tight)</td>
</tr>
<tr>
<td></td>
<td>No maintenance required</td>
<td>Remedy / Action</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Little or no maintenance required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concrete 7</th>
<th>Concrete 6</th>
<th>Concrete 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated transverse cracks</td>
<td>Meander and transverse cracks 1/4” open</td>
<td>First signs of crack or joint faulting up to 1/4”</td>
</tr>
<tr>
<td>Full depth repairs all in excellent condition</td>
<td>Transverse joints open 1/4”</td>
<td>First signs of crack or joint faulting up to ½”</td>
</tr>
<tr>
<td>Minor surface scaling</td>
<td>Longitudinal joints open 1/4”</td>
<td>Moderate to severe scaling or polishing between 25% to 50% of surface</td>
</tr>
<tr>
<td>Some open joints</td>
<td>Moderate surface scaling &lt;25% of surface</td>
<td>Spalling from shallow reinforcement</td>
</tr>
<tr>
<td>Some manhole cracks</td>
<td>Several corner cracks tight or well-sealed</td>
<td>Multiple corner cracks</td>
</tr>
<tr>
<td>Isolated settlement or heave areas</td>
<td>First signs of shallow reinforcement cracks</td>
<td>Remedy / Action</td>
</tr>
<tr>
<td>Pop outs could be extensive but sound</td>
<td>Seal open joints and cracks</td>
<td>Grind and repair surface defects</td>
</tr>
<tr>
<td>Remedy / Action</td>
<td>Overlay surface raveling areas</td>
<td>Some partial depth joint repairs or patching may be needed</td>
</tr>
<tr>
<td>Seal open joints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spot repair surface defects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concrete 4</th>
<th>Concrete 3</th>
<th>Concrete 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crack or joint faulting up to 1/2”</td>
<td>Severe crack or joint faulting up to 1”</td>
<td>Extensive and severely spilled slab cracks</td>
</tr>
<tr>
<td>Severe scaling, polishing, map cracking or spalling &gt; 50% of surface</td>
<td>D-Cracking evident</td>
<td>Extensive failed patches</td>
</tr>
<tr>
<td>Multiple transverse or meander cracks</td>
<td>Many joints, transverse and meander cracks open and severely spilled</td>
<td>Joints failed</td>
</tr>
<tr>
<td>Severe scaling, polishing, map cracking or spalling &gt; 50% of surface</td>
<td>Extensive patching in fair to poor condition</td>
<td>Severe and extensive settlement &amp; heaves</td>
</tr>
<tr>
<td>Corner cracks missing pieces or patches</td>
<td>Remedy / Action</td>
<td>Remedy / Action</td>
</tr>
<tr>
<td>Pavement blowouts</td>
<td>Extensive full depth repairs</td>
<td>Recycle or rebuild pavement</td>
</tr>
<tr>
<td>Remedy / Action</td>
<td>Some full slab replacements</td>
<td>Concrete 1</td>
</tr>
<tr>
<td>Some full depth repairs</td>
<td></td>
<td>Restricted speeds</td>
</tr>
<tr>
<td>Asphalt overlay or extensive surface texturing</td>
<td></td>
<td>Extensive potholes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total loss of pavement integrity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remedy / Action</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total reconstruction</td>
</tr>
</tbody>
</table>

## General TACM PASER Rating Q & A

**Sealcoat Road vs. Sealcoat Treatment**

Q: If I apply sealcoat or chip seal on a hot mix asphalt (HMA) road, does it become a sealcoat road?
A: NO. Sealcoat applied over asphalt is a treatment. A sealcoat “road” is simply sealcoat over gravel.

**Paved Shoulders**

Q: If I have a paved shoulder that is in bad shape should I consider it in the rating?
A: NO. Disregard the shoulder. Rate only the drivable pavement, edge line to edge line.

## Composite Paverment

**Q:** If I have a concrete pavement that was overlaid with asphalt (composite pavement) should I rate it as asphalt or concrete?
A: Rate based on the uppermost surface, in this case, asphalt; but note the surface subtype as composite.

**Anticipated Repairs**

Q: I know a road is being reconstructed next month or I know a chip seal is scheduled before the end of the season. Should I rate it higher because I know the work will be done?
A: NO. Rate the current surface condition as it exists. If construction is in progress (work is active), but you are driving on the old surface, go ahead and rate the new surface. Some barrels sitting on the side of the road is not construction in progress.

## Contact Information

RoadSoft & LDC Technical Support: 906-487-2102
TACM Coordinator: Roger Belknap, 517-373-2249
e-mail: belknapr@michigan.gov

Center for Shared Solutions (CSS)
Framework Issues: 517-373-7910, ask for Josh Ross
PASER Data Submission via the CSS IRT web site
http://tacm.mcsi.state.mi.us/TACM/
APPENDIX B – MICHIGAN’S REGIONAL PLANNING ORGANIZATIONS

* RPOs/MPOs responsible for PASER collection in Region 3 in 2013:
  Kalamazoo Area Transportation Study (KATS) for Barry, Kalamazoo, St. Joseph, & Branch Counties
  Battle Creek Area Transportation Study (BCATS) for Calhoun County
APPENDIX E – PASER CERTIFICATION/TRAINING REQUIREMENT POLICY

This document is based on the policy adopted by The Transportation Asset Management Council on February 6, 2013.

To view the policy go to http://tamc.mcgi.state.mi.us/MITRP/Council/Policies.aspx

Introduction:
The Transportation Asset Management Council (TAMC) was established to expand the practice of asset management statewide to enhance the productivity of investing in Michigan’s roads and bridges. Part of TAMC’s mission is to collect physical inventory and condition data on all roads and bridges in Michigan. This document describes the policy and procedures for collecting the physical inventory and condition data on the Federal-aid eligible roads & streets of the State.

Requirements:
According to Act 51 (P.A. 499 2002, P.A. 199 2007); each Local Road Agency and the Department of Transportation shall annually report to TAMC the mileage and condition of the road and bridge system under their jurisdiction.

Rating Teams:

- Shall be comprised of one (1) member from the Michigan Department of Transportation (MDOT), one (1) member from the Regional / Metropolitan Planning Organization (RPO/MPO) and one (1) member from the Act-51 jurisdiction being rated (County, City/Village).

Training:

- Anyone who participates in the annual PASER condition data collection of the Federal-aid system and influences the rating activity MUST attend on site PASER training in the same year the data collection occurs. This does not discourage observers from riding in the data collection vehicles for information purposes.
- New raters (never attended PASER training before) and seasoned raters (who did not attend PASER training the year prior) MUST attend one (1) supplemental PASER webinar training session in addition to attending one (1) on site session.

- Individuals that are PASER Certified Raters are exempted from on-site training as defined in PASER Certification Eligibility Requirements section of this policy.

- RPO and MPO coordinators are required to attend onsite training events every year regardless of their experience or certification status. RPO and MPO representatives are critical to the success of TAMC PASER data collection, so it is important for them to continue to promote and support the program by attending on site events.

**PASER Certification Eligibility Requirements**

To be considered a candidate to take the PASER certification exam the individual must meet the following criteria:

1) All candidates: Six (6) or more years (not including the current calendar year) of attendance of TAMC PASER on-site training as verified through the Center for Technology & Training (CTT) records.

2) Candidates that are civil engineers: five (5) or more years (not including the current calendar year) of attendance of TAMC PASER on-site training as verified through CTT records.

3) Rated a portion of their road network during TAMC collection for the same number of years trained (not including the current calendar year). This will be verified by a signed letter from the individual stating their rating experience.

4) Attend the current calendar year TAMC PASER on-site training portion of the workshop as well as the examination administration portion of the workshop.

**Certification Exam**

1) The written certification exam will be administered at the on-site sessions of TAMC PASER training to eligible candidates.

2) Candidates must pass the written certification exam during the on-site training sessions. The passing score is 70% correct or will be adjusted using the normal distribution (bell curve) of the scores depending on the difficulty of the exam questions at the discretion of CTT staff.

3) Candidates who do not pass the certification exam will be able to attend another on-site PASER session during the same year and retake the exam as space and administration
allows. Individuals may repeat examination sessions as many times in one year as space and administration allows.

4) TAMC will hold exam results and exam questions as documents that are not open to the public without a freedom of information act request to prohibit development of files of exam questions that can be used to memorize facts rather than learning concepts.

Certification Benefits and Responsibilities

1) Certified raters are required to attend on-site TAMC PASER training every other year; i.e. a two (2) year cycle to recertify by taking the certification exam. For example:

   a) Certification Year: Candidate is required to attend TAMC PASER on-site training portion of the workshop as well as the exam administration portion. If the candidate passes the certification exam he/she is certified for that and the next rating season.

   b) One year after Certification Year: The certified individual is not required to attend TAMC PASER on-site training portion of the workshop or the exam administration portion during the calendar year immediately proceeding the year of certification. Certified individuals must attend an organizational webinar.

   c) Two years after Certification Year: Recertification - the certified individual is required to attend TAMC PASER on-site training portion of the workshop as well as the exam administration portion to take the exam for recertification.

   As data is collected and Quality Assurance/Quality Control verifies that quality data is being produced, TAMC may consider decreasing the required training certification frequency to once every three (3) years for certified individuals.

2) Certified individuals are required to attend an organizational webinar for updates to business rules and changes to the data collection process. This webinar is required to keep certified raters informed of new guidance in the program and provides raters with an opportunity to interact with TAMC members.

Data Collection:

- TAMC will annually budget for data collection on 50% of the Federal-aid network.
- Data collection must be consistent with the PASER collection business rules.
- The use of the Roadsoft Laptop Data Collector (LDC) is required.
The first day for field data collection shall be April 1st of every year.

The last day for field data collection shall be the last Friday in November.

Data Submission:

- The RPO/MPO Coordinator is responsible for submitting the completed PASER Data export to the Michigan Center for Shared Solutions (CSS).
- The deadline for the RPO/MPO to upload data to CSS is the first Friday in December.

Data Standards:

The export file from Roadsoft will be in a Shapefile format. It is the user's responsibility to ensure that the correct file type is submitted. Exports containing text files are not accepted.

Instructions on how to prepare the Federal-aid road network for the LDC and how to submit the collected data can be downloaded at the following web site:

*See the current year’s PASER Training Manual under the PASER Training page at [http://www.michiganltap.org/PASER_Manual](http://www.michiganltap.org/PASER_Manual)*

Quality Control:

The Regional/Metropolitan Planning Coordinator MUST review the collected data before sending it to the Center for Shared Solutions (CSS) looking for missing entries (zeros), valid surface type, missing surface type, valid number of lanes, missing lane information and large jumps in PASER (up/down) in areas where treatments were not done.

Reimbursement:

Each rating team must complete a Time Expense Log in order to be reimbursed by TAMC. These are provided and submitted by the Regional / Metropolitan Planning Organization Coordinator to TAMC Asset Management Coordinator.

- The team member representing the Act-51 jurisdiction being rated (County, City/Village) will be reimbursed for relevant expenses related to the data collection effort (time, travel, meals) via annual RPO/MPO project authorization with TAMC.
- The team member representing MDOT will be reimbursed by TAMC via annual approved budget for PASER review.
- The team member representing the RPO/MPO will be reimbursed via annual project authorization with TAMC.
If you have any questions relating to reimbursement and/or this policy as a whole, please contact:

Roger Belknap – T AMC Asset Management Coordinator
Michigan Department of Transportation
P.O. Box 30050
425 W. Ottawa St.
Lansing, MI 48909
(517) 373-2111
APPENDIX F – POLICY FOR COLLECTION ON ROADWAY CONDITION DATA ON (PAVED) NON-FEDERAL-AID ELIGIBLE ROADS AND STREETS

July 10, 2015

RE: Policy for Collection on Roadway Condition Data on (Paved) Non-Federal Aid Eligible Roads and Streets

Dear Transportation Agencies,

Since 2009, the Transportation Asset Management Council (TAMC) has been working with local road agencies to collect PASER data on the paved non-federal aid system. In 2009, the TAMC began a policy to annually budget to reimburse agencies for data collection of PASER data on up to one third of the State’s paved non-federal aid road system. Many local road agencies have taken part in this reimbursement program to the extent funds allowed. The TAMC is also aware of many local road agencies that periodically collect PASER data on the paved non-federal aid system without reimbursement from the TAMC.

The TAMC would like to request submission of paved non-federal aid PASER data that agencies may have collected for their own purposes. If a local road agency is currently collecting paved non-federal aid PASER data without TAMC reimbursement; the TAMC would like to kindly request submission of that data annually. Your submission of paved non-federal aid data, with or without reimbursement, allows the TAMC to have a better indication as to the status of the State’s paved non-federal aid road system. Data submitted before December 15th of each year can be included in the TAMC Annual Report.

For non-federal aid road system data to be accepted by TAMC and included in the TAMC Annual Report, it must meet the following requirements:

- The use of the Roadsoft Laptop Data Collector (LDC) is required. See Section 2: Data Collection Procedure in the Current TAMC PASER Training Manual for information on the use of Roadsoft and the LDC for this data collection, or call CTT’s Technical assistance line at (906) 487-2102 for assistance or clarification of any of the steps.
- Data collectors must be current on PASER training educational requirements consistent with other data collected by TAMC.


Frank Kelley – Asset Management Coordinator
MURRAY D. VAN WAGNER BUILDING • P.O. BOX 30050 • LANSING, MICHIGAN 48909
www.michigan.gov/tamc • (517) 373-2111
The TAMC will continue to review our policy for collection of data on the paved non-federal aid system. We appreciate local road agencies commitment to asset management data collection to enhance the productivity of investing in Michigan’s roads and bridges through coordination and collaboration among State and local transportation agencies.

If you have any questions on how to submit data and/or requirements, please contact Frank Kelley, Interim Asset Management Coordinator.

Sincerely,

Roger Safford, Chairman

CC: Michigan Transportation Asset Management Council
APPENDIX G – FRAMEWORK CORRECTION FORM

Asset Management Change Request for Michigan Geographic Framework

All boxes must be completed

Map Reference Number: ____________________________  Date Observed: ____________

Contact Information

Contact Name: ___________________________________  Agency: _________________________

Phone Number: (____) _____________________________  EMAIL: _________________________

Is the Observer the same person as the Contact person? If no:

Observers Name: ________________________________  Agency: _________________________

Phone Number: (____) _____________________________  EMAIL: _________________________

Location Information

County: __________________________________________

Township/City/Village: ____________________________

Street Name: ____________________________________

PR 1: __________________________________________

Cross Street 1: __________________________________

PR 2: __________________________________________

Cross Street 2: __________________________________

Who has jurisdiction of this road? ____________________________

What kind of Change? (Please Check One)

☐ Intersection Reconfiguration  ☐ Road Addition  ☐ Road Removal

☐ Road interruption: IF YES, what is the cause?

☐ Other, please explain (use back for more space):

What year did this change occur? ____________________________

Make additional copies as needed

Revised Date: June 2, 2005

Please send completed forms and reference map to: CGI, Attn: Laura Blasic

Romney Building - 10th floor, 111 S. Capitol Ave., Lansing, MI 48913 (517) 373-7910

This form can be found at: http://www.michigan.gov/documents/cgi/CGI_AssetManagement_178936_7.pdf.
APPENDIX H – DATA COLLECTION TIMESHEET

This form is an example; please obtain appropriate Time Expense logs from your RPO/MPO.

| TRANSPORTATION ASSET MANAGEMENT COUNCIL |
| DATA COLLECTION - ROAD INVENTORY LOG |

**CREW INFO:** Please insert the names of the crew.  
M-DOT Region -  
Planning Region -  
County -  
City -  
Date:  
Hours/Minutes Worked:  

**Please check the following work type:**  
OFFICE WORK:  
FIELD WORK:  

**GEOGRAPHIC AREA:** Please insert region, county, township, city, etc.  

**MILEAGE LOG:**  
VEHICLE:  
BEGIN MILE:  
END MILE:  
TOTAL:  

TOTAL MILES OF FED-AID ELIGIBLE ROADS INVENTORIED:  

Please fill out this form each day you perform asset management tasks. E-mail to chesbrog@michigan.gov. If you have any questions, please contact Gil Chesbro at 517-335-2963 (office) or 517-242-3535 (cell)
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