Section 2541. Crack and Joint Cleaning and Sealing (HMA Surfaces)

2541.01 DESCRIPTION.

A. Rout and clean (prepare) cracks in HMA surface and seal the prepared cracks with a joint sealer.

B. Crack and joint cleaning and sealing is intended to address transverse (thermal) cracking, longitudinal cracking, joint reflective cracking, low severity fatigue cracking, and low severity block cracking. Crack and joint cleaning and sealing is not intended to clean or seal moderate or high severity block cracking, moderate or high severity fatigue cracking, edge cracking, alligator cracking, or mat slippage cracking. Definitions for these pavement distress types can be found in the 'Distress Identification Manual for the Long-Term Pavement Performance Program' (Publication No. FHWA-RD-03-031, dated June 2003, web address: (http://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpp/reports/03031/03031.pdf).

2541.02 MATERIALS.

A. Use a poured joint sealer material meeting the requirements of Article 4136.02. A hot pour sealer will be required.

B. In conjunction with this sealer, use backer rod meeting the requirements of Article 4136.02. Use backer rod of a size that compression is required for installation in the crack so it maintains its position during the filling operation. More than one size may be necessary to complete the work.

2541.03 CONSTRUCTION.

A. Equipment.

1. Routing or Sawing Equipment.
Use power driven routing or sawing equipment capable of cutting the cracks to the required dimensions. Do not use equipment designed to "plow" the cracks to dimension.

2. Air Compressors.
Use air compressors that provide moisture and oil free air and are of sufficient size to blow sand and other foreign material from the crack and the pavement surface.

3. Equipment Used for Heating and Placing the Material.
Use oil jacketed, double boiler type equipment capable of heating the material to 400°F (205°C) and pumping the material into the prepared cracks.

B. Crack and Joint Cleaning and Sealing.

1. **Cleaning Cracks and Joints.**
   a. **Cracks and Joints with Average Opening of 3/8 Inch (10 Mm) or Less.**
      Rout or saw to provide a minimum sealant reservoir of 3/8 inch (10 mm) in width by a nominal 1/2 inch (13 mm) in depth.
   b. **Cracks and Joints with Existing Width Greater Than 3/8 Inch (10mm).**
      Use backer rod or clean dry sand. Clean cracks and joints of all foreign material to a depth necessary to accommodate the sealer material and the backer rod, or sand, to be used. Ensure backer rod is dry when placed.

2. **Sealer Material.**
   Heat, handle, and apply according to the manufacturer's recommendations.

3. **Filling Cracks.**
   a. Ensure cracks are clean and dry prior to sealing.
   b. Slightly overfill the entire crack reservoir with sealant.
   c. Tightly squeegee with a narrow V-shaped squeegee immediately after placement of the sealant while still hot.
   d. Operate the squeegee within approximately 1 foot (0.3 m) of the wand tip used to place the sealant.
   e. Sealant on the roadway surface in excess of 1/2 inch (13 mm) on each side of the crack edge will not be acceptable.

4. **Prior to Opening to Traffic.**
   Remove asphalt cement concrete and foreign material resulting from crack preparation from the roadway by brooming, compressed air, or other methods satisfactory to the Engineer.

C. Limitations.

1. Do not perform crack sealing after September 30.

2. Perform crack cleaning and sealing only when the ambient air and pavement surface temperatures are above 40°F (4°C). When near this minimum, additional air blasting or drying time, or both, may be necessary to assure a satisfactory bond to the crack surfaces.

3. Conduct the work on only one lane of the pavement width at a time.

4. Apply Articles 1107.08, 1107.09, and 1108.03.

5. Lanes may be opened to traffic only after the sealer has set sufficiently so it will not pick up under traffic. Blotting material may be applied to the sealer, but only after the sealer surface has set so as to avoid penetration of the blotting material into the sealer.

6. Before the pavement is opened to traffic, ensure debris and saw slurry or dust from dry sawing or routing operations is removed from the pavement surface.

7. Clean all dry sawed or routed joints or cracks using a stream of air sufficient to remove all dirt, dust, and deleterious material that can adhere to the joint face before the pavement is opened to traffic. Complete this work within 3 hours after the joint or crack has been dry sawed or routed.

8. Clean all wet sawed joints with high pressure water immediately after sawing to remove residue produced by the sawing operation.

9. Seal cracks within 3 working days after preparation.

2541.04 METHOD OF MEASUREMENT.
Measurement will be as follows:

A. Crack and Joint Cleaning and Sealing (HMA Surfaces).

1. Miles (kilometers), calculated to the nearest 0.1 mile (0.1 kilometer), of main line pavement and shoulders on which cracks and joints were cleaned and sealed. Calculations will be based on the center line distance of main line, two-lane pavement, corrected for main line pavement of more than two lanes, including climbing lanes.

2. Shoulders 4 feet (1.2 meters) wide or less will not be measured separately.

3. At intersections, rest areas, and interchanges designated for cleaning and sealing, the additional areas of widened pavement, ramps, storage lanes, turning lanes, paved medians, and parking in rest areas will not be separately measured for payment.

4. Between limits for which cleaning and sealing is intended for either pavement or shoulders, no deductions will be made for bridges, intersections, or other interruptions where cracks or joints are not to be cleaned and sealed.

B. Sealer Material (HMA Surfaces).
Pounds (kilograms) of sealer material used in cracks and joints.

2541.05 BASIS OF PAYMENT.
Payment will be the contract unit price as follows:

A. Crack and Joint Cleaning and Sealing (HMA Surfaces).

1. Per mile (kilometer) for pavement or shoulders on which the cracks and joints were cleaned and sealed.

2. Shoulders 4 feet (1.2 meters) or less in width are incidental to the price bid for Crack and Joint Cleaning and Sealing (HMA Surfaces).

3. Payment is full compensation for all labor, equipment, and materials (except for sealer, but including backer rod or sand) for cleaning and sealing cracks and joints.

B. Sealer Material (HMA Surfaces).

1. Per pound (kilogram). Price is predetermined.

2. Payment is full compensation for furnishing the sealer material only.