## CONTRACTOR LIABILITY AFTER CONTRACT ACCEPTANCE

Upon the acceptance of the project, the contractual obligations of the contractor are satisfied as long as the pavement continues to meet or exceed the warranted values as defined herein.

## HMA/SMA PAVEMENT, WARRANTED

1. **DESCRIPTION.** This work shall consist of the construction of warranted HMA/SMA pavement in conformance with the lines and grades shown on the plans as directed by the Department and as follows.

The Contractor shall be responsible for the warranted HMA/SMA pavement for a period of five (5)-years after the date all warranted HMA/SMA pavement is complete and open to unrestricted traffic. The pavement shall be designed for 130,000,000 ESALs.

The Contractor shall establish the Job Mix Formula (JMF) and select all materials. Aggregates must meet the requirements of AASHTO M 323-04 for HMA or MP 8 for SMA and the following:

	For	coarse	aggregates	the	following	additional
requi	remen	ts apply:				
	Los A	ngeles ab	prasion $^1$ (	HMA Mi>	ktures)	40% max.
	Los A	ngeles ab	prasion <sup>1</sup> (	SMA Miz	ktures)	30% max.
	Sound	ness (AAS	SHTO T 103, Pr	cocedur	e A)	12% max.
		erious				
			friable (AASH)	:0 T 11	2)	0.2% max.
		urable <sup>2</sup>	2			4.0% max.
		and iron	5			
	Chert	1				3.0% max.
	For	fine	aggregates	the	following	additional
requi	remen	ts apply:				
		-	SHTO T 103, Ри		e A)	10% max.
	Acid	Insoluble	e Content (ITN	1 202)		
		Sand				40% min.
		Blast Fur	nace Slag			25% min.

- <sup>1</sup> Los Angeles abrasion (AASHTO T 96) requirements shall not apply to blast furnace slag.
- <sup>2</sup> Includes soft particles as determined by ITM 206 and other particles that are structurally weak, such as soft sandstone, shale, limonite concretions, coal, weathered schist, cemented gravel, ocher, shells, wood, or other objectionable material. Determination of non-durable particles shall be made from the total weight of material retained on the 9.5 mm sieve.
- <sup>3</sup> Air cooled blast furnace slag and steel slag coarse aggregate shall be free of objectionable amounts of coke, iron, and lime agglomerates.
- The bulk specific gravity of chert shall be based on the saturated surface dry condition. The amount of chert less than 2.45 bulk specific gravity shall be determined on the total mass (weight) of material retained on the 9.5 mm (3/8) sieve for sizes 2 thru 8, and on the total mass (weight) of material retained on the 4.75 mm (no.4) sieve for sizes 9, 11, and 12.

Alternately, aggregate meeting requirements of Indiana Class A aggregate in accordance with 904.03(a) may be used for HMA mixtures. Coarse Aggregates for SMA mixtures shall be Steel Furnace Slag meeting the above requirements.

The mixture within the top 38 mm (1.5 in.) of the finished surface shall have a maximum top size aggregate of 12.5 mm. When slag is furnished as an alternate to natural aggregate, adjustments to the lay rate shall be made to compensate for the difference in specific gravity of the slag compared to natural aggregate as outlined in Section 904.01 of the Standard Specifications.

The minimum performance graded binder shall be as follows:

Surface:	PG	76-22
Intermediate:	PG	76-22
Base:	PG	70-22
Intermediate "OG":	PG	76-22

The Contractor shall develop and submit to the Department a Quality Control Plan for Warranted HMA/SMA Pavements that meets the requirements as outlined in Section 10.

The provisions of the warranty work shall apply to all HMA/SMA mixtures placed. Section 400 and Section 900 of the Standard Specifications are exempted.

2. WARRANTY. Upon completion of all warranted HMA/SMA pavement and opening of the warranted pavement to unrestricted traffic, the Warranty Bond shall be in effect for a total of five (5)-years. The warranty bond must be properly executed by a surety company satisfactory to the Department and be payable to the State of Indiana and submitted with the bid.

The warranty bond is  $\frac{2,000,000.00}{100000000}$  for the warranted HMA/SMA pavement. The bond is intended to insure completion of required warranty work, including payments for all labor, equipment, materials and closure periods used to remediate any warranted pavement distresses.

Upon the final acceptance of the project, the contractual obligations of the contractor are satisfied as long as the pavement continues to meet or exceed the warranted values as defined herein.

All warranty work shall be in accordance with Section 5. At the end of the warranty period, the Contractor will be released from further warranty work or responsibility, provided all previous warranty work has been satisfactorily completed and accepted by the Department.

3. CONFLICT RESOLUTION TEAM (TEAM). The scope of the Team includes all issues concerning the warranted pavement relative to: material selection, quality control plan, distress severity, and remediation.

The Team will consist of two Contractor representatives, two Department (District and Central Office) representatives, and a fifth person mutually agreed upon by both the Department and the Contractor. Any costs for the fifth person will be equally shared between the Department and the Contractor.

The Team members shall be identified in writing at the pre-construction meeting and will be knowledgeable in the terms and conditions of this warranty and the methods used in the measurement and calculation of pavement distress. Should any impasse develop, the Team will render a final recommendation to the Chief Engineer by a majority vote. Each member has an equal vote.

4. WARRANTY WORK. During the warranty period remedial work shall be performed at no cost to the Department and shall be based on the results of pavement distress surveys. Remedial work to be performed and materials to be used will be the joint decision of the Contractor and the Department. Prior to proceeding with any warranty work or monitoring, a Miscellaneous Permit shall be obtained from the Department.

A minimum of two mainline lanes in each direction shall be open to unrestricted traffic during any closure period when warranty work is performed. Costs for closure periods will be applied using the following closure period rates:

Peak Hour:	\$2,000.00/lane/hour
Non - Peak Hour:	\$400.00/lane/hour

Weekday and weekend peak hours are from 6:00 AM to 8:00 PM, and non-peak hours are from 8:00 PM to 6:00 AM.

During the warranty period, the Contractor may monitor the warranted HMA/SMA pavement using nondestructive procedures. All proposed remedial action(s) shall be coordinated with the Department.

Coring, milling or other destructive procedures may not be performed by the Contractor, without prior consent of the Department. If the Contractor elects to conduct any independent testing, both destructive and non-destructive, the equipment shall be calibrated and correlated with the Department's equipment.

The Contractor shall not be responsible for damages to the pavement as a result of coring, milling or other destructive procedures conducted by the Department.

The Contractor shall have the first option to perform the remedial work. If, in the opinion of the Department, the problem requires immediate attention for safety of the traveling public and the Contractor has not performed the remedial work within twenty-four (24) hours, the Department has the option to have the remedial work performed by other forces. The Contractor shall be responsible to pay for all the cost incurred. Remedial work performed by other forces shall not alter the requirements, responsibilities, or obligations of the warranty.

5. PAVEMENT DISTRESS INDICATORS, THRESHOLDS AND REMEDIAL ACTION. The Department will use the following pavement distress indicators:

For Mainline, Auxiliary Lanes, and Shoulders:

- Friction Number
- International Roughness Index (IRI)
- Longitudinal Cracks
- Rut Depth
- Transverse Cracks

The Department procedures for the measurement, evaluation, and reporting of pavement distresses for warranted HMA/SMA pavements are contained in Section 11.

The Contractor will be advised of the schedule for pavement surveys. The results will be made available to the District, Central Office, and Contractor within 14 days after completion of the survey. If the Contractor disputes the survey findings, written notification of the dispute shall be provided within 30 days of receiving the survey results. Any such dispute must be based on appraisals of data supplied or additional information provided by a licensed professional engineer.

The final condition survey will occur by July 15, 2010. Remedial work, if required, shall be completed by October 1, 2010. Written acceptance by the Department will be given following completion of any remedial work.

If any pavement condition survey indicates remedial action is required the contractor shall submit a remedial action plan. After the Department approves the remedial action plan, the Contractor shall perform the remedial work according to the following minimum standards:

### Alligator Cracks

Remove and replace distressed layer(s). The removal area to be 150% of the distressed area to a depth not to exceed the warranted pavement

### Flushing

Remove and replace distressed layer full lane width and depth. The removal length shall be 150% of the distressed length.

Longitudinal Cracks Repaired by routing and sealing in accordance with 408.

#### Transverse Crack

Repaired by routing and sealing in accordance with 408.

### Longitudinal Distortion

Remove and replace distressed layer(s). Removal area to be 110% of the distressed area to a depth not to exceed the warranted pavement.

## Potholes, Slippage Areas, Raveling, Segregation and Other Disintegrated Areas

Remove and replace the distressed area(s). The removal area to be 150% of the distressed area to a depth not to exceed the warranted pavement

#### Rutting

Remove and replace distressed layers full lane width.

#### Low Friction

Average Friction Number less than 35: Remove and replace the distressed layers full lane width with SMA full length of project.

Three consecutive Friction Numbers less than 25: Remove and replace the distressed layers full lane width with SMA within the limits of the consecutive numbers less than 25.

Warranty requirements for all remediation work will be limited to the life of the original contract warranty.

If any of the threshold levels are met or exceeded and the Contractor does not agree to the pavement distress survey results or, the Department does not agree with the proposed remedial action, the Team will provide a recommendation within 30 days.

Remedial action shall be performed on all segments of the project where the threshold levels are met or exceeded. If areas of warranted pavement which are not within the measured area are suspected of meeting or exceeding a threshold level, the Department will conduct a distress survey to see if a threshold level has been met or exceeded.

Remedial action shall be completed by October 1 of the same calendar year as the survey that indicated the threshold level is met or exceeded. If, anytime during the warranty period, 30 percent or more of the project segments require, or have received remedial action, then the entire project shall receive a remedial action as determined by the Contractor and the Department. If an impasse develops, the Team will make a final recommendation.

If remedial action work or elective/preventive action work performed by the Contractor necessitates a corrective action to the pavement markings, adjacent lane(s) or roadway shoulders, then such corrective action to the pavement markings, adjacent lane(s) and shoulders shall be the responsibility of the Contractor.

Pavement	Evaluation	Threshold	Notes
Performance	Section	Values	
Indicators			
Friction Number	Three Consecutive Sites	< 25	
	Entire Contract per lane	< 35 Average of all tests	
International	100 m	1.4 m/km	
Roughness Index (IRI)	(325 ft)	(90 in./mi.)	
Longitudinal	100 m	0.0 m	Severity 2 or
Cracking	(325 ft)	(0.0 ft)	greater
Rut Depth	100 m (325 ft)	6.0 mm (0.25 in.)	
Transverse Cracking	100 m (325 ft)	0.0 m (0.0 ft)	Severity 1 or greater

The pavement threshold values for the warranted distresses are:

The Contractor will not be held responsible for distresses that are caused by factors beyond the control of the Contractor. The Contractor shall provide proof that the warranted pavement in question is of proper thickness (not thinner than 15 mm from plan thickness), the recovered binder is of acceptable stiffness, and the actual number of Class 5 or greater trucks are 50% above the projected five year number of Class 5 or greater trucks. The five year projected number of Class 5 or greater trucks for this project is XX,X00,000.

ELECTIVE/PREVENTIVE ACTION. 6. Elective/preventive action shall be the Contractor's option with the concurrence of the Department. For elective/preventive actions, closure periods are not charged.

DEPARTMENT MAINTENANCE. The Department will perform 7. routine maintenance during the warranty period such as snow applying de-icing chemicals, repairs to safety plowing, appurtenances, pavement markings, mowing and siqn maintenance. During the warranty period, the Department will perform no routine pavement surface maintenance activities.

MEASUREMENT. 8. METHOD OF Warranted НМА or SMA pavement will be measured for payment by the megagram of mixture based on the quantity of mixture placed in accordance with 109.01(b) of the standard specifications.

9. BASIS OF PAYMENT. The accepted quantities of HMA or SMA will be paid for at the contract unit price per megagram (ton) for HMA/SMA Pavement Mixture, Warranted, complete in place. Payment will be full compensation for furnishing, preparing, hauling, mixing and placing all materials and compacting the mixtures. The Warranty Bond, warranty work, Job Mix Formula, Quality Control Plan and all testing, record keeping, sampling and traffic control are included in the contract unit price.

Payment will be made under:

#### Pay Unit

Pay Item HMA Pavement Mixtures, Warranted ..... Mg (ton) SMA Pavement Mixtures, Warranted ..... Mg (ton)

10. Quality Control Plan for Warranted HMA/SMA **Pavements.** This section covers the preparation of a QCP by a Contractor. The QCP shall be provided, maintained, and followed to assure all materials furnished and placed for acceptance are in accordance with the contract requirements.

10.1 Standards. AASHTO, ASTM, ITM, and other referenced standards will be identified.

### 10.2 General Requirements.

10.2.1 The QCP shall be contract specific and state how the Contractor proposes to control the materials, equipment, and production methods on the project.

10.2.2 The QCP shall contain the name, qualifications, telephone number, duties, and employer of all quality control personnel necessary to implement the QCP. The minimum number of quality control functions shall be as follows:

10.2.2(a) QCP Manager -- the person who is responsible for the overall administration of the QCP.

10.2.2(b) QCP Site Manager -- the person who is responsible for the execution of the QCP and liaison with the Engineer.

10.2.2(c) Quality Control Technician -- the person who is responsible for conducting quality control tests and inspection to implement the QCP. There may be more than one quality control technician.

10.2.3 One quality control person may perform the duties of any of the other functions listed in 10.2.2(a), 10.2.2(b), or 10.2.2(c).

**10.3 QCP Requirements.** The QCP shall contain, but not be limited to, the proposed methods of sampling, testing, calibration, construction control, monitoring, and anticipated frequencies.

**10.4 Paving Operations.** Placement operations shall not begin before the QCP has been accepted.

10.5 The QCP shall be signed and dated by the Contractor's representative at the time it is submitted to the Engineer.

**10.6** The Department will review the QCP contents for compliance with the requirements as stated herein.

10.7 The QCP shall be maintained to reflect the current status of the operations, and revisions shall be provided in writing prior to initiating the change. The change shall not be implemented until the revision has been received and reviewed by the department.

**10.8 Mix Design Methodology** -- the Contractor shall establish the Job Mix Formula (JMF) meeting the requirements of AASHTO M 323-04 for HMA or MP 8 for SMA.

**10.9 Laboratory --** the location of the laboratory for production quality control testing. The Engineer shall be permitted access to the laboratory to witness quality control activities, and review quality control results.

10.9.1 The laboratory testing equipment shall meet the requirements of the test methods identified for the QCP's mix design methodology and required sampling and testing procedures.

10.9.2 The Contractor shall list the laboratory equipment proposed for quality control testing and the respective procedures for calibration. The AASHTO Materials Reference Laboratory (AMRL) requirements for laboratory accreditation shall be used as guidelines. The Contractor shall maintain a record of all equipment calibration results at the laboratory.

10.10 Materials -- a list of all materials proposed to be used in the HMA/SMA including specific properties of each. The Contractor shall also supply sufficient documentation to demonstrate that all materials meet standard quality requirements for the application. The Contractor shall be responsible to certify to the Department that all products used during HMA production meet the quality requirements as originally specified in the QCP.

**10.11 Mixing Plant.** The minimum requirements for control of the HMA/SMA mixing plant shall include the following:

- (a) The plant is a Certified Hot Mix Asphalt Plant;
- (b) Calibration results of all meters, scales and other measuring or recording devices; and
- (c) Plant calibration for the mixture(s).

**10.12 Materials Sampling and Testing --** the proposed sampling procedures and size of samples necessary for testing, and controlling as a minimum the VMA, Binder Content, and Air Voids. The test methods and minimum frequencies of the quality control tests shall also be included.

10.12.1 The Contractor shall outline proposed methods to protect the sample from the loss of temperature, binder hardening, and/or binder absorption from the time of sampling the mixture at the project site to the time of testing of the mixture at the laboratory.

10.13 Quality Control Charts -- a statement that control charts shall be maintained at the laboratory. The charts shall include as a minimum VMA, Binder Content, Air Voids, and other quality control properties as identified in the QCP. All quality control results shall be recorded and included on the control charts within 24 h of testing.

10.14 HMA/SMA Variability -- a list of the quality control parameters that shall be used to control the mixture and the test tolerances to be used during production. The acceptable tolerances for single test and multiple test results, as well as corrective action to be taken if the results fall outside acceptable tolerances, shall be included.

**10.15 In-Place Density Testing --** the method to be used to achieve target densities, and the method of monitoring inplace densities. The Contractor shall document to the Department that the number of in-place density tests are in accordance with the frequencies as originally specified in the QCP.

**10.16 Independent Assurance Program --** acknowledgment of the Independent Assurance Program and the proposed methods to ensure compliance with the program. The requirements for the Independent Assurance Program shall apply to Contractor's personnel conducting quality control testing.

**10.17 Documentation --** a statement that all material certification, production test reports, quality control charts, test equipment certifications and calibrations, and any other material and/or design or production related records shall be maintained for a period to include the terms

of the warranty. The records, either electronic or paper, shall be maintained in a readily accessible location for access by the Department at any time. Upon completion of the placement, and the opening of the warranted HMA pavement to traffic, a copy of all records shall be provided to the Department.

11. MEASUREMENT, EVALUATION AND REPORTING OF PAVEMENT DISTRESS FOR WARRANTED HMA/SMA PAVEMENTS. The Department will perform routine evaluations of the warranted pavement during the warranty period and will evaluate and report the conditions annually to the Contractor. During the warranty period, the Contractor has the right, with Department concurrence, to independently review the condition of the warranted pavements for their use and information.

11.1 Measurement -- The Department will be using the Friction and the Highway Performance Monitoring System (HPMS) programs to evaluate the warranted pavement distress indicators.

- a) The Research Division oversees the friction Testing Program. Warranted pavement friction program will be in accordance with Section 5.3 of the program, dated December 2003 or later.
- b) The Program Development Division oversees the Highway Performance Monitoring System program.

**11.2 Evaluation --** The Department will evaluate the condition of the pavements on the Interstate system annually and bi-annually for non-Interstate routes for the identified pavement performance indicators. During the warranty period, exclusive of the last year, the evaluations will be conducted on driving lane throughout the length of the project except for friction testing which will be conducted on the driving and passing lane or middle lane or No. 2 lane for multi-lane facilities. The final year evaluations will be conducted on every lane in both directions throughout the length of the project for all pavement performance indicators.

11.2.1 Friction -- Friction testing on the warranted pavement contract section will be by the use of a Locked Wheel Trailer as defined by ASTM E274 and a smooth tire in accordance with ASTM E524. Friction tests will be conducted in both directions at each reference post and at the halfway point between the reference posts in both the

driving and the passing lane. A minimum of 11 tests will be conducted each direction. If the number of tests is less then 11, then additional tests will be taken at the quarter point between the reference post and the halfway point. The number of locations will depend on the length of the project. The friction values of each site per lane per direction will be determined. The smooth tire friction number typically ranges from 10 to 60 with the higher the number the better the friction resistance of the surface.

11.2.2 International Roughness Index (IRI) -- As part of the Pavement Management System (PMS), the roughness of warranted pavement will be determined. The results of this measurement will be used to monitor deterioration of the warranted contract section. A van equipped with profile measurement sensors will be used that meets the criteria of the current Highway Performance Monitoring System (HPMS) manual, Appendix 'J', for a Class II device. Calibration of the device and procedures for calculating IRI from the profile shall meet the requirements in the HPMS manual.

The profile of both wheel paths of the right driving lane of four lane roads, the middle lane for 6 lane roads, and the outside middle lane of 8 lane roads in both directions shall be measured and the IRI calculated for each segments along the length of the project. Known landmarks such as bridge joints, reference posts and other control points shall noted to establish references for yearly repeatable tests.

The average IRI of the two wheel path measurements over each segment shall be determined. An example of the results of the measurement and calculations are:

CONTRACT:	R 12345	Route: I-543		Test Date	May, 2002
REF POST	BEG LOG	END LOG	IRI LEFT m/km (in./mi)	IRI RIGHT m/km (in./mi)	IRI AVG m/km (in./mi)
37 West	93.50	93.60	0.72(46)	0.99(63)	0.85(54)
	93.60	93.70	0.72(46)	1.04(66)	0.88(56)
	93.70	93.80	0.78(50)	1.05(64)	0.90(57)
	93.80	93.90	2.28(145)	3.07(195)	2.68(170)
(Note: Metric Conversion IRI 1 m/km = IRI 63.36 in./mile)					

Evaluation segments containing bridges, bridge approaches, or other non-warranted sections will be

eliminated from consideration. In addition, transitions sections of 10 m (30 ft) from these sections and at construction joints at the beginning and end of the project will be excluded from the section calculation.

11.2.3 Longitudinal Cracking - The Department will rate longitudinal cracks annually at the time of routine condition survey for the warranted pavements. The procedure is to examine the sections in the travel direction at each reference post and visually rate the severity and extent of the longitudinal cracks. The Department's consultant according to the criteria included in the "Pavement Condition Data Collection Manual" dated October 1997 conducts the rating.

The definition for longitudinal cracking from this manual is:

The condition of the joint in the longitudinal direction due to construction or reflected underlying joints. (Mainly shoulder and lane line joints). Severity is rated by average condition of the worst joint. A joint with no crack is rated as zero (0). Progressive deterioration involves multiple incidental cracks roughly parallel to joints at higher severity levels.

The longitudinal crack may occur at any location in the travel lane and includes shoulder-lane joints, lane joints, paver joints, wheel path or mid-lane cracks in the longitudinal direction.

	SEVERITY RATING
NONE	0 = No observed defect
LIGHT	1 = The crack is < 6 mm 0.25 in. wide or the crack is closed by an appropriate functioning sealant
MODERATE	2 = Wider open or raveled crack. May have small tight random parallel cracks little spalls and raveling
HEAVY	3 = Large open crack with severe spalls, or random cracks open and spalled
	EXTENT RATING
NONE	0 = No defect
FEW	1 = < 50% of length
SEVERAL	2 = 50% to 90% of length
MANY	3 = Continuous

The distress rating for Longitudinal Joints is:

The distress is examined and the SEVERITY and EXTENT is rated 0, 1, 2 or 3 based on the above criteria.

**11.2.4 Rutting --** The Department will rate rutting annually at the time of routine condition survey for the warranted pavements.

Sensors on the van will measure the rut depth of each wheel path in an approximation of the measurement obtained using the commonly accepted four-foot straight-edge method. The readings shall be continuous along the length of the segment. The average rut depth of both wheel paths for each 100 m (325 ft) segment will be determined.

The rut measurement will be made with the van using at least three/five readings across the pavement surface. These readings will be taken at the approximate right wheel path center, center of the lane, left wheel path center. The sensors measure the relative height from the sensor to the surface and calculate the rut as the relative differences of the readings.

11.2.5 Transverse Cracking -- The Department will rate transverse cracks annually at the time of routine condition survey for the warranted pavements. The procedure is to examine the sections in the travel direction at each reference post and visually rate the severity and extent of the transverse cracks. The Department evaluates the cracking is in accordance with the criteria included in the "Pavement Condition Data Collection Manual" dated October 1997 conducts the rating.

The definition for transverse cracking from this manual is:

Transverse cracks are cracks developing at right angles to the centerline. These cracks may be reflection of underlying cracks and joints or cracks due to thermal stress. Transverse cracks include the development of finer parallel and incidental cracks along or around the primary crack at higher levels of distress.

The width of the crack will be used to determine the extent of the cracking and will be reported in lengths.

The distress rating for Transverse Cracks is:

	SEVERITY RATING		
NONE	0 = No observed defect		
LIGHT	1 = The crack is 6 mm (0.25 in.) or less wide or the crack is closed by an appropriate functioning sealant		
MODERATE	2 = Wider open 6 mm (0.25 in.) or greater or a raveled crack. May have small tight random parallel cracks little spalls and raveling		
HEAVY	3 = Large open crack with severe spalls, or random cracks open and spalled		
	EXTENT RATING		
LENGTH	Length in meters (feet) of each crack visible in the video in the driving and passing lane for the sample section, with an itemized list of the length of each clearly visible crack. (NOTE: Very fine tight cracks observed in the field may not be visible on video.		

The distress is examined and the SEVERITY 0, 1, 2, or 3 based on the above criteria rating will be recorded for each section per direction.

11.2.6 General Pavement Distresses --The Department will monitor pavement warranty performance for acceptance. Roughness and rutting are measured the entire length of the warranty contract section, but only in the specific lanes. Longitudinal cracking and friction are not sampled continuously in the sections. If any values exceed found, the thresholds are more detailed testing and inspection may be conducted to determine the extent and limits of the deficiency. Any area outside the tested lanes or sample sections observed to show deficiencies may also be tested and used to determine the pavement warranty acceptability and to verify the uniformity of the quality of the project.

Roughness measurements are used to monitor the performance of the pavement in lieu of distress surveys. Pavement distresses such as the various types of cracking, corrugations, or distortions are not measured or rated directly, except they may effect the ride measurement and may need correction to provide satisfactory warranty values. The ride measurement does not indicate why the ride may be unsatisfactory. Detailed inspection and testing to examine individual distress mechanisms will be required to determine what remediation will provide the quality required to provide the expected service life of the pavement.

# 11.3 Reporting --

**11.3.1 Friction Testing Evaluation --** The Research Division will prepare a summary report of the results of the testing and submit the results to the Chief, Contracts and Construction Division.

11.3.2 IRI, Cracking and Rutting Testing Evaluation - The Program Development Division will prepare a summary report of the results of the testing and submit the results to the Chief, Contracts and Construction Division.

**11.3.3 Performance Pavement Distress Indicators Evaluation -** The Contracts and Construction Division will compile the results from the Research and Program Development Divisions, and determine the acceptability of the sections as compared to the threshold values listed in Section 5. The Contracts and Construction Division will prepare a summary and submit it to the Contractor on an annual basis in accordance with Section 4.

12. Final Warranty Acceptance - The Contracts and Construction Division will review the project in the field for any obvious general defects not addressed in the indicators and issue a Final Warranty Acceptance letter following notification by the Materials and Tests Division of receipt of the Warranted Project Quality Control Information in accordance with Section 10.17.