

MICHIGAN
LOCAL AGENCY
SPECIAL PROVISION
FOR
PASS-THROUGH WARRANTY BONDS

CRA/MML
MDOT
FHWA

1 of 1

09/04/2017
09/18/2018
11/01/2018

a. Description. This special provision establishes the conditions under which and method for a contractor to assign responsibility for the warranty obligations and the providing of a warranty bond to a warranty contractor(s). Second tier subcontractor assignments are prohibited.

b. Requirements. Ensure the Warranty Contract(s) and warranty bond(s) are on forms provided by the Local Agency. Ensure the bonds meet the requirements of Michigan law and of the Local Agency and include other items such as the powers of Attorney and Endorsement as specified by the Local Agency.

c. Method. The assignment must be made to the warranty contractor(s) that will perform the work covered by the warranty. If for any reason after signing the Warranty Contract and providing the Warranty Bond, the warranty contractor does not perform the work, the warranty contractor will remain obligated for the warranty obligations and the warranty bond obligations will remain in effect unless the Local Agency consents in writing to substituting a different contractor to assume those warranty obligations and accepts a substitute warranty bond.

The assignment of warranty work must be designated with and at the time of electronic bid submittal. To become a warranty contractor responsible for the warranty obligations of the contract, and providing a warranty bond, the warranty contractor must complete and submit to the Local Agency a Warranty Contract and a Warranty Bond for each warranty it will be responsible for. Ensure the Warranty Contract is signed by an authorized signer of the warranty contractor, as identified in its prequalification application.

Submit the Warranty Contract and Warranty Bond to the Local Agency prior to award of the construction contract to the prime contractor for the work to which the warranty applies. Ensure the warranty contractor is prequalified in the work classification for the type of work to be warranted. The Warranty Bond must guarantee performance of all warranty obligations for the covered work, in accordance with the Warranty Contract. All provisions of the prime contract will be applicable to the warranty contractor in regard to the warranty work, except as otherwise expressly provided in the Warranty Contract.

Under no circumstances does the assignment of the warranty work and the execution of a Warranty Contract create any obligations to the Local Agency beyond the obligations undertaken in the prime contract. The purpose of the Local Agency accepting the assignment of warranty obligations is to allow a warranty contractor to stand in place of the prime contractor for purposes of the warranty work without increasing any obligation or liability that the Local Agency would have had if the prime contractor had not assigned the warranty work.

d. Measurement and Payment. This work will not be paid for separately, but will be included in costs for other pay items.

Designers should add the project specific type of warranty and additional information shown in the example for the project following the format in the example below. Ensure the font and color is correct for the special provision, then delete this note and submit with the project at turn in to LAP (MDOT oversight) or Local Agency (local oversight) without further review.

**MICHIGAN
LOCAL AGENCY
SPECIAL PROVISION
FOR
PAVEMENT WARRANTY INFORMATION**

CRA/MML
MDOT
FHWA

1 of 1

09/04/2018
09/18/2018
11/01/2018

a. Description. This work consists of the determined low Bidder, or the subcontractor(s) indicated in writing from the contractor, providing a warranty bond for the warranty(ies) listed herein. Below are the warranty(ies) required in this contract along with the locations where the warranty applies and a listing of the pay items and estimated quantities associated with that warranty type.

Example of warranty information to be added.

WARRANTY WORK REQUIREMENTS FOR HMA PLACED OVER AGGREGATE BASE WITH OUT BASE OR DRAINAGE IMPROVEMENTS - applies for job number 123456A from:

Sta. 10+00 (POB) to 20+50 for southbound
Sta. 10+00 (POB) to 20+50 for northbound

Pay Item Description	Quantity and Pay Units
HMA, 4E1	500 Ton
HMA, 5E1	500 Ton

WARRANTY WORK REQUIREMENTS FOR HMA RECONSTRUCTION - applies for job number 123456A from:

Sta. 20+50 to Sta. 35+00 (POE) for southbound
Sta. 20+50 to Sta. 35+50 (POE) for northbound

Pay Item Description	Quantity and Pay Units
HMA, 4E1	500 Ton
HMA, 5E1	500 Ton

b. Bonds. Ensure the bonds are on approved forms. Ensure the bonds meet the requirements of Michigan law and of the local agency, and include other items such as the powers of Attorney and Endorsement as specified by the Local Agency.

c. Construction. None specified.

d. Measurement and Payment. The bonds will not be paid for separately but are considered to be included in the cost of the related items of work.

MICHIGAN
LOCAL AGENCY
SPECIAL PROVISION
FOR
HOT MIX ASPHALT and CONCRETE PAVEMENT WARRANTY
1 of 7

CRA/MML
MDOT
FHWA

09/04/2018
09/18/2018
11/01/2018

- a. Description.** The Hot Mix Asphalt (HMA) and Concrete Pavement Warranty (Pavement Warranty) consists of the contract warranty provisions, warranty bond, the terms of this special provision, the terms of the special provisions for Warranty Work Requirements for HMA and Concrete Pavements, and the Specifications for Warranty Work included in the contract. This special provision establishes the common terms, definitions, and requirements applied to pavement projects requiring a warranty. The Pavement Warranty assures and protects the Local Agency (Agency) from specific defects in pavements due to materials and/or workmanship.

Under the Pavement Warranty special provisions the Contractor is responsible for correcting defects in the pavement caused by elements within the Contractor's control (i.e., the materials and/or workmanship), during the warranty term. The Pavement Warranty passes through to subcontractors and / or suppliers at the direction of the Contractor and upon written notice to the Agency. The Agency is responsible for the pavement design. Therefore, the Contractor assumes no responsibility for design related defects. A pavement defect due to the materials, workmanship and the design, will result in a shared responsibility for correcting the defect by the Agency and the Contractor. The Contractor is responsible for the percentage of fault attributable to the materials and/or workmanship. The Agency is responsible for the percentage of fault attributable to the design. Note: The Agency elects to require the Contractor to provide the pavement design(s) in *design-build* contract documents and specifications. In this case, the Contractor is responsible for the percentage of fault attributable to the design

b. Definitions.

Abrasion. The wearing (loss) of a material by tire friction or snow plowing.

Acceptance Date of Warranted Work. The date when the warranted work is complete, has been determined by the Agency to be in compliance with the contract specifications, and is continuously open to traffic. This is the date of warranted work acceptance (See Section c. Warranted Work Acceptance) and constitutes the start of the warranty period. There may be more than one acceptance date of warranted work for a project.

Adhesion. The bonding of a material to an underlying pavement surface.

Asphalt Flushing. The accumulation of excess asphalt binder on the pavement surface that creates a shiny, reflective condition, and becomes tacky to the touch at high temperatures.

Cohesion. The resistance of a material to internal rupture.

Conflict Resolution Team (CRT). The three-person team responsible for voting in resolution of disputes between the Agency and the Contractor regarding any claim of non-compliance with the warranty requirements.

Crack. A visible fissure or surface discontinuity that may or may not extend through the entire slab/pavement. Cracks may be singular or in multiple patterns. Surface Crack types are:

- a. **Alligator.** Parallel longitudinal cracks with transverse tears between them exhibiting a pattern similar to an alligator hide. An alligator crack typically starts in a wheel path and may extend to other lane locations of a HMA pavement.
- b. **Block.** Transverse and longitudinal cracking in a pavement that has progressed to a pattern that the pavement is broken into blocks of size less than 12 - foot by 12 - foot. The shape of each block may be irregular.
- c. **Corner.** Orientation is generally diagonal and located near a concrete slab corner. It may intersect either a transverse or a longitudinal pavement joint.
- d. **Longitudinal/Open Joint.** A crack, at least five feet in length, that is oriented primarily in the longitudinal direction versus the transverse direction. That is, the angle between the overall crack line and the centerline is less than 45 degrees. It can exist anywhere in the driving lane; i.e., at the pavement centerline joint, wheel path, center of lane, or lane/shoulder joint. This does not include reflective cracking from underlying pavement.
- e. **Map.** Interconnecting, variable spaced cracks in a random orientation and pattern.
- f. **Non-Working.** Cracks that experience relatively little horizontal or vertical movement as a result of temperature change or traffic loading. As a general rule, a width less than 1/8 inch.
- g. **Transverse.** A crack, at least five feet in length, that is oriented primarily in the transverse direction versus the longitudinal direction. That is, the angle between the overall crack line and the transverse line is less than 45 degrees. It can be either straight or irregular in direction.
- h. **Working.** Cracks that experience considerable horizontal or vertical movement as a result of temperature change or traffic loading. In general, the width is greater than or equal to 1/8 inch.

De-bonding. A physical separation of two HMA layers. De-bonding will be visually identified as shoving, or loss of the top course. Surface potholes, regardless of depth, will be classified as de-bonding.

Driving Lane(s). The delineated pavement surface used by traffic and the portion of the pavement considered warranted work. Each of the following is considered a separate driving lane.

- Each individual mainline lane.
- The sum of all ramp lanes and the associated acceleration/deceleration lanes is considered a separate driving lane.
- The sum of all auxiliary lanes, such as passing lanes and turn lanes, is considered a separate driving lane.

Approaches, driveways, shoulders and adjoining transition tapers between various types of pavement are not considered driving lanes for the purpose of this provision.

Joint Sealant Failure. The loss of material integrity consisting of either adhesive failure (de-bonding), cohesive failure (material separation), or the complete loss of sealant material.

Local Agency. A road commission or municipality with legal responsibility for the roads or streets within their respective governmental jurisdictions. Sometimes referred to as Agency.

Loss of Cover Aggregate. Areas of coarse and fine aggregate removal from the pavement surface caused by the mechanical action of troweling and/or grooving the concrete surface during placement.

Opening to Traffic. The allowance of vehicles on the new pavement with the appropriate lane markings/striping and signage.

Over-band. A type of crack sealing in which sealing material is allowed to completely cover prepared cracks by extending onto the adjacent pavement surface.

Raveling. Surface disintegration of a HMA pavement, due to the loss of coarse or fine aggregate material that occurs over an area or in a continuous longitudinal strip. Wear caused by snowplow abrasion is not considered raveling.

Rutting. A longitudinal surface depression in the wheel path. It may have associated transverse displacement or humping.

Scaling. The concrete surface has a visible, exposed, rough texture from a loss of either aggregate or mortar.

Shattered Slab. A concrete pavement slab broken into four or more sections by full-depth cracks.

Spall. Broken or missing piece of concrete contiguous with the perimeter edge of a slab with a surface area exceeding two square inches.

Warranty Bond. A bond (the lesser amount of 5% (percent) of the total contract amount or \$1,000,000) issued by a surety which guarantees meeting of the warranty requirements.

Warranted Work. Completed warranted work upon acceptance that is to be evaluated throughout the warranty term.

Warranty Work. Corrective actions / repairs performed to correct deficiencies in the completed warranted work in order to achieve final acceptance (Section I of this special provision) at the end of the warranty term.

Warranty. A surety guarantee that the warranty requirements will be met.

- c. Warranted Work Acceptance.** The Agency and the Contractor must jointly review all completed warranted work, or a portion thereof, as determined by the Agency. If the work does not meet contract requirements, the Contractor must make all necessary corrections, at their expense, prior to acceptance. Warranted work acceptance will occur as soon as the Agency's confirmation is in writing in the Agency's acceptance notice. And that contract requirements have been met for the warranted work and has been continuously open to traffic. The date on which acceptance date of warranted work occurs is the start date for the warranty term.

Warranted work acceptance will be documented in the Agency's acceptance notice and executed jointly by the Agency and the Contractor. A copy of the acceptance notice will be sent to the Contractor's warranty bond surety agent by the Agency. Neither the warranted work acceptance

nor any prior inspection, acceptance or approval by the Agency diminishes the Contractor's responsibility under this warranty.

The Agency in order to accommodate seasonal limitations or staged construction shall accept the warranted work and begin the warranty term, excluding any area needing corrective work.

Acceptance of material, in penalty, under the Agency's quality assurance program will not relieve the Contractor from meeting the Pavement Warranty requirements for the accepted material.

d. Warranty Bond. The Contractor is to furnish a single term warranty bond on a form supplied by the Local Agency, in an amount stipulated in the Special Provision for Warranty Work Requirements, prior to contract award. The effective starting date of the warranty bond and warranty term will be the Acceptance Date of Warranted Work. The warranty bond will be released at the end of the warranty term and/or upon satisfactory completion of all warranty work; whichever is later as per Section I. Final Acceptance of this special provision.

e. Rights and Responsibilities of the Agency. The Agency:

1. Reserves the right to approve the schedule, time, traffic control and methods proposed by the Contractor to perform warranty work.

2. Reserves the right to approve all material usage and specifications in warranty work.

3. Reserves the right to determine a Contractor's warranty work performance as meeting the contract specifications.

4. Reserves the right to perform, or have performed, routine maintenance during the warranty term; which routine maintenance will not diminish the Contractor's responsibility under the warranty.

5. Reserves the right, upon the non-availability of the Contractor, to make immediate emergency repairs to the pavement to prevent an unsafe road condition as determined by the Agency and upon notification to the Contractor of the requirement for additional repairs.

6. Will be responsible for monitoring the pavement throughout the warranty term. And will provide the Contractor all written reports of the pavement condition related to the warranty requirements. The Agency reserves the right not to relieve the Contractor of any responsibility based upon a claim for any failure by the Agency to adequately monitor the pavement or to report findings to the Contractor.

7. Will be responsible for notifying the Contractor, in writing, of any warranty work (corrective action/repair) requirement to meet the warranty requirements.

f. Rights and Responsibilities of the Contractor. The Contractor:

1. Must warrant to the Agency that the warranted work will be free of defects in the materials and/or workmanship. Ensure the warranty bond is described on the completed form and submitted to the Agency prior to award of contract.

2. Will be responsible for performing all warranty work including, but not limited to, maintaining traffic, finish pavement marking, and restoring all other associated pavement features, at the Contractor's expense.

3. Will be responsible for performing all repairs, resulting from being in non-compliance with the warranty requirements, using Agency approved materials and methods. Corrective actions and/or repairs shall commence before the expiration of the 60-day period of notification unless otherwise approved by the Agency.

4. Will be responsible to perform emergency repairs of the warranted work upon verbal and written notification from the Agency as per Section k. Emergency Repairs in this Special Provision.

5. Must notify the Agency and submit a written course of action for performing the needed warranty work a minimum of 10 (ten) calendar days prior to commencement of warranty work, except in the case of emergency repairs as detailed in this special provision. The submittal must propose a schedule for performing the warranty work and the materials and methods to be used.

6. Must follow an Agency approved maintaining traffic plan when performing warranty work. Ensure all warranty work is performed under permit issued by the Agency's Engineer. The permit fee and an individual permit performance bond will not be required. The permit insurance requirements, however, will apply.

7. Must furnish to the Agency, if warranty work required, a supplemental lien bond covering any warranty work being performed. The supplemental bond is furnished prior to beginning any warranty work. Ensure the supplemental bond is in the amount required by the Agency to cover the costs of warranty work.

8. Must complete all warranty work prior to conclusion of the warranty period, or as otherwise agreed to by the Agency.

9. Will be liable during the warranty period in the same manner as Contractors currently are liable for their construction related activities with the Agency pursuant to the current MDOT Standard Specifications for Construction including, but not limited to subsections 104.07.C, 107.10, and 107.11 or revisions thereto. This liability will arise and continue only during the period when the Contractor is performing warranty work. This liability is in addition to the Contractor performing and/or paying for any required warranty work, and will include liability for injuries and/or damages and any expenses resulting therefrom which are not attributable to normal wear and tear of traffic and weather; but are due to non-compliant materials, faulty workmanship, and to the operations of the Contractor as set forth more fully in subsections 104.07.C, 107.10 and 107.11 of the current MDOT Standard Specifications for Construction or revisions thereto.

g. Evaluation Method. The Agency will conduct pavement evaluations by dividing the project into segments. Each individual driving lane will be divided into segments of 528 feet (1/10 mile) in length for measuring and quantifying the condition parameters. The Evaluation Method will include field pavement condition reviews. The Agency reserves the right to waive this evaluation in emergency situations.

The beginning point for laying out segments will be the Point of Beginning (POB) of the project. Segments will be laid out consecutively to the Point of Ending (POE) of the project. The original segmentation of the project will be used for all successive reviews throughout the warranty term.

h. Condition Parameters. Condition parameters are used to measure the performance of the warranted pavement during the warranty term. Each condition parameter threshold limit is applied to each segment and defines the number of allowable defective segments before corrective action (warranty work) is required.

During the warranty term, the Contractor will not be held responsible for pavement defect caused by factors unrelated to materials and/or workmanship. These include but are not limited to: chemical and fuel spills, vehicle fires, snow plowing, and quality assurance testing such as coring. Other factors considered to be beyond the control of the Contractor which may contribute to pavement distress will be considered by the Agency's Engineer on a case by case basis upon receipt of a written request from the Contractor.

- i. **Warranty Requirements.** Warranty work will be required when the following two criteria are met as a result of a defect in the pavement.

Criterion 1 - The threshold limit for a condition parameter is exceeded, and

Criterion 2 - The maximum allowable number of defective segments is exceeded for one or more condition parameters for a driving lane.

Specific threshold limits and segment limits are covered in the Agency's Special Provision for Warranty Work Requirements.

Joint field investigation(s) by the Agency and the Contractor will be conducted to reach an agreement to determine the cause(s) of the pavement defects, whether the cause(s) are a result of defects in materials and/or workmanship, and assignment of responsibility. All costs related to the joint field investigation will be shared proportionately between the Contractor and the Agency based on the determined cause of the condition.

If an agreement cannot be reached, a Conflict Resolution Team (CRT) shall be convened in accordance with Section j. Conflict Resolution Team of this special provision.

- j. **Conflict Resolution Team (CRT).** If a dispute arises on the application or fulfillment of the terms of this warranty, either party may serve written notice that appointment of a CRT is required. The sole responsibility of the CRT is to provide a decision on disputes between the Agency and the Contractor regarding application or fulfillment of the warranty requirements. The CRT will consist of three voting members:

- One (1) member selected and compensated by the Agency.
- One (1) member selected and compensated by the Contractor.
- One (1) member mutually selected by the Agency and the Contractor. Compensation for the third party member will be equally shared by the Agency and the Contractor.

At least two members of the CRT must vote in favor of a motion to make a decision.

The CRT decides the need for a forensic investigation, its scope and the party to conduct the investigation. The forensic investigation, if any, will be conducted following the NCHRP Report 747 "Guide for Conducting Forensic Investigations of Highway Pavement". All costs related to the forensic investigation will be shared proportionately between the Contractor and the Agency based on the determined cause of the condition.

- k. **Emergency Repairs.** When the Agency determines that emergency repairs of the warranted work are necessary for public safety, the Agency or its agent may take immediate and sufficient repair action to safeguard the traveling public prior to notification to the Contractor of the need for emergency repairs. Emergency repairs of warranted work by the Contractor must be authorized by the Agency's Engineer.

Prior to emergency repairs of warranted work, the Agency will document the basis for the emergency action. In addition, the Agency will preserve documentation of the defective condition.

However, should the Contractor be unable to perform emergency repair requirements, to the Agency's satisfaction and within the time frame required by the Agency, the Agency will perform, or have performed any emergency repairs deemed necessary. Any such emergency repairs undertaken will not relieve the Contractor from meeting the warranty requirements of this special provision. Any costs associated with the emergency repairs will be paid by the Contractor if determined to be the fault of the Contractor.

- i. Final Acceptance.** The Agency and Contractor must jointly review all of the warranted work and any warranty work at the end of the warranty term to determine meeting of contract requirements. The Agency's final acceptance date of warranted work and any warranty work will occur as soon as the Agency's confirmation is in writing, on the Agency's final acceptance notice as jointly executed by the Agency and Contractor And that contract requirements have been met for the warranted work and any warranty work. The Agency will authorize the release of the warranty bond, and with a copy of the final acceptance notice sent to the Contractor's warranty bond surety agent.
- m. Non-extension of Contract.** This special provision must not be construed as extending or otherwise affecting the claim process and statute of limitation applicable to this Contract.
- n. Measurement and Payment.** All costs, including engineering and maintaining traffic costs, associated with meeting the requirements of this special provision are considered to be included in the contract unit prices for the warranted work items_regardless of when such costs are incurred throughout the warranty term or after the end of the warranty term as jointly agreed upon between the Agency and the Contractor. These costs include but are not limited to, all materials, labor and equipment necessary to complete the required warranty work.

MICHIGAN
LOCAL AGENCY
SPECIAL PROVISION
FOR
**WARRANTY WORK REQUIREMENTS FOR
HOT MIX ASPHALT PAVEMENTS**

CRA/MML
MDOT
FHWA

1 of 3

09/04/2018
09/18/2018
11/01/2018

a. Description. This special provision is for use with MICHIGAN LOCAL ROAD AGENCY SPECIAL PROVISION FOR HOT MIX ASPHALT and CONCRETE PAVEMENT WARRANTY for Local Agency projects constructing a Hot Mix Asphalt (HMA) pavement that will be warranted against defects in workmanship and materials.

Follow Section 501 of the current MDOT Standard Specifications for Construction to determine initial acceptance of a warranted project.

b. Definitions of the Work Types as defined in this specification

Long Term Warranty - This includes **New Construction / Reconstruction** and HMA placement on an approved aggregate base where the subbase and drainage have been analyzed and determined that the planned improvements meet design life requirements.

Medium Term Warranty– This includes **Rehabilitation** and when HMA is placed on an aggregate base, subbase, and/or drainage situation, which was not analyzed to assure that the existing materials and/or planned improvements meet the pavement’s design life requirements and the project did not include or improve the base, sub-base and/or drainage. This includes crush-shape-pave projects and other similar 3R work.

Short Term Warranty– This is for **Overlays** when HMA is placed on existing HMA, concrete or composite pavement.

c. Terms of the Warranty

Limits of Warranted Work - Warranted work includes all HMA placed in driving lanes in the project limits, unless otherwise indicated on project documents.

Warranty Term – A timeframe which begins at the Acceptance Date of Warranted Work of a completed HMA project. Multi-phased projects may have multiple “Acceptance Dates of Warranted Work.” Warranty term length is specified in Table 1

Warranty Bond - The Contractor shall furnish a single term bond worth 5% of the total contract or \$1,000,000 whichever is less, secured in the name of the road owner and/or the agency in charge of the project. The effective starting date of the warranty bond will be the Acceptance Date of Warranted Work. The warranty bond will be released at the end of the warranty period or upon satisfactory completion of all warranty work; whichever is later.

Warranty Requirements - Table 1 lists maximum allowable defect thresholds for each condition per 1/10-mile lane segments and the maximum allowable number of defective segments for each condition parameter. If the Contractor has exceeded any warranty requirement, even in non-contiguous segments, the Engineer will request warranty fixes.

Each Driving lane will be assessed separately. Any warranty work required of the Contractor to correct deficiencies for any condition, will be full-width across the entire driving lane.

d. Quality Control/Quality Assurance (QA/QC) - The Contractor is responsible for project quality and must provide QC testing procedures and results to the Engineer.

The Engineer will perform Quality Assurance (QA) testing, as a spot-check to determine Initial Acceptance or assess penalties if specifications are not met. QA testing does not relieve the Contractor of QC responsibilities.

e. Corrective Actions. Table 2 lists recommended corrective actions to outline typical acceptable treatments for the various condition parameters. The Agency will accept the listed corrective action if the action addresses the cause of the condition parameter. The Contractor may use an alternative action subject to Engineer's approval.

Table 1: Warranty Requirements

Condition Parameter	LONG TERM WARRANTY (INCLUDES NEW CONSTRUCTION / RECONSTRUCTION)		MEDIUM TERM WARRANTY (INCLUDES REHABILITATION CRUSH & SHAPE & PAVE)		SHORT TERM WARRANTY (INCLUDES SINGLE COURSE & MULTIPLE COURSE OVERLAY)	
	Threshold Limits Per Segment (Segment Length = 528 feet = 1/10 mile)	Max. Defective Segments Per Driving Lane-Mile	Threshold Limits Per Segment (Segment Length = 528 feet = 1/10 mile)	Max. Defective Segments Per Driving Lane-Mile	Threshold Limits Per Segment (Segment Length = 528 feet = 1/10 mile)	Max. Defective Segments Per Driving Lane-Mile (c)
Warranty period	5 years		3 years		1 year	
Transverse Cracking	3(b)	1	3(b)	2 (d)	3(a,b,d)	3 (a,d)
Open Joints & Long. cracking	10% of Segment length	1	25% of Segment length	2 (d)	25% of Segment length(a,d)	3 (a,d)
De-bonding	5% of Segment length	1	5% of Segment length	1	5% of Segment length	1
Raveling	8% of Segment length	1	8% of Segment length	1	8% of Segment length	1
Flushing	5% of Segment length	1	5% of Segment length	1	5% of Segment length	1
Rutting (d, e, f)	Ave. rut depth = 3/8 inch	1 (e)	Ave. rut depth = 3/8 inch	1 (e)	Ave. rut depth = 3/8 inch	1 (e)
Alligator or block cracking (g)	Any amount	0 (none allowed)	Any amount	0 (none allowed)	Any amount	0 (none allowed)

- a. For a single course overlay, or multiple course overlays less than 2” thick, transverse and longitudinal cracking will not be warranty conditions.
- b. For segments less than 1/10 mile in length, divide the segment length in feet by 528. Then multiply the threshold limit shown in the table by this fractional number. Round the result to the nearest whole number for the new threshold limit. In no case can the threshold limit be less than 1.

The maximum allowable number of defective segments per condition for a specific driving lane is determined by multiplying the length of the specific driving lane in miles by the maximum allowable defective segments per mile as shown in the table for that condition. Round all fractional values n to the nearest whole number. In no case can the max. segments per driving lane limit be less than 1.
- c. The Engineer shall waive this requirement if it is determined the cracks are reflective cracks from the surface being overlaid.
- d. Rut-depth threshold applies to each wheel path individually.
- e. For single course overlays constructed on existing rutted pavement without first milling, wedging or otherwise fixing the existing ruts > 1/2 inch, the Engineer shall waive this requirement.
- f. The Engineer will evaluate for rutting throughout the warranty period. If rutting is found in a 1/10-mile segment, the rutting will be measured in that segment at the POB and every 132 feet thereafter.

The Engineer will take rut measurements with a straight, rigid device at least 7 feet long that does not deflect from its own weight, or a wire that remains taut when extended 7 feet. The Engineer will place across the pavement, perpendicular to travel with at least one bearing point on either side of a rut. The straightedge is properly located when sliding it along its axis does not change these contact points. The Engineer will measure rut depth at the greatest distance from the bottom of the straightedge to the bottom of the paved rut.
- g. Any amount of alligator and/or block cracking is unacceptable, and must be removed and replaced as directed by the Engineer.

Table 2: Suggested Corrective Actions

Condition Parameter	Recommended Action
Transverse cracking	Seal, or cut/seal (per Engineer direction)
Longitudinal cracking	Seal, or cut/seal (per Engineer direction)
De-bonding	Mill, resurface affected courses
Raveling	Mill, resurface affected courses
Flushing	Mill, resurface affected courses
Rutting	Microsurface or mill/resurface (a)
Alligator or block cracking	Remove and replace (b)
<p>Note: The actual fix approved by the Engineer may differ from these suggestions.</p> <ul style="list-style-type: none"> a. The Engineer’s recommended action depends on rut depth. b. Removal and replacement will be required for any areas exhibiting alligator or block cracking to the extent and depth of the cracking. 	

MICHIGAN
LOCAL AGENCY
SPECIAL PROVISION
FOR
**WARRANTY WORK REQUIREMENTS FOR JOINTED
PLAIN CONCRETE PAVEMENT**

CRA/MML
MDOT
FHWA

1 of 3

09/04/2018
09/18/2018
11/01/2018

a. Description. This special provision is for use with MICHIGAN LOCAL ROAD AGENCY SPECIAL PROVISION FOR HOT MIX ASPHALT and CONCRETE PAVEMENT WARRANTY for construction/reconstruction projects using jointed concrete pavement on an unbound or stabilized aggregate base that will be warranted against defects in workmanship and materials.

When a local agency concrete project is to be warranted, its Initial Acceptance shall follow Section.602 of the current MDOT Standard Specifications for Construction.

b. Terms of the Warranty

Limits of the Warranted Work - Warranted work includes all jointed plain concrete pavement placed in driving lanes within the project limits, unless described otherwise on the plans.

Warranty Term - A timeframe which begins at the Acceptance Date of Warranted Work of a completed Concrete Pavement project. Multi-phased projects may have multiple "Acceptance Dates of Warranted Work." The Warranty Term will last five (5) years, unless otherwise specified in the contract.

Warranty Bond - The Contractor shall furnish a single term bond worth 5% of the total contract or \$1,000,000 whichever is less, secured in the name of the road owner and/or the agency in charge of the project. The effective starting date of the warranty bond will be the Acceptance Date of Warranted Work. The warranty bond will be released at the end of the warranty period or upon satisfactory completion of all warranty work; whichever is later.

Warranty Requirements - Table 1 lists maximum allowable defect thresholds for each condition per 1/10th-mile lane segments and the maximum allowable number of segments for each condition parameter. If the Contractor has not met any warranty requirement, even in non-contiguous segments, the Engineer will request warranty fixes.

Each driving lane will be assessed separately. Any warranty work required of the Contractor to correct deficiencies for any condition, will be full-width across the driving lane.

c. Quality Control / Quality Assurance (QA/QC). The Contractor is responsible for project quality and must provide QC testing procedures and results.

The Engineer will perform Quality Assurance (QA) testing as a spot-check to determine Initial Acceptance or assess penalties if specifications are not met. QA testing does not relieve the Contractor of QC responsibilities. A Contractor may not use QA tests as evidence in a warranty dispute.

d. Initial Ride Quality Acceptance. Initial Ride Quality requirements are outlined in the bid documents.

e. Corrective Action. Table 2 lists the recommended corrective actions/treatments for the various defects. The Contractor may use an alternative action subject to Engineer's approval.

Table 1: Warranty Requirements

Condition Parameter or Defect	Threshold Limits Per Segment (Length = 528 feet)	Max. Defective Segments Per Driving Lane-Mile (b)
Transverse Crack	2 (a)	1
Longitudinal Crack	5% of segment length	1
Map Cracking	10% of segment area	1
Spalling	10% each slab (c) < 2 slabs	1
Surface Scaling	15% of the slab area < 1 slab	1
Corner Cracking	1	1
Joint Sealant Failure	10% joint length (c,d) < 2 slabs	1
Shattered Slab	0	0

a. For segments less than 1/10 mile in length, divide the segment length in feet by 528. The multiply the threshold limit shown in the table by this fractional number. Round the result to the nearest whole number for the new threshold limit. In no case can the threshold limit be less than 1.

b. The maximum allowable number of defective segments per condition for a specific driving lane is determined by multiplying the length of the specific driving lane in miles by the maximum allowable defective segments per mile as shown in the table for that condition. . In no case can the max Defective segments per driving lane limit be less than 1.

c. Can be non-contiguous. 10% value applies to total perimeter (four sides) of the slab.

d. Applies to all transverse and longitudinal joints on the perimeter of the slab. Non-contiguous lengths will be summed on a per-slab basis.

Table 2: Recommended Corrective Action

Condition Parameter or Defect	Recommended Action (a)
Longitudinal Cracking (b)	Retrofit load transfer
Transverse Cracking (b)	Retrofit load transfer
Corner Cracking	Full-depth, tied, concrete patch
Map Cracking	Remove and replace
Spalling	Repair with epoxy or cement mortar (c)
Surface Scaling	Diamond grind surface (d)
Joint Sealant Failure	Remove and replace seal material (e)
Shattered Slab	Full depth slab replacement (f)
<p>a. If multiple defects are present, the Engineer may revise the recommended actions, up to and including removal and replacement.</p> <p>b. The Engineer's requested corrective treatment will depend on the crack's location and depth. Full-depth T-cracks require retrofit load transfer (> 90% load transfer efficiency) as a minimum. Full depth/full length L-cracks require slab removal and replacement, if outside influence of lane ties.</p> <p>c. The Engineer's requested repair depends on the area and depth of spall, relying on most current specifications in the MDOT Material's Technology Section, Construction and Technology Division.</p> <p>d. Diamond grinding applies to entire slab surface area where scaling exists.</p> <p>e. Replace with existing material type. Neoprene seals are removed and replaced full-width.</p> <p>f. All shattered slabs must be removed and replaced.</p>	