Sample project special: 405hrpt

02-03-11 (Re-issued 07-03-17)

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REVISION OF SECTION 405

HEATING AND REPAVING TREATMENT

Section 405 of the Standard Specifications is hereby deleted for this project and replaced with the following:

**DESCRIPTION**

**405.01** This work consists of rehabilitating the existing surface layer of pavement. Rehabilitation shall be done with specially designed equipment that removes and recycles the surface layer; adds rejuvenating or recycling agent and new asphalt pavement material; and places all the materials to form a new surface layer, all in one continuous operation. The work includes compacting the rehabilitated surface. The rehabilitated layer shall conform to the lines, grades, thicknesses and typical cross section shown on the plans or established.

**MATERIALS**

**405.02** New hot mix asphalt and reclaimed bituminous pavement shall conform to the provisions of Sections 401, 403 and 703 for the grading of materials specified in the contract and as modified herein.

Rejuvenating or recycling agent shall meet one of the following requirements:

1. Rejuvenating agent shall meet the requirements of subsection 702.02(f).
2. Recycling agent shall either meet the requirements of Table 702-6 except that the residual penetration shall be greater than 300 dmm or shall meet the requirements of subsection 702.02(e).

**CONSTRUCTION REQUIREMENTS**

**405.03 Equipment.** The Contractor shall specify the type of equipment that will be used for this work at the preconstruction conference. All equipment shall be on the project in operating condition by a date that will be established at this conference for inspection and approval by the Engineer. The Engineer will reject equipment that is unsuitable for the intended purpose.

(a) *Repaving Equipment.* The equipment for this work shall be a self‑contained, self‑propelled, automated unit capable of heating, scarifying (or rotary milling) the existing surface, mixing, redistributing and leveling the existing asphalt pavement to the specified depth, automatically applying a rejuvenating or recycling agent at a uniform rate as shown on the plans or as directed, and applying a new hot bituminous pavement layer over the hot, partially compacted recycled mixture, all in one pass. Additional preheaters may be utilized to achieve the specified depth and temperature.

 Principal components of the equipment shall conform to the following:

1. Heating Unit. This unit shall be hooded to prevent damage to adjacent plant growth. It shall be capable of heating the pavement surface to a temperature high enough to allow scarification to the required depth without breaking aggregate particles or charring the pavement.

2. Scarifying or Milling Units. The scarifiers or rotary millers shall be able to penetrate the pavement surface to the depth shown on the plans in one pass. Scarifiers or millers shall be equipped with separate, automatic height adjustments which will allow clearance over manholes and other obstructions.

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3. Rejuvenating or Recycling Agent Applicator. This system shall automatically add rejuvenating or recycling agent to the scarified material at a uniform rate as shown on the plans or as directed. The application rate shall be synchronized with the machine's forward speed to maintain a tolerance within 5% of the specified rate.

4. Add Plant‑Mix Unit. This unit shall consist of a receiving hopper and conveying system to collect and transport new hot bituminous pavement material to the finishing unit.

5. Recycling Unit. This unit shall consist of a system which mixes, distributes and levels the scarified material over the width being processed to produce a uniform cross‑section of recycled material.

6. Finishing Unit. This unit shall have automatic screed controls to produce a surface conforming to that shown on the plans. The unit shall be capable of performing the functions of a bituminous paver as described in subsection 401.10.

(b) *Rollers.* Rollers shall conform to subsection 401.17.

(c) *For Information Only:* Equipment known to be acceptable for the heating and repaving treatment is manufactured by Cutler Repaving, Inc. Wirtgen GmbH (Remixer), or approved equal.

**405.04 Heating and Repaving Process.** Immediately before pavement recycling begins, the pavement surface shall be broomed or otherwise cleaned to provide a dry surface free from loose particles or other deleterious material.

The Contractor shall protect the area adjacent to the work from heat damage. All areas damaged by heat damage shall be repaired or replaced at the Contractor’s expense. The Engineer may require the Contractor to furnish fire fighting equipment at the Contractor's expense.

The Contractor shall meet all local, county, state, and federal air pollution regulations. All costs and extra work necessary to comply with air pollution regulations shall be at the Contractor’s expense.

Areas that ravel or pothole shall be repaired or patched at the Contractor's expense.

Weather limitations for work on this item shall be in accordance with the provisions of subsection 401.07, unless otherwise directed.

The heating shall soften the pavement to the extent that it can be scarified or milled to the depth specified. Heating shall be done in a manner that will assure uniform softening and will not char the asphalt.

The asphalt pavement shall be fully heated to a width at least two inches beyond the width to be scarified and recycled. On the next pass paralleling the first, the recycling shall overlap the previously recycled mat by a minimum of 2 inches.

Immediately following heating, the pavement surface shall be scarified (or milled) to the specified depth. The removed material shall have a temperature between 115 °F and 265 °F, unless otherwise directed by the Engineer. The material shall be leveled, mixed and treated with a rejuvenating or recycling agent. The application rate shall be as shown on the plans or as directed.

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New hot mix asphalt material shall be added by gathering reclaimed material with a leveling device and spreading to a uniform depth over the width being processed. After the material is placed, and while it still has a residual temperature of at least 190 °F, a layer of new hot bituminous pavement material conforming to the job‑mix formula shall be placed over it in accordance with subsection 401.16. The application rate of new material shall be sufficient to provide the required pavement thickness.

Compaction shall be in accordance with subsection 401.17.

The following adjustments shall be made if required and as directed:

(1) Depth of scarification may be varied.

(2) Application rate for rejuvenating or recycling agent or other asphaltic material may be adjusted as necessary to maintain a uniform mixture.

(3) Application rate for new hot bituminous pavement may be adjusted to maintain the design depth of combined recycled and new hot bituminous pavement.

**405.05 Smoothness Testing.** The longitudinal surface smoothness of the pavement surface prior to and after heating and repaving shall be tested in accordance with subsection 105.07.

**METHOD OF MEASUREMENT**

**405.06** Heating and repaving treatment will be measured by the actual number of square yards that are completed and accepted.

**BASIS OF PAYMENT**

**405.07** The accepted quantities of heating and repaving treatment will be paid at the contract unit price per square yard. Payment will be full compensation for all labor, materials and equipment required to complete the work, including cleaning the existing pavement surface, heating, scarifying, redistributing, releveling and compacting bituminous pavement

Payment will be made under:

**Pay Item Pay Unit**

Heating and Repaving Treatment Square Yard

New hot bituminous pavement material will be measured and paid for in accordance with Section 403 under the pay item, Furnish Hot Bituminous Pavement.

Rejuvenating or recycling agent will be measured and paid for under the Pay Item 411, Asphalt Rejuvenating Agent in accordance with Section 411. Other bituminous materials not included in Item 403 will be measured and paid for in accordance with Section 411.

Profile testing of the roadway surface prior to and after heating and repaving will not be measured and paid for separately, but shall be included in the work.