

WISCONSIN HOUSING AND ECONOMIC DEVELOPMENT AUTHORITY

**ASPHALT PAVEMENT MAINTENANCE SPECIFICATION
Section 02510 - March 98**

TO: Owners/Project Managers/Contractors

RE: All WHEDASM Projects
Minor Repair/Sealcoating/Overlayment of Asphalt Surfaces

I. INFORMATION TO BE SUBMITTED AS A PART OF THE BID

- A. To facilitate a prompt review of all bid proposals by the WHEDA Asset Management Group, a standard bidding format has been developed to ensure competitive, all inclusive, bids. This format attempts to cover the majority of asphalt surface conditions. Three (3) competitive proposals for each site will be solicited by the Owner.
- B. For each site (or each separate parking area within a site where the scope of work significantly varies; i.e., sealcoating versus overlayment, each bidder is instructed to fully list the total scope of work to be provided, and the equipment to be used, by completing a separate "Sealcoating Bid Form Attachment" or "Overlayment Bid Form Attachment".
- C. All bids shall conform to the specifications. Only where asphalt surfaces have experienced major deterioration (exclusive of normal cracking and minor area repairs) should overlayment bids be submitted. Where minor repairs are required, the scope of the repairs (and their cost) is to be included in the respective sealcoating or overlayment bid. Failure to provide all information required by the respective bid form may be the sole cause for rejection of the bid.

II. GENERAL REQUIREMENTS

- A. Contractor shall purchase and maintain liability insurance to protect from claims under work's or workmen's compensation acts and other employee benefits acts, claims for damages because of bodily injury, including death, and for claims for damages to property which may arise out of results from the contractor's operation or any subcontractor or anyone directly or indirectly employed by any of them. Minimum limits shall be as are acceptable to the Owner. **CERTIFICATES OF SUCH INSURANCE SHALL BE FILED WITH THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.**
- B. Contractor shall pay unemployment and social security taxes or other taxes imposed by local, state, or federal government and certify to Owner that this has been done before payment is made to contractor.
- C. Contractor shall comply with all applicable state, federal and local codes, and pay all permits, licenses and certificates, and other fees as required by the work.
- D. Contractor is advised that the building(s) is occupied. The contractor will be held liable for any damage caused to the building(s) and ancillary structures, and/or injury to the

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occupants resulting from the execution of the work or from not exercising proper precautionary protective measures. Any cost of repair/replacement resulting from damages shall be at the contractor's expense.

II. **GENERAL REQUIREMENTS** (cont.)

- E. Contractor shall furnish all labor and all materials as specified herein and/or required to complete the work. All materials shall be new unless otherwise noted.
- F. All materials and workmanship shall be guaranteed to be free from defect for not less than two (2) years unless otherwise specified for a longer period within the terms of the material manufacturer's warranty for said specified material.
- G. Final payment in an amount equal to ten (10) percent of the contract amount will be made within thirty days of final acceptance of the completed work. Contractor shall submit to Owner waivers of lien for all materials and labor prior to final payment.
- H. The contract may be changed only by written authorization, approved by Owner and WHEDA. Contractor shall submit any written Change Order to Owner and WHEDA, for approvals, before commencing the work.
- I. Contractor shall prepare and submit to the Owner, for approval, a schedule fixing dates for the work to begin and end.
- J. An inspection of the work will be made after completion of the work. Notify Owner's representative ten (10) days prior to date required for inspection.

III. **SCOPE OF WORK**

A. **GENERAL:**

- 1. The contract shall include all labor, materials and incidentals necessary to complete the work in a neat and acceptable manner.
- 2. The descriptions that follow in the specification sections below (Asphalt Removal and Replacement / Repair Work)(Asphalt Sealcoating Work) (Asphalt Overlayment Work) are not intended to indicate the specific locations or the extent of asphalt maintenance work to be performed, but rather to identify those physical conditions where remedial work is required. Refer to the applicable sections of these specifications for determining the specific asphalt maintenance materials and procedures to be used.

B. **SITE SPECIFIC/BID PREPARATION:**

- 1. It is the responsibility of each bidding contractor to determine the types of work and quantity of work for each type based on his/her site evaluation.

2. Where asphalt repair is required (as defined in section V. Asphalt Removal and Replacement / Repair), the cost of repair must be included in the bid contract amount. Submit a plan sketch of the repair work.

3. Where Special Work is required, such as catch basin reconstruction, or pavement extension if directed by the Owner, insert its cost separately in the place provided on the bid form together with a brief description of the work.

IV. APPROVED MATERIALS

- A. ASPHALT SURFACE COURSE: Hot mix, hot lay asphaltic concrete mixture of mineral aggregate and asphaltic binder. Thickness after compaction not less than 3" in the traffic

IV. APPROVED MATERIALS (cont.)

areas, and 2" in the parking stalls. Conform to Sections 401, 402, 405, and 406, State Highway Commission of Wisconsin Standard Specifications for Road and Bridge Construction (SHCWSSRBC) -- aggregate conforming to Gradation 4 (Section 401.2.5) and asphalt with penetration 85 to 100 (Section 401.3).

- B. STONE BASE COURSE: Crushed limestone conforming to Gradation 2, Sections 304.2 and 304.5 of SHCWSSRBC. Compacted thickness -- 10" in traffic areas, and 8" in parking stalls.
- C. CRACK/JOINT SEALANT: Commercial grade hot-poured rubberized extended - temperature crack filler. Conforming to ASTM D 3405 as local temperature range conditions require for guarantee, of the following:
Crafco 221, 201; W.R. Meadows Hi-Spec; or Neyra Spec-Plus.
- D. COAL-TAR PITCH EMULSION: 48% solids content by volume or higher, conforming to Fed. Spec. RP 355e; of the following trade names:
Vance Brothers' Protector; Gemseal; Jennite; Good Seal's; or Sakrete.
- E. LATEX RUBBER: Compatible with coal-tar pitch emulsion, having an average particle size of 300 to 1500 angstroms.
- F. SILICA SAND: Fractured (crushed) silica sand having at least 50% angular particles, Fauks Bros. #2340, or equal.
- G. STRIPING PAINT: Yellow, formulated especially for striping bituminous paving in one coat, free of bleed-through. Handicap designations to be international symbols using BLUE paint. Use acrylic latex paint over new sealcoating; use alkyd paint over new asphalt.

V. ASPHALT REMOVAL AND REPLACEMENT / REPAIR WORK

Perform all required repair work prior to the start of sealcoating wherever relatively small areas of cracking (localized alligatoring), unstable stone base, or severe separation of the aggregate (localized ravelling) exist. Repair work is also required prior to the start of overlayment work wherever localized alligatoring or unstable stone base exist.

Where total reconstruction of the existing pavement is required, the owner will be responsible to procure the services of an approved engineer to prepare the specific bidding documents--drawings and specifications of the scope of work.

- A. Where required by localized cracking (alligatoring) or localized severe separation of the aggregate (ravelling) of the surface, remove the asphalt. If the earth subgrade is found to be spongy, remove the soft earth area and replace the removed material with a minimum

10" thickness (8" at parking stalls) compacted stone base material. The new asphalt shall be a minimum 3" thickness (2" at parking stalls) of compacted fine Gradation #4 surface course asphalt. **NOTE:** *Where upheaval or heaving of the asphalt has caused localized cracking, replacement of the earth subgrade with compacted stone is mandatory.*

V. ASPHALT REMOVAL AND REPLACEMENT / REPAIR WORK (cont.)

- B. Where severe ponding occurs, saw-cut within surface of high area surrounding the ponding and remove 1" surface thickness of asphalt by grinding. Apply a tack coat to the surface and extend up vertical edges at a rate of 0.25 to 0.30 gal./sq. yd., then apply a leveling patch of very fine asphalt wear surface material. Roll surface to compact material until roller marks disappear. **NOTE:** *Wedge or shim patching may only be done when overlayment is being applied over entire asphalt surface.*
- C. The contractor shall, in the presence of the owner's representative, outline with paint from an aerosol can all areas requiring repair. All repairs are to be rectangular or square in shape to enable uniform compaction. Repairs are to extend a minimum of 12" into good pavement outside the deteriorated area.
- D. Infrared heat repair is a preferred method, in particular when used to reconstitute existing deteriorated asphalt around catch basins (assuming a sound stone base) and to replace soft (rotted) asphalt resulting from leaking auto oils and gasoline. Infrared heat repairs may be done throughout the year--general weather conditions permitting. Total heat penetration through the full depth of the asphalt is mandatory in all cases. Rake, add/replace asphalt, regrade, and compact with a power roller level with adjacent asphalt surfaces. Do not oxidize existing asphalt by over-heating.

VI. ASPHALT SEALCOATING WORK

Sealcoating is required to stabilize surface oxidation and minor aggregate separation (ravelling), and coincidentally, to fill all surface cracks too narrow to require routing and special filling.

The bid is to incorporate all requirements of this section, subparagraphs A through H below, plus the work required by section V. **ASPHALT REMOVAL AND REPLACE-MENT / REPAIR WORK** where such conditions exist. **Note:** *For the preparatory repair work, list on the bid form the approximate square foot quantities of asphalt surfaces to be removed and replaced, and amount of stone base to be removed and replaced--if none, write "None" on appropriate line on the bid form. Contractor is required to attach a sketch of pavement showing the approximate areas (locations and sizes) of repairs.*

- A. Using a min. 18 HP route, mechanically route all existing 1/4" wide and wider cracks; route cracks a min. of 1/2" wide by 1/2" deep. Clean all cracks (routed and non-routed) using a heat lance to remove all debris and to eliminate all crack sidewall dampness while exercising extreme care not to oxidize (burn) the asphalt pavement. The heat lance, utilizing propane and compressed air, shall operate at approximately 3000° Fahrenheit chamber combustion temperature with a directional velocity of approximately 3000 fps.

- B. Crack sealant shall be heated in a double wall oil jacketed kettle. **The use of a single wall kettle is prohibited.** Fill all cracks flush -- repeat filling operation where necessary to make flush. Where overbanding is permitted and to be used, use a shoe applicator that provides a maximum 2" wide seal that moisture cannot penetrate, set so that banding thickness does not project more than 1/16" above pavement surface to avoid snow plow blade removal.
- C. Remove oil spots by scraping and by use of a wire brush. Seal with a commercial oil spot sealer. Provide adequate curing time to prevent bleed-through into the sealant.

VI. ASPHALT SEALCOATING WORK (cont.)

- D. Remove all soft and rotten asphalt, and patch holes, including those created by motorcycle kickstands, where they exist.
- E. Chemically poison all weeds not removed by the heat lance
- F. Sweep entire surface with a power sweeper.
- G. Seal entire asphalt surface, including repaired areas, with two (2) coats of latex modified coal tar emulsion. Hand squeegee as required to avoid any overlapping onto concrete curbs/gutters or sidewalks. Both coats are to be mixed with fine grained fractured silica sand to make surfaces more skid-resistant and to fill small surface voids (ravelling). The second coat is to be applied at right angles to the first coat.
- H. Restripe parking lines and traffic markings with **acrylic latex** traffic paint. This work is to be done no sooner than 12 hours after completion of the sealcoating application to avoid bleed-through in the paint. **Note:** *Contractors final invoice to state date when asphalt work was completed and date striping commenced.*

VII. ASPHALT OVERLAYMENT WORK

Overlayment is only recommended when it is necessary to correct a condition of overall cracking (alligatoring) when the overall stone base appears to be uniformly firm, a condition of overall severe surface-aggregate separation (ravelling), and/or when there is an overall lack of adequate surface drainage.

The bid is to incorporate all requirements of this section, subparagraphs A through K below, plus the work required by section V. **ASPHALT REMOVAL AND REPLACE-MENT / REPAIR WORK** where such conditions exist. **Note:** *For the preparatory repair work, list on the bid form the approximate square foot quantities of asphalt surfaces to be removed and replaced, and amount of stone base to be removed and replaced--if none, write "None" on appropriate line on the bid form. Contractor is required to attach a sketch of pavement showing the approximate areas (locations and sizes) of repairs.*

- A. Using a min. 18 HP router, mechanically route all existing 1/4" wide and wider cracks; route cracks a min. of 1/2" wide by 1/2" deep. Clean all cracks (routed and nonrouted) using a

heat lance to remove all debris and to eliminate all crack sidewall dampness while exercising extreme care not to oxidize (burn) the asphalt pavement. The heat lance, utilizing propane and compressed air, shall operate at approximately 3000° Fahrenheit chamber combustion temperature with a directional velocity of approximately 3000 fps.

- B. Crack sealant shall be heated in a double wall oil jacketed kettle. **Use of a single wall kettle is prohibited.** Fill all cracks flush - **DO NOT OVERBAND** - refill cracks as required to make flush with the asphalt surface.
- C. Chemically poison all weeds not removed by the heat lance.
- D. Sweep entire surface with a power sweeper.

VII. ASPHALT OVERLAYMENT WORK (cont.)

- E. Grind down pavement and/or level surfaces by filling with compacted asphalt (wedge or shim patch) to eliminate all low spots and depressions, including tire depressions at parking stalls, to provide a smooth overlayment surface and uniform uninterrupted surface drainage. Failure to correct drainage problems will be sufficient reason to reject the work.
- F. Raise all catch basin and clean-out rim elevations as needed to provide the full 1-1/2" (2") asphalt overlayment thickness while providing sufficient pitch to each catch basin. **NOTE:** *Where pavement has deteriorated around any catch basin, recompact stone base to ensure a full 2" asphalt thickness.*
- G. Where catch basin reconstruction is necessary, include cost on the bid form on the line titled "**Special Work**".
- H. Apply all nonwoven geotextiles in strict accordance with manufacturer's published instructions. Coat dry asphalt surfaces with the specific asphaltic sealant/primer as required by manufacturer. All cracks 1/8" and larger, not required by this specification to be routed and filled, must be filled with a filler material where pre-coated geotextiles are not used. **NOTE:** *Use geotextiles only over cracks, and areas of minor deterioration not requiring removal and replacement, such as alligating when comprised of tight hairline cracking within a level plane.*
- I. Over all of the prepared paved asphalt surfaces, apply a hot liquid asphalt tack coat (AC 10), applied at a rate of 0.25 to 0.30 gal./sq. yd.
- J. Apply a minimum 1-1/2" (2") compacted thickness of fine Gradation #4 surface coarse asphalt. Roll until fully compacted--all roller ridges eliminated. If equipment tires tend to stick to the geotextile, broadcast a small amount of sand ahead of equipment.
- K. Replicate all painted parking lines and traffic markings using **alkyd** traffic paint. This work is to be done no sooner than 2 weeks after completion of the resurfacing, to allow for initial

dissipation of bitumen oils. . **Note:** *Contractors final invoice to state date when asphalt work was completed and date striping commenced.*

VIII. FINAL REQUIREMENTS

- A. From past experience, the power sweeping of the surface is very important. Failures of the sealcoat have occurred where fine silt deposits have not been removed. This has resulted in areas of the sealing material flaking off. Inadequate overlayment bond may also result.
- B. Sealcoating is not to be done when the surfaces are not dry or the threat of rain exists. Should rain fall before adequate drying is accomplished, the contractor will be required to redo the work at his/her expense.
- C. Sealcoating work is to be done during the months of June to September inclusive to ensure adequate curing time (30 days) before freezing weather; but in no case shall the work be done when the weather conditions will not ensure both an air and surface minimum temperature of 50°Fahrenheit--maintained for a period of 24 hours before and after application. The period for crack routing and filling can be extended, so

VIII. FINAL REQUIREMENTS (cont.)

long as all cracks are cleaned and dried with the use of a heat lance **within 1/2 hour** preceding the pouring operation at that point.

- D. Asphalt paving repair work and overlayment work is to be done from May 15 to October 15 inclusive. The owner reserves the right to withhold 10% of the total contract amount as retainage until the following May 15 to assess any winter damage for work done outside this period. However, infrared heat repairs may be done throughout the year, general weather conditions permitting.
- E. **Project owner/manager** is to keep traffic off all surfaces for a minimum period of 24 hours after completion of sealcoat work, and 72 hours after completion of overlayment work.
- F. Contractor shall remove all excavated materials and debris from site.
- G. Contractor shall provide all required barricades necessary for the construction activity.

IX. GUARANTEE

- A. Contractor agrees to provide a full 2-year guarantee on all work performed and/or required based upon these Asphalt Pavement Maintenance Specifications.
- B. The sealcoating portion of the guarantee is to ensure against excessive wear and discoloration of the wear surface. **NOTE:** *For the purpose of this guarantee, discoloration (i.e., any color other than a lustrous black) will be presumed to result from excessive dilution of the coal tar emulsion concentrate, or from application/drying of the sealcoat below 50 degree Fahrenheit. Loss or partial loss of sealcoat (i.e., from snow plowing other than only*

at ridges, etc.) will be presumed to result from the contractor allowing insufficient curing time before the normal start of freezing temperatures; and

- C. The **crack filling** portion of the guarantee is to ensure against tracking and the release of the crack filler from the sidewalls of the cracks--not against increase in crack length.
NOTE: For the purpose of this guarantee release of sealant from the crack sidewalls will be presumed to be the result of: dust or moisture on crack sidewalls while pouring; excessive shoulder thickness of sealant where cracks are overbanded; or oxidation of the crack edges by improper heat lance use. Sealant tracking (tackiness) will be presumed to be the result of excessive kettle heat; or the use of an improper melting kettle during sealant heating.
- D. The **overlayment** portion of the guarantee is to ensure all work against excessive reflective cracking, and against settlement at all stone base and/or asphalt repair/replacement areas. Failure to correct surface drainage deficiencies is also covered by this guarantee.

X. BID FORM ATTACHMENTS

- A. Bidder must submit a fully completed Pavement Sealcoat Bid Form and/or Asphalt Overlayment Bid Form (attached hereto) as applicable, even if the information may be part of the contractor's standard bid form.

X. BID FORM ATTACHMENTS (cont.)

- B. Bidder is reminded that a scaleable sketch of the existing pavement surfaces, indicating and representative of approximate locations and areas to be repaired is required for each site. The sketch of the pavement surface and areas of repair, shall include any "Additional Special Work" items indicated on bid form and be submitted when applicable for either sealcoating or overlayment bids.
- C. Failure of bidder to provide a fully completed "bid form " or "pavement repair sketch" will be sole cause for bid rejection.
- D. Bids for asphalt maintenance will not be accepted after September 15th for any work to be performed by October 15, exception where such bids specifically guarantee the work and contract amounts to be performed during cold weather, or infrared heat repairs, or work that is scheduled to be performed the following year.

End of Section 02510
Asphalt Pavement Maintenance Specification

PAVEMENT SEALCOATING BID FORM

(All work in accordance with WHEDA Asphalt Pavement Maintenance Spec. 02510/APMS)

This form must be fully completed and attached to all asphalt maintenance proposals submitted for WHEDA-financed projects, even though the information required herewith may be a part of the contractor's standard bid form. Failure to provide the required information will be sole cause for bid rejection.

Project Name & Location(s) _____ WHEDA No. _____

Owner/Contact _____ Tel. No.(____) _____

Paving Contractor's Name _____

Address _____ Zip Code _____

Contact Person _____ Tel. No.(____) _____

SEALCOATING BID: (Complete all required bid information below; if none, write "NONE")

A. System Materials

1. Crack/joint sealant--Mfr. and trade name _____

2. Sealer--Mfr. and trade name _____

3. Contractor's mix specification:

a) The % of cut: (30 gal. of water/100 gal. of emulsion concentrate) _____

b) The % of latex: (3 gal. of latex/100 gal. of emulsion concentrate) _____

c) Pounds. of sand/gal.: (3 lbs. of sand/gal. of emulsion concentrate) _____

d) Application rate (two coats combined): 45 S.F./gal. of emulsion concentrate _____

4. Oil spot sealer--Mfr. and trade name _____

B. Equipment Listing

Crack router--Mfr., model, and HP _____

Heat lance--Mfr. and model _____

Crack sealant kettle melter--Mfr. and model _____

C. Bid Components (For items C.2. and C.3. attach a sketch of the repairs areas/locations)

1. Total area to be sealed: _____ Sq. Ft. using _____ gal. of emulsion concentrate.

2. Repair work--surface area of asphalt to be replaced: _____ Sq. Ft.

3. Repair work--surface area of stone base to be replaced: _____ Sq. Ft.

4. Lineal feet of mechanically routed crack: _____ L.F.

5. Total lineal feet of crack to be filled with sealant: _____ L.F.

SEALCOATING BID AMOUNT \$ _____, (includes \$ _____ for repair work).

Additional Special Work Contract Amount \$ _____,

for _____.

(Catch basin reconstruction, etc.)

Authorized Contractor's Signature, Title

Date

(SEE OPPOSITE SIDE FOR "ASPHALT OVERLAYMENT BID FORM")

ASPHALT OVERLAYMENT BID FORM

(All work in accordance with WHEDA Asphalt Pavement Maintenance Spec. 02510/APMS/03/98)

This form must be fully completed and attached to all asphalt maintenance proposals submitted for WHEDA-financed projects, even though the information required herewith may be a part of the contractor's standard bid form. Failure to provide the required information will be sole cause for bid rejection.

Project Name & Location(s) _____ WHEDA No. _____

Owner/Contact _____ Tel. No. (____) _____

Paving Contractor's Name _____

Address _____ Zip Code _____

Contact Person _____ Tel. No. (____) _____

OVERLAYMENT BID: (Complete all required bid information below; if none, write "NONE".)

A. System Materials

1. Crack/joint sealant--Mfr. and trade name _____

2. Nonwoven geotextiles

- Crack application (precoated 12" width)--Trade name _____

- Area application--Tradename _____

B. Equipment Listing

Crack router--Mfr., model, and HP _____

Heat lance--Mfr. and model _____

Crack sealant kettle melter--Mfr. and model _____

C. Bid Components (For items C.2. and C.3. attach a sketch of the repairs/locations)

1. Total overlayment surface area: _____ Sq. Ft.

2. Repair work surface area of existing asphalt to be replaced: _____ Sq. Ft.

3. Repair work surface area of existing stone base to be replaced: _____ Sq. Ft.

4. Lineal feet of mechanically routed crack: _____ L.F.

5. Total lineal feet of crack to be filled with sealant: _____ L.F.

6. Total lineal feet of 12" wide geotextile over cracks: _____ L.F.

7. Total area application of geotextile (excluding cracks): _____ Sq. Yards

TOTAL OVERLAYMENT BID OPTIONS:

• **1-1/2" Overlayment Bid Amount:** \$ _____, (includes \$ _____ for repair work).

• **2" Overlayment Bid Amount:** \$ _____, (includes \$ _____ for repair work).

Additional Special Work Contract Amount: \$ _____,

for _____.

(Catch basin reconstruction, etc.)

Authorized Contractor's Signature, Title

Date

(SEE OPPOSITE SIDE FOR "PAVEMENT SEALCOATING BID FORM")