TOWN OF LINN

WALWORTH COUNTY

2025

Notice to Bidders- Pavement Maintenance

The Town of Linn will accept pavement maintenance bids until 12:00 pm on Friday, February 28, 2025. Bids must be received by the Town Clerk Alyson Morris, W3728 Franklin Walsh Street, P.O. box 130 Zenda, WI 53195. A performance Bond is required.

The Town Board has the right to accept or reject any and all bids and accept the bid most advantageous to the Town.

For further information and project specifications contact Matt Wittum, Highway Superintendent, Town of Linn at (262) 275-6300 ex. 17 or linnhighway@townoflinn.wi.gov

TOWN OF LINN

WALWORTH COUNTY

2025
Pavement Maintenance Bid
Additional Information

Base Bid to include:

- Swamp Angel
- Alta Vista
- Laurel
- Maple Ln.
- Sunnyside
- Center St.
- Knollwood
- North Lakeshore
- Black Point
- Southland- Oakland West to termination
- Maple Ridge- South Lakeshore to Southland

Alternate Bid 1 to include all roads within the Wooddale Subdivision

Alternate Bid 2 to include all roads within the Robinson/Hillside Subdivision

Alternate Bid 3 to include the 2 bridges on Mohawk and the bridge on West Side

TOWN OF LINN

WALWORTH COUNTY

2025
Pavement Maintenance Bid

Base bid_____

Alternate bid 1_____

Alternate bid 2_____

Bridges_____

TOTAL BID_____

ROAD	Crack Fill	Spray/Flex Patch	I/R Heat	Chip Seal	GSB 88
Swamp Angel	X				
Alta Vista	X	X		X	
Laurel	X	X	up to 6	X	
Maple Ln.	X		up to 6	X	
Sunnyside	X				X
Center St.	X				X
Knollwood	X				X
North Lakeshore	X				X
Black Point	X				X
Southland	X				X
Maple Ridge- SLS to Southland	X				X
Wooddale Subdivision	X- entire subdivision				X-entire subdivision
Wooddale					
Fair Oaks					
Wildwood Rd					
Springbrook Rd.					
Linden					
Orchard					
Old Farm					
Hill					
Forest					
Robinson/Hillside Subdivision	X- entire subdivision				X- entire subdivision
Hillside-SLS to launch					
Poplar					
Elm					
Maple					
Hickory					
Burr Oak					
Wildwood Dr.					
BRIDGE MAINTENANCE					
Mohawk Road	2 bridges; polymer overlay				
West Side	cut out and fill aproaches				

SPECIFICATIONS

Leveling Cupped Cracks with Spray Injection Pre-coated stone

I. APPLICATION

A. Surface and cracks to be treated shall be cleaned with approved cleaning equipment. Areas of repair shall be free of all foreign material, vegetation, and moisture. Routing may or may not be required.

B. Surface and/or cracks shall be sealed with a polyester fiber flex-patch sealant. Upon application of the sealant through the wand, the sealant must be hand squeegeed to insure proper coverage. Sealant shall be applied to both fill cracks as needed and provide coverage for surface usage on cupped cracked depressions (transverse cross cracks) and minor alligator areas . Squeegee range from 12 inches to 48 inches wide will be required pending severity of depressed area.

C. A pre-coated, heated cover aggregate material shall be pneumatically sprayed on top of the sealant while still hot to insure stone penetration in the rubber. Traffic shall not be allowed on the material until it is cured or it has been blotted to prevent tracking.

II. MATERIAL

A. Sealant fortified with polyester fibers shall be applied per manufacturer's specifications.

B. Cover aggregate shall be fractured Class A stone with 100% passing a 3/8" sieve, 95-100% passing a ¼" sieve and be pre-coated with 1% 120-150 asphalt cement.

III. EQUIPMENT

A. Crack cleaning equipment shall consist of an air compressor capable of delivering a minimum of 250c.f.m. and capable of emitting air through the nozzle within the range of 70 to 150p.s.i. The compressor's air shall be free of moisture.

B. A heat lance shall be used which is capable of drying out the crack. Temperature at discharge shall be a minimum of 2,200°F and a discharge velocity of 3,000 ft/sec.

C. The kettle used for heating the sealant must be an oil jacketed double boiler type-melting unit, which is, equipped with both agitation and recirculation systems. It must have separate temperature thermometers for both the oil bath and melting vat to insure proper temperature for the sealant. It must be equipped with a pump to pressure fill cracks with a wand applicator. Pour pots are not acceptable.

D. Spray Patching Truck: The spray injection equipment must be a self-contained unit and have a heated hopper capacity of 5 cubic yards minimum.

E. Squeegee size is to be 12 to 48 inches wide.

SPECIFICATION

BITUMINOUS SEAL COATING WITH FA2 WASHED CHIP COVER AGGREGATE

Scope of Work: This work shall consist of furnishing all materials, equipment, and labor necessary for the application of Bituminous Seal Coating as directed.

Description: The work shall consist of bituminous seal coating with stone cover aggregate. The work shall be done in accordance with Section 475, State of Wisconsin Department of Transportation "2017 Standard Specifications for Highway and Structure Construction" with the special provisions for aggregate below.

Materials: Materials furnished and used in the work shall conform to the requirements of Section 475. Aggregate must be a washed fractured granite stone classified as a Class A aggregate. Aggregate to be medium gray in color. Limestone, pea stone and boiler slag are not permitted.

A. **Asphaltic Material Seal Coat.**
Asphaltic material to be CRS-2P at the following:

Rate of application: 0.30 +/- .03 gallons/SY

Supplement 455.2.4.3 (1) of the standard specifications with the following:
Furnish material conforming, before dilution, to the following:

I. Polymer Modified cationic emulsified asphalt..... AASHTO M 316

B. **Cover Aggregate:** The cover aggregate shall meet the requirements of The sieve specifications, and conform to the following sieve size.

Sieve Size	Percent Passing
½ inch	100 %
3/8 inch	100 %
¼ inch	100 %
No. 4	0- 100 %
No. 8	0 – 45 %
No. 16	0 – 15 %
No. 50	0 – 7 %
No. 100	0 – 4 %
No. 200	0 – 2 %

The aggregate shall be applied at the rate of 20 +/- 3 pounds per square yard. The Contractor shall take all precautions to minimize contamination of the aggregate.

Equipment: The contractor shall have available and maintain in good working order the equipment and tools necessary to perform the work. The requirements for the equipment for heating the asphaltic material and for the distributors shall be as set forth in subsection 475.3.4. The equipment to be used shall include dragging equipment and aggregate spreading equipment that can be adjusted to spread accurately the quantities specified per square yard, and a minimum of two self-propelled, pneumatic-tire rollers meeting the requirements of Subsection 475.3.5.

Construction Methods:

A. Surface Preparations: Immediately prior to applying the asphaltic materials, the Contractor shall thoroughly clean the existing surface of all loose material, silt spots, vegetation, and other objectionable material. Dust and other loose material in depressions or other places not reached by mechanical sweepers shall be swept with hand brooms or by blowers or flushers. Particular care shall be taken to thoroughly clean the outer edges of the area to be sealed. All costs associated with preparing existing surfaces as described above shall be included in the bid price for Construct Chip Seal Surface.

B. Applying Asphaltic Materials: A pressure distributor shall be used for applying the asphalt material. It shall have a ground speed control device interconnected with the asphalt emulsion pump such that specified application rate will be supplied at any speed. The pressure distributor shall be capable of maintaining the asphalt emulsion at the specified temperature. The spray bar nozzles shall produce a uniform fan spray, and the shutoff shall be instantaneous, with no dripping. Each pressure distributor shall be capable of maintaining the specified application rate. Means shall be provided for accurately indicating the temperature of the asphalt material at all times. The thermometer well shall not be in contact with a heating tube. Application will be with full width equipment capable of applying 24' without a center seam. A hose and spray nozzle attachment shall be provided for applying asphalt material to patches and areas inaccessible to the spray bar. The distributor shall be provided with heaters that can be used to bring the asphalt material to spray application temperature.

C. Applying Sealcoat Aggregate: After application of the asphaltic material and when the desired stage of tackiness is attained, aggregate for seal coat cover shall be spread uniformly over the treated surface by approved self-propelled mechanical full width spreader capable of applying aggregate 24' without a seam.

D. Rolling of Aggregate: Roll surface immediately after spreading the aggregate. Rolling shall start at the edges and continue to the center, lapping one-half the roller width on each successive trip. Rolling shall be accomplished with two pneumatic-tire rollers. The speed and reversing of direction of rollers shall be regulated as to avoid displacement or loosening of the cover material or damage to the asphaltic material. Rolling shall be continued until the aggregate for the seal coat cover is thoroughly embedded and the surface is smooth and uniform in texture.

E. Loose aggregate to be swept 24 to 48 hours after application.

Traffic Control: The contractor shall proceed in such manner as to interfere with traffic as little as possible. The Contractor shall provide flagmen to direct traffic on streets where travel will be restricted.

Insurance: No Contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employer's Liability
- **A.** $100,000 each accident
- **B.** $500,000 Disease-Policy limit
- **C.** $100,000 Disease-each employee

General Liability
- **A.** $2,000,000 General Aggregate
- **B.** $2,000,000 Products
- **C.** $1,000,000 Personal and Advertising
- **D.** $1,000,000 Each Occurrence

Automobile Liability
- A. $1,000,000 Combined Single Limit

Excess Liability
- **A.** $4,000,000 Umbrella Form

Method of Payment: Payment for Construct Chip Seal Surface will be made per accepted square yard in place. The bid price for Constructing Chip Seal Surface shall include all costs associated with furnishing, preparing, hauling, mixing, and applying all materials.

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GSB-88 EMULSIFIED SEALER/BINDER

SPECIFICATION

Product Description:
GSB-88® Emulsified Sealer/Binder is a chemically engineered asphalt pavement sealer/binder comprised of a cationic emulsion of Gilsonite Ore, and specially selected plasticizers. This chemical colloid stabilized emulsion has been specifically formulated for sealing asphalt parking lots, city streets, county roads, airport taxiways, and airport parking aprons. GSB-88® provides a durable, yet flexible top coat, while special plasticizers and oils penetrate and rejuvenate asphalt pavements. The result is an emulsified sealer/binder that restores vital components to asphalt pavements lost during the aging and oxidation process. The gilsonite seal provides a long wearing anti-oxidative seal for the surface of the asphalt pavement. GSB-88® beautifies asphalt pavements by drying to an absolute black color.

Specifications:
GSB-88® is available in either a concentrate or ready to use form. The concentrate form allows large shipments via tank truck or railroad tank car. The concentrate form must be diluted with water prior to application.

Specifications for GSB-88® Concentrate are as follows:

Saybolt Viscosity at 77°F (25°C) ASTM D-244. . . . . 20 to 100 seconds

Residue by Distillation, or Evaporation. . . . . 57% min.

Sieve test ASTM D-244 (two tenths of one %) 0.2%

5 day Settlement test ASTM D-244. . . . . 5.0% max.

Particle charge (1) ASTM D-244 . . . . . Positive

Specifications for GSB-88® Ready-to-Apply:

Saybolt Viscosity at 77°F (25°C) ASTM D-244 . . . . . 10 to 50 sec.

Residue by Distillation, or Evaporation. . . . . 28% to 42%

Pumping Stability test (2). . . . . Pass

Tests on Residue from Distillation, or Evaporation:

Viscosity astm 275°F (135°C) ASTM D-4402 ..... 1750 cps max.

Solubility in 1,1,1 trichloroethylene ASTM D-2042 ..... 97.5% min.

Penetration ASTM D-5 ..... 50 dmm max.

Asphaltenes ASTM D-2007..... 15% min.

Saturates ASTM D-2007..... 15% max.

Polar Compounds ASTM D-2007 ..... 25% min.

Aromatics ASTM D-2007 ..... 15% min.

- (1) pH may be used in lieu of the particle charge test which is sometimes inconclusive in slow setting, bituminous emulsions.
- (2) Pumping stability is tested by pumping 1 pint, (475 ml) of GSB-88® diluted 1 part concentrate to 1 part water, at 77°F (25°C), through a 1/4inch gear pump operating 1750 rpm for 10 minutes with no significant separation or coagulation.

Storage and Handling Instructions

GSB-88® may be stored and handled like any standard asphalt emulsion. Vertical storage tanks are recommended. The storage tank should be equipped with a slow revolution mechanical agitator. Hot water heating coils, or electrical coils, or electrical heaters are required in colder climates to prevent the emulsion from freezing. Positive displacement gear pumps should be used to transfer and apply GSB-88® materials. Storage and handling temperature are 50°F (10°C) to 160°F (71° C). GSB-88® should be protected from freezing, or whenever outside temperature drops below 40°F (4°C) for prolonged time periods.

Application Instructions

Equipment:
GSB-88® may be applied with standard bituminous distributors. The equipment must be in good working order, and contain no contaminants or diluents in the tank. Spreader bar tips must be clean, free of burrs, and adjusted for regulated flow. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process. The equipment should be tested under pressure for leaks and to insure it is in working order before use. No special mixing equipment is necessary since GSB-88® concentrate may be diluted in the spreader tank.

Mini-Distributor:
In areas where a standard Distributor can not fit or can cause problems to asphalt due to weight a Mini-Distributor will be required. The Mini-Distributor must be in good working order, and contain no contaminants or diluents in the tank. Spreader bar tips must be at least 6' in length, clean, free of burrs, and adjusted for regulated flow. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process. The equipment should be tested under pressure for leaks and to insure it is in working order before use. This Equipment must also feature a way to keep GSB-88® up to recommended temperature for application and feature a hand spraying unit that can be shut off and turned on by hand to properly spray all radius and hard to get areas. This piece of equipment must also be able to apply sand at the correct application rate for Project.

Dilution Equipment:
When diluting GSB-88® on site, Make sure you have proper storage tanks to keep GSB-88 heated. A tank or water source will also be required so hot water can be mixed on top of the GSB-88 Concentrate in your standard bituminous distributor.

Dilution:
GSB-88® Concentrate must be diluted with heated water prior to application to asphalt pavements. Always add water to the concentrate emulsion; never add concentrate emulsion to the water. Two dilution rates are recommended as follows:

- 2 parts GSB-88® to 1 part water for use on hills where run off may be of concern, or on very rough surface textured pavements.
- 1 part GSB-88® to 1 part water for most applications is recommended.

Use dilution rate stated in Job description for this Project.

Rate of Spread:
Rate of spread is normally determined by the texture, porosity, and age of the asphalt pavement to be sealed. Application rate can vary from 0.08 to 0.15 gallons per square yard.

- For 2:1 dilution 0.08 to 0.12 gallons per square yard is recommended.
- For 1: 1 dilution 0.10 to 0.15 gallons per square yard is recommended.

Exceeding recommended application rates is not recommended without consulting with a responsible manufacturer's representative. Application rates will be stated in job description for this project.

Cure Time:
Under normal conditions, cure time for GSB-88® is 2 to 8 hours. Sheltered or shady areas may require longer cure times.

Application Precautions:
GSB-88® should not be applied to wet or damp pavement surfaces. Do not apply during rainy or damp weather, or when rain is anticipated within 8 hours after application is completed. Pavement surface temperatures should be 65°F (18°C) and rising before application of GSB-88® is initiated. At least three hours of daylight should remain after completion of the application. Material temperature will be applied at 130°F or above, but not to exceed 160°F during application. GSB-88® should not be applied on extremely windy days. Consult the Material Safety Data Sheet for GSB-88® fire and explosion data, health hazard data, first aid procedures, reactivity data, spill or leak procedures, waste disposal and use of personal protective equipment. Additional copies of the Material Safety Data Sheet can be obtained by calling ASI, toll free, at 1-800-972-2757.

Preparation of Pavement Surfaces:
Repair and patch all major pavement defects. All cracks, other than hairline cracks, should be filled with a suitable bituminous crack-filler. Scrape all oil spots to remove excess oil and dirt. Just before applying GSB-88® clean the asphalt surface of all loose dust, dirt, and other debris.

Addition of other materials:
GSB-88® has been chemically engineered to provide a premium asphalt sealer without the requirement of other materials or additives. Asphalt Systems, Inc., assumes no responsibility for problems resulting from mixing additives or other materials with GSB-88®.

Latex Addition:
Various synthetic and rubber latex additives may be used with GSB-88® at varying quantities. If this addition is specified in project material description than make sure all additives are added by a professional at one of ASI's plants.

Sanding:
Sanding should be done at the same time GSB-88® is applied. Hard, highly fractured Blackjack or Black Diamond Sand should be used. Because there are regional differences in sand characteristics, a knowledgeable local pavement maintenance representative should be consulted to insure that the appropriate amount and type of sand is chosen to regain any lost skid resistance. Sanding is applied at approximately 0.20 to 0.50 pounds of sand per square yard (typical application) or more if necessary during the spreading process.

Clean up:
GSB-88® that has not dried may be cleaned up with water. Dried GSB-88® may be removed with degreasing solvents.

MICRO SURFACING SPECIFICATIONS

DESCRIPTION OF WORK

Transverse Leveling:
If required on project, Slurry Leveling may be applied in areas where recessed joints (dips) in a road caused by deterioration underneath the pavement surface occur. Slurry Leveling is applied to improve a road's ride and seals large cracks in the surface of the pavement. Contractor must furnish all labor, equipment, material, supplies, signage, traffic control, and other incidentals necessary to provide Transverse Leveling. Material for Transverse Leveling shall consist of a TYPE II mixture, containing CSS-1hlm emulsion, mineral aggregate, water, and specified additives, proportioned, mixed and uniformly spread over a properly prepared asphalt surface.

Micro Surfacing Scratch Course:
If required on project, Scratch Course may be used to pre-level uneven areas, fill minor ruts, and fill minor cracking. Contractor must furnish all labor, equipment, material, supplies, signage, traffic control, and other incidentals necessary to provide Micro Surfacing Scratch Course. Scratch Course shall consist of a TYPE II mixture containing CSS-1hlm emulsion, mineral aggregate, water, and specified additives, proportioned, mixed and uniformly applied over a properly prepared asphalt surface. The completed Scratch Course shall adhere firmly to the prepared surface, and have a skid-resistant surface texture.

Micro Surfacing Finish Course:
Contractor must furnish all labor, equipment, material, supplies, signage, traffic control, and other incidentals necessary to provide Micro Surfacing. Micro Surfacing shall consist of an ISSA TYPE II mixture containing a mixture of polymer-modified emulsified asphalt, mineral aggregate, water, and specified additives, proportioned, mixed and uniformly applied ***at a rate of 18 to 22 LBS/SY*** spread over a properly prepared asphalt surface. The completed Micro Surfacing shall leave a homogeneous mat, adhere firmly to the prepared surface, and have a skid-resistant surface texture throughout its service life.

MATERIALS

Emulsified Asphalt Material:
The emulsion for Micro Surfacing shall be polymer modified emulsion (Css-1hLM). The polymer material shall be milled or blended into the asphalt or emulsifier solution prior to the emulsification process. In general, the modified emulsion shall contain a minimum of 3% polymer, SBR latex, or natural latex by weight. The emulsified asphalt, and emulsified asphalt residue, shall meet the requirements of AASHTO M 208 or ASTM D 2397 for CSS-1h, with the following exceptions:

TEST	TEST METHOD AASHTO	ASTM	SPECIFICATION
Settlement and storage stability of Emulsified Asphalts, 24-h	T 59	D 6930	1% Maximum
Distillation of Emulsified Asphalt[1]	T 59	D 6997	62% Minimum
Test on Emulsified Asphalt Residue			
Softening Point of Bitumen (Ring-and-Ball Apparatus)	T 53	D 36	135°F (57°C) Minimum
Penetration of Bituminous Materials at 77°F (25°C)	T 49	D 5	40-90[2]

[1]The temperature for this should be held at 350°F (177°C) for 20 minutes.
[2]The climatic conditions should be considered when establishing this range.

*Each Load of emulsified asphalt shall be accompanied with a Certificate of Analysis/Compliance to indicate that the emulsion meets specification.

AGGREGATE:
The aggregate mix shall consist primarily of crushed granite, quartzite, trap rock, or steel slag. Limestone may be utilized as a portion of the blend in order to control aggregate reactivity. Coal slag shall not be utilized as an aggregate. All aggregate must be clean and free from organic matter, other deleterious substances.

Gradation Table – Aggregate (percent passing)
Table: Plus or Minus 5%

3/8''	No.4	No.8	No. 16	No. 30	No. 50	No. 100	No. 200
100	90-100	65-90	45-70	30-50	18-30	10-21	5-15

Resistance to Degradation	(ASTM C131grading D)	20% maximum loss
Soundness of Aggregate	(ASTM C88)	15% maximum loss
Sand Equivalent Value	(ASTM D2419A)	55 minimum
LA Abrasion	(AASHTO T96)	20% maximum loss

Mineral Filler:
Hydrated lime, cement, or other approved filler meeting the requirements of ASTM D242 shall be used if required by the mix design. They shall be considered as part of the dry aggregate.

Water:
All water used shall originate from a potable source and be free of dissolved materials which may affect the mix characteristics or finished characteristics of the product..

Additives
Additives may be used to accelerate or retard the break-set of the Micro Surfacing or to improve the resulting finished surface.

Micro Surfacing Mix Design Specifications:
Before work begins, the Contractor shall submit a mix design covering the specific materials to be used on the project. This design must be performed by a certified laboratory with experience in designing micro mix designs. After the mix design has been approved, no material substitution will be permitted unless approved. (ISSA can provide a list of laboratories experienced in micro surfacing design.)

*The Micro Surfacing mixture shall meet the following specifications:

TEST	ISSA TEST NO.	SPECIFICATION
Mix Time @ 77°F (25°C)	TB 113	Controllable to 120 seconds Minimum.
Wet Cohesion @ 30 Minutes Minimum (Set) @ 60 Min. Minimum(Traffic)	TB 139	12 kg-cm Minimum 20 kg-cm or Near Spin Minimum
Wet Stripping	TB 114	Pass (90% Minimum)
Wet-Track Abrasion Loss One-hour Soak Six-day Soak	TB 100	50 g/ft² (538 g/m²) Maximum 75 g/ft² (807 g/m²) Maximum
Lateral Displacement Specific Gravity after 1,000 Cycles of 125 lb. (56.71 kg)	TB 147	5% Maximum 2.10 Maximum
Excess Asphalt by LWT Sand Adhesion	TB 109	50 g/ft² (538 g/m²) Maximum
Classification Compatibility	TB 144	11 Grade Points Minimum (AAA, BAA)

Composition of mixture:
The owner shall approve the design mix and all Micro Surfacing materials and methods prior to use and shall designate the proportions to be used within the following limits:

Residual Asphalt: **5.5% to 12% by dry weight of aggregate**
Mineral Filler: **0% to 3% by dry weight of aggregate**
Polymer Based Modifier: **Shall be a minimum of 3% solids content**
Water (Potable): **As required to provide proper consistency**

Equipment:
The material shall be mixed by a continuous run or continuous flow machine. If a Continuous flow machine is being used then you must have 3 machines at minimum to keep production up and joints workable. These machines need to be able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, and water to a revolving multi-blade pug mill and discharge the mix on a continuous flow basis. The machine shall have at least a 10 ton storage capacity for aggregate, emulsified asphalt, mineral filler, and water to maintain an adequate supply to the proportioning controls. Each material control device shall feature sensors to monitor the calibrated rate of material flow. If Material flow changes from calibrated rates then the sensors must be able to detect the error and give warning to the operator. Aggregate fed to

the mixer shall also be equipped with a revolution sensor. All sensors should keep track of aggregate, emulsion asphalt, mineral filler, and water amounts on the fly for the operator to view by monitor or by similar device. The mixing machine must also be equipped with a water pressure system and nozzle type spray bar to provide a water spray immediately ahead and outside of the spreader box.

Spreading Equipment:
The mixture shall be agitated and spread uniformly in the surfacing box by means of twin shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved and a free flow of material is provided to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry.

Calibration:
Each mixing unit to be used in the performance of the work shall be calibrated prior to the start of the project. Material calibration settings need to be set based on mix design for project. The documentation for each units calibration shall include an individual calibration of each material at various settings that can be related to the machine sensor devices. Any component replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been completed and/or accepted. ISSA Inspector's Manual describes a method of machine calibration. ISSA contractors and/or machine manufacturers may also provide methods of machine calibration.

Lines:
Care shall be taken to insure straight lines along curbs and shoulders.

Handwork:
Hand squeegees may be used to spread Micro Surfacing in areas not accessible to the Micro Surfacing spreader box.

Curing:
Areas receiving Micro Surfacing will be allowed to cure from one to three hours or until the treated pavement will not be damaged by traffic. The Contractor will protect the area with suitable barricades or markers for the full curing period.

Surface Preparation:
Immediately prior to applying the Micro Surfacing, the surface shall be cleared of all loose material, oil spots, vegetation and other objectionable material. Any standard cleaning method will be acceptable. If water is used, cracks shall be allowed to dry thoroughly before Micro Surfacing. Manholes, valve boxes, drop inlets and other service entrances shall be protected from the Micro Surfacing by a suitable method. The Project Manager shall approve the surface preparation prior to surfacing.

Weather Limitations:
Micro surfacing shall not be applied if either the pavement or air temperature is below 50°F (10°C) and falling, but may be applied when both pavement and air temperatures are above 45°F (7°C) and rising. No Micro Surfacing shall be applied when there is the possibility of freezing temperatures at the project location within 24 hours after application. The Micro Surfacing shall not be applied when weather conditions prolong opening to traffic beyond a reasonable time.

Notification:
All homeowners and businesses affected by the paving shall be notified 24 hours in advance of the surfacing. Suitable tow-away signs may be posted prior to the surfacing. Should work not occur on the specified day, a new notification will be distributed. The notification shall be in a form of written posting, stating the time and date that the surfacing will take place.

Traffic Control:
Suitable methods shall be used by the contractor to protect the Micro-Surfacing from damage from all types of vehicular traffic. Opening to traffic does not constitute acceptance of the work. The Project Manager shall be notified of the methods to be used. In areas that are subject to an increased rate of sharp-turning vehicles, additional time may be required for a more complete cure of the Micro Surfacing mat to prevent damage. Slight tire marks may be evident in these areas after opening but will diminish over time with rolling traffic. If these areas are not severely rutted, they should be considered as normal characteristics of a Micro Surfacing.

Clean Up:
All areas, such as man-ways, gutters and intersections, shall have the Micro Surfacing removed as specified by the Project Manager. The Contractor shall remove any debris associated with the performance of the work on a daily basis.

PAYMENT
The Micro Surfacing shall be measured and paid for by the square yards on the work completed and accepted by the buyer. The price shall be full compensation for furnishing all materials; for preparation, mixing and applying these materials; and for all labor, equipment, tools, test design, cleanup and incidentals necessary to complete and warrant the job as specified herein.

Example Line Items: (DEPENDING ON PROJECT):

- **MOBILIZATION:_____:**
- **TRAFFIC CONTROL:_____:**
- **LINEAL FOOT AMOUNT OF TRANSVERSE LEVELING:_____:**
- **PRICE PER LINEAL FOOT OF TRANSVERSE LEVING:_____:**
- **SQUARE YARD AMOUNT OF TACK COAT:_____:**
- **PRICE PER SQUARE YARD OF TACK COAT:_____:**
- **SQUARE YARD AMOUNT OF SCRATCH COURSE:_____:**
- **PRICE PER SQUARE YARD OF SCRATCH COURSE:_____:**
- **SQUARE YARD AMOUNT OF FINAL COURSE:_____:**
- **PRICE PER SQUARE YARD OF FINAL COURSE:_____:**

- SPRAY PATCH -

SPECIFICATION

SPRAY INJECTION PATCHING

SCOPE OF WORK: This work shall consist of furnishing all materials, equipment and labor necessary for the application of spray injector patching.

DESCRIPTION: The work shall consist of repairing pavement distressed areas. (potholes-low pavements-cracks)

MATERIALS: **A.** Oil shall be CRS-2 Asphalt Emulsion
B. Aggregate shall be 3/16" 100% Fractured Granite

EQUIPMENT: The spray injection equipment must be a self-contained unit with a minimum 300-gallon heated emulsion tank. The aggregate hopper will be truck mounted and the capacity should be a minimum of 5 cubic yards. The unit must be adjustable to calibrate to the emulsion applied. The oil shall be pumped to the injector nozzle by compressed air and mixed in an injector ring that coats 100% of the aggregate before it leaves the spray nozzle.

CONSTRUCTION METHOD:

A. Clean area, using air from the injection blower.

B. Spray a layer of emulsion as a tack coat on the sides and bottom of the distressed area.

C. Spray a combination of emulsion and aggregate into the area until filled.

D. Cover the patched area with aggregate only.

E. Open the repair as soon as the crew and equipment are out of the way.

INSURANCE:

No contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employers' Liability
A. $100,000 each accident
B. $500,000 Disease-Policy limit
C. $100,000 Disease-each employee

General Liability
A. $2,000,000 General Aggregate
B. $2,000,000 Products
C. $1,000,000 Personal and Advertising
D. $1,000,000 Each Occurrence

Automobile Liability (Any Auto)
A. $1,000,000 Combined Single Limit

Excess Liability
A. $4,000,000 Umbrella Form

METHOD OF PAYMENT:

A. Labor and Equipment:	Price per Hour
B. CRS-2 Emulsion:	Price per Gallon
C. 3/16" Fractured Aggregate:	Price per Ton

REFERENCES: Contractor must have 3 references where work was performed over 2 winters.

Specifications

Joint and Crack Sealant

Scope of Work

This work shall consist of furnishing all materials, equipment and labor necessary for the application of the Hot Pour Rubberized Joint Sealant as directed.

Description

The work shall consist of routing, cleaning, and sealing of random cracks and existing transverse and longitudinal joints.

Material

A. The material used must be a premium quality Rubber Asphalt joint Sealer. The sealer must **exceed the minimum ASTM D 6690 specification** for Hot Pour Rubber Asphalt Joint Sealants and contain a minimum of 38% rubber content.

B. The Sealant shall be in manufacturer's original sealed containers. Each container shall have the manufacturer's name, batch number, and manufacturer's recommendation for melting and application.

Equipment

A. A minimum of two dustless routers will be required, the routers must be a minimum of 24 H.P. using star wheel carbide tipped router blades attached to a main cutting head. It must have in-line wheels and cutting head capable of following random cracks. It must have an automatic depth control to insure consistent and accurate routing depths.

B. Two (2) air compressors will be required. They must be of sufficient size to maintain air pressure of 120 PSI and provide moisture and oil free compressed air. One (1) compressor shall be used with an air wand to blow out the crack and clean off the road. The second shall be used with the heat lance. Note that one compressor is not of sufficient size to run both air wand and heat lance at the same time.

C. The kettle used for heating the sealant must be an oil jacketed double boiler type melting unit, which is, equipped with both agitation and recirculation systems. It must have separate temperature thermometers for both the oil bath and melting vat to insure proper temperature for the sealant. It must be equipped with a pump to pressure fill cracks with a wand applicator.

Construction Method

All cracks and joints must be routed to a minimum of a ¾" x ¾" width versus depth. Cracks shall be blown out with 120 PSI compressed air. Immediately following routing, the contractor shall vacuum sweep up any debris on the roadway. Using air compressors to consolidate the debris is not allowed.

Using the second compressor the cracks shall be blown out using a heat lance. All cracks shall be pressure filled by a wand applicator from the bottom up. They shall be slightly over-filled and squeeged to create an overband 1" wide on each side of the routed reservoir. The cracks will then be protected with single ply toilet paper or detach to prevent any material from tracking.

Debris Removal

Debris from the routing, sawing, crack preparation, and crack filling work shall be removed from the pavement surface by brooming, blowing with compressed air, or other methods satisfactory to the city representative. The work area shall be left in a broom clean condition at the end of the day.

Traffic Control

This project shall be kept open to traffic at all times. The contractor shall conduct his operations in a manner that will cause the least interference to traffic movements. The minimum number of vehicles of the contractor, his suppliers and his employees necessary for the prosection of the work shall be permitted to park at the various work sites for the minimum time necessary for the performance of the work.

During nighttime hours, no equipment shall be parked or stored with twelve (12) feet of the near edge of the shoulder of the traveled roadway unless approved by the local municipality. Equipment not being used during the actual performance of the work shall not be parked or stored within the right of way unless otherwise approved by the local municipality.

Insurance

No contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employers' Liability

- **A.** $100,000 each accident
- **B.** $500,000 Disease-Policy limit
- **C.** $100,000 Disease-each employee

General Liability

- **A.** $2,000,000 General aggregate
- **B.** $2,000,000 Products

C. $1,000,000 Personal and Advertising
D. $1,000,000 Each Occurrence

Automobile Liability (Any Auto)
A. $1,000,000 Combined Single Limit

Excess Liability
A. $4,000,000 Umbrella Form

Method of Payment

Payment for crack sealing will be made by per pound. The price shall be full compensation for furnishing all materials. For all preparation, delivering and placing of these materials, and for all labor, equipment, tools and incidentals necessary to complete the work per specifications.

Qualification or Contractor

Contractor shall have been routing, cleaning, and sealing cracks per specification for a minimum of five (5) years. Contractor must be bonded and insured per owner's specifications.

Performance Qualifications

Contractor must have a minimum of five years experience in township cracksealing. Work must be within 25 miles for inspection and performance qualification.

Pre-Qualifications

All bidders must submit a list of five (5) previously completed crack sealing projects.
All bidders must submit a list of equipment and operators to be used on project.
All bidders must submit technical data stating why their material exceeds Federal Specification ASTM D3405.

Reference Projects Must Meet the Following Criteria

A. Each project must have been in place for a minimum of three (3) winters.
B. All cracks on sample project must have been routed prior to sealing, with polymeric sealant.
C. Only projects completed on asphalt pavement involving public roads or streets and amounting to at least one-half (1/2) mile each will qualify. Parking lots will not qualify.
D. Reference projects must be within 25 miles radius of the Township.

- Crack Fill -

Specifications

Joint and Crack Sealant

Scope of Work

This work shall consist of furnishing all materials, equipment and labor necessary for the application of the Hot Pour Rubberized Joint Sealant as directed.

Description

The work shall consist of routing, cleaning, and sealing of random cracks and existing transverse and longitudinal joints.

Material

A. The material used must be a premium quality Rubber Asphalt joint Sealer. The sealer must **exceed the minimum ASTM D 6690 specification** for Hot Pour Rubber Asphalt Joint Sealants and contain a minimum of 38% rubber content.

B. The Sealant shall be in manufacturer's original sealed containers. Each container shall have the manufacturer's name, batch number, and manufacturer's recommendation for melting and application.

Equipment

A. A minimum of two dustless routers will be required, the routers must be a minimum of 24 H.P. using star wheel carbide tipped router blades attached to a main cutting head. It must have in-line wheels and cutting head capable of following random cracks. It must have an automatic depth control to insure consistent and accurate routing depths.

B. Two (2) air compressors will be required. They must be of sufficient size to maintain air pressure of 120 PSI and provide moisture and oil free compressed air. One (1) compressor shall be used with an air wand to blow out the crack and clean off the road. The second shall be used with the heat lance. Note that one compressor is not of sufficient size to run both air wand and heat lance at the same time.

C. The kettle used for heating the sealant must be an oil jacketed double boiler type melting unit, which is, equipped with both agitation and recirculation systems. It must have separate temperature thermometers for both the oil bath and melting vat to insure proper temperature for the sealant. It must be equipped with a pump to pressure fill cracks with a wand applicator.

Construction Method

All cracks and joints must be routed to a minimum of a ¾" x ¾" width versus depth. Cracks shall be blown out with 120 PSI compressed air. Immediately following routing, the contractor shall vacuum sweep up any debris on the roadway. Using air compressors to consolidate the debris is not allowed.

Using the second compressor the cracks shall be blown out using a heat lance. All cracks shall be pressure filled by a wand applicator from the bottom up. They shall be slightly over-filled and squeeged to create an overband 1" wide on each side of the routed reservoir. The cracks will then be protected with single ply toilet paper or detach to prevent any material from tracking.

Debris Removal

Debris from the routing, sawing, crack preparation, and crack filling work shall be removed from the pavement surface by brooming, blowing with compressed air, or other methods satisfactory to the city representative. The work area shall be left in a broom clean condition at the end of the day.

Traffic Control

This project shall be kept open to traffic at all times. The contractor shall conduct his operations in a manner that will cause the least interference to traffic movements. The minimum number of vehicles of the contractor, his suppliers and his employees necessary for the prosection of the work shall be permitted to park at the various work sites for the minimum time necessary for the performance of the work.

During nighttime hours, no equipment shall be parked or stored with twelve (12) feet of the near edge of the shoulder of the traveled roadway unless approved by the local municipality. Equipment not being used during the actual performance of the work shall not be parked or stored within the right of way unless otherwise approved by the local municipality.

Insurance

No contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employers' Liability

- **A.** $100,000 each accident
- **B.** $500,000 Disease-Policy limit
- **C.** $100,000 Disease-each employee

General Liability

- **A.** $2,000,000 General aggregate
- **B.** $2,000,000 Products

C. $1,000,000 Personal and Advertising
D. $1,000,000 Each Occurrence

Automobile Liability (Any Auto)
A. $1,000,000 Combined Single Limit

Excess Liability
A. $4,000,000 Umbrella Form

Method of Payment

Payment for crack sealing will be made by per pound. The price shall be full compensation for furnishing all materials. For all preparation, delivering and placing of these materials, and for all labor, equipment, tools and incidentals necessary to complete the work per specifications.

Qualification or Contractor

Contractor shall have been routing, cleaning, and sealing cracks per specification for a minimum of five (5) years. Contractor must be bonded and insured per owner's specifications.

Performance Qualifications

Contractor must have a minimum of five years experience in township cracksealing. Work must be within 25 miles for inspection and performance qualification.

Pre-Qualifications

All bidders must submit a list of five (5) previously completed crack sealing projects.
All bidders must submit a list of equipment and operators to be used on project.
All bidders must submit technical data stating why their material exceeds Federal Specification ASTM D3405.

Reference Projects Must Meet the Following Criteria

A. Each project must have been in place for a minimum of three (3) winters.
B. All cracks on sample project must have been routed prior to sealing, with polymeric sealant.
C. Only projects completed on asphalt pavement involving public roads or streets and amounting to at least one-half (1/2) mile each will qualify. Parking lots will not qualify.
D. Reference projects must be within 25 miles radius of the Township.

POLY MASTIC REPAIR SPECIFICATIONS

GENERAL SCOPE

The work shall consist of repairing distressed areas in PCC and AC pavement utilizing a Poly Mastic Repair Method. Poly Mastic has been specifically designed for cracks too large for crack sealing and distressed surfaces that are too small for repaving. Poly Mastic is a versatile hot-applied, pourable, self-adhesive polymer modified asphalt binder containing selected aggregate to ensure good load bearing and skid resistant characteristics. Poly Mastic will provide a waterproof, flexible, yet durable repair.

RECOMMENDED USE

Wide Crack Repair – Longitudinal and transverse cracks in AC Pavement
Joint Repair – Longitudinal and transverse joints in PCC Surfaces
Leveling Cupped Transverse Cracks
Leveling Depressions at Bridge Approach Slabs and Around Utility Openings
Spall Repair – Applicable in AC Pavements and PCC Surfaces
Pot Hole Repair

Use in the following applications is not recommended. Leveling wheel path ruts. Lengthy repairs in wheel paths. Potholes repairs in Asphaltic Plug bridge expansion joints. Long term repairs of alligator cracked and other badly distressed areas. Repairs in areas exposed to heavy static point loads.

MATERIAL

Poly Mastic shall be composed of quality-selected asphalt and/or resins, select aggregates with structural integrity, synthetic rubber polymers, anti-oxidants, naturally occurring and man made reinforcing materials and other modifiers.

Properties of Mastic Binder	Test Method	Recommended Specification
Penetration @ 77 F (25 C), 150 grams, 5 sec	ASTM D5329	100 dmm Maximum
Penetration @ 122 F (50 C) 150 grams, 5 sec.	ASTM D5329	150 dmm Maximum
Flow @ 140 F (70 C), 75°angle, 5 hours	ASTM D5329	3 mm Maximum
Softening Point (R&B)	ASTM D36	190°F (88°C) Minimum
Flexibility @ 32°F .25" mandrel, 90° bends 10 sec	ASTM D3111 (Modified per DAC)	Bend without cracking
Low Temperature Flexibility	ASTM D3111 (Modified per DAC)	Pass @ 32° F
Water Absorption after 24 hours @ 122°F	ASTM D517 (Section 9.2 Modified per DAC)	1% Maximum absorption
Maximum Heating Temperature	ASTM D6690	400°F (204°C)
Recommended Application Temperature	ASTM D5167	380-410°F (193-204°C)

Properties of Structural Aggregate	Test Method	Recommended Specification
Resistance to Abrasion and Impact	ASTM C131 Grading "C"	20%Degradation Maximum

WEATHER LIMITATIONS

No material shall be placed unless the pavement temperature is 40°F or greater. Material shall not be placed if there is moisture in the repair area.

SURFACE PREPARATION

Repair mastic shall be placed into repair area only after all loose particles; debris and moisture have been removed from the bonding surface. Cleaning and drying can be accomplished with high-pressure air blasting, hot air blasting, or grit blasting. Actual field conditions may dictate a need for a combination of these methods.

High-pressure air blasting equipment shall be capable of providing a continuous, 125 cfm minimum high velocity air stream that is free of oil and moisture. Hot air blasting equipment must be capable of producing an air blast with a minimum temperature of 2500°F and a blast velocity of 1900 feet per second. Caution shall be taken to not overheat pavement surfaces. The use of back-pack type blowers will not be allowed. Grit blasting should be conducted during dry weather and shall be followed by air blasting to remove grit from repair area on all PCC surfaces.

INSTALLATION

The asphalt repair mastic shall be heated in a thermostatically controlled mastic mixer with a minimum capacity of 250 gallons of product that utilizes oil as a heat transfer medium and is equipped with a full sweep horizontal agitator capable of gently lifting the material form the bottom of the reservoir and turning the material repeatedly. The agitator shall be capable of mixing and suspending the aggregate filled materials to prevent segregation.

The heated asphalt repair mastic shall be poured into the properly prepared area, followed immediately by leveling and smoothing with the surrounding pavement with the use of a heated hand squeegee until the material has formed a durable, well-bonded repair. The heated hand squeegee shall provide a level surface after shrinkage and cure has occurred. The asphalt repair mastic shall be applied to the applicable surface in lifts appropriate to the specific application. Due to the depths of some of the repair locations, multiple lifts will most likely be required in order to obtain a level surface. In the event that multiple lifts are required, the previous lift shall be properly cooled before any subsequent lifts are applied. All excess material shall be removed from the roadway and disposed of properly. Care shall be taken to minimize the reheating of unused material after it has cooled.

The Contractor shall cooperate with the owner to keep accurate running totals of pounds of mastic used. A sufficient number of trained personnel shall be provided by the Contractor to ensure proper traffic control and limited traffic disruption.

PROTECTING THE WORK

Traffic shall not be permitted on the mastic asphalt until the material has cooled sufficiently to prevent tracking by the vehicle tires. Any damage by traffic to the treated pavement area shall be repaired by the contractor at no expense to the owner/agency.

CONTRACTOR QUALIFICATIONS

The Contractor must be trained and approved by the mastic manufacturer. The Contractor shall have minimum of one year experience. All reference projects must have been in place though one winter season.

No contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employers' Liability

A. $100,000 Each accident
B. $500,000 Disease-Policy limit
C. $100,000 Disease-each employee

General Liability

A. $2,000,000 General aggregate
B. $2,000,000 Products
C. $1,000,000 Personal and Advertising
D. $1,000,000 Each Occurrence

Automobile Liability

A. $1,000,000 Combined Single Limit

Excess Liability

A. $4,000,000 Umbrella Form

METHOD OF PAVEMENT

Payment for mastic road repair will be made at the contract unit price per pound. The price shall include all labor, material, equipment and incidentals required to place the repair mastic as directed.

Pay Item	Pay Unit
Mastic Asphalt Repair	lbs.

SPECIFICATIONS

INFRARED SEAMLESS PATCHING

Scope of Work: This work shall consist of furnishing all materials, equipment and labor necessary for the application of Infrared Seamless Patching.

Description: Infrared Thermal Bond Seamless Bituminous Pavement Patching is a method of blending new bituminous concrete material with infrared heated existing surface material to form a joint free integral mix patch.

Materials:

A. New bituminous concrete material for patching shall be equal to Wisconsin Department of Transportation specifications gradation 3 or 4 Asphalt cement grade 120 – 150, is desirable.

B. A minimum of 20% of new virgin material shall be added to all patched areas. Additional material shall be added as needed and as directed by the engineer.

Equipment:

A. Pavement Restoration Vehicle (PRV) shall be a truck mounted, self contained pavement maintenance heating system equipped with a fuel system and a heated chamber capable of maintaining the fresh virgin bituminous concrete materials at a temperature of 275 degrees or higher. Any material with a laying temperature less than 265 degrees shall be discarded. Any material not used within 48 hours shall be discarded.

B. The adjustable height infrared heating unit will be truck mounted to the PRV. The heating unit shall be equipped with a heating chamber or chambers capable of heating the existing bituminous pavement to a workable condition without oxidation or burning. There shall be no flame in direct contact with the existing bituminous surface.

C. Compaction shall be achieved with a self-propelled vibratory roller of sufficient size to provide complete compaction to the full heated depth of the patched area. The new surface shall match the elevation of the adjacent pavement. Compaction methods shall be subject to the approval of the engineer.

Construction Method:

A. The areas to be patched shall be marked on the pavement and measured by the engineer and the contractor. The contractor shall determine the starting point of the work and the sequence to the heater application so as to accomplish all the work as specified.

B. The infrared heating unit shall be lowered to within six (6") inches of the existing pavement. The heated area must extend at least six (6") inches outside the area to repair.

C. Apply heat to the area continuously until the surface is heated to a depth of approximately 1 1/2 inches. The depth of heat penetration thru an existing bituminous overlay or surface course

shall be the thickness of the surface course or approximately 1 1/2 inches, whichever is less. When the surface can be worked with a rake, proper heat penetration has been achieved.

D. Etch an outline of the perimeter of the repair area with the back of a rake at least three (3") inches beyond the edges of the repair area. Scarify the existing bituminous surface with the repair area to the full heated depth.

E. Remove enough existing bituminous material (as required by adjacent grades) to allow for the addition of 20% new virgin bituminous mix to achieve a blend of 20% new / 80% existing heated material within the area of the patch

F. If the patch area is already low, less existing material need be removed prior to the addition of the new virgin mix. Remove only the old oxidized surface in low areas.

G. Reshape patched area by hand with rake and lute to match grade of existing adjacent pavement.

H. Compact new paving with the specified roller to the full depth of the heated patch. Compacted surface shall be smooth, in texture and shall have positive drainage, matching the slope of the existing adjacent pavement.

I. Clean-up site after paving. Remove all debris resulting from patching operation to the satisfaction of the engineer.

Insurance: No contractor shall commence work under this contract until he has obtained all insurance required under this paragraph.

Worker's Compensation and Employer's Liability
A. $100,000 each accident
B. $500,000 Disease-Policy limit
C. $100,000 Disease-each employee

General Liability
A. $2,000,000 General Aggregate
B. $2,000,000 Products
C. $1,000,000 Personal and Advertising
D. $1,000,000 Each Occurrence

Automobile Liability
A. $1,000,000 Combined Single Limit

Excess Liability
A. $4,000,000 Umbrella Form

Method of Payment: Measurement for payment shall be on a per heat basis and shall include all equipment, labor, materials and necessary incidentals for completion of the paving project.

Polymer Overlay

Surface Preparation

Determine an acceptable shotblasting machine operation (size of shot, flow of shot, forward speed, and/or number of passes) that provides a surface profile meeting CSP 5 (medium-heavy shotblast) according to the ICRI Technical Guideline No. 310.2. Prepare the entire deck using the final accepted adjustments to the shotblasting machine as determined above. Thoroughly blast clean with hand-held equipment any areas inaccessible by the shotblasting equipment.

Protect drains, expansion joints, access hatches, or other appurtenances on the deck from damage by the shot and sand blasting operations and from materials adhering and entering. Tape or form all construction joints to provide a clean straight edge.
Before shot blasting, remove pavement markings within the treatment area using an approved mechanical or blasting method.

Just before overlay placement, clean all dust, debris, and concrete fines from the prepared surfaces including the vertical surfaces with compressed air. When using compressed air, the air stream must be free of oil. Any grease, oil, or other foreign matter that rests on or has absorbed into the concrete shall be removed completely. If prepared surfaces (including the first layer of the polymer overlay) are exposed to rain or dew, lightly sandblast (brush/breeze blast) the exposed surfaces.

Overlay Application

Perform the handling and mixing of the polymer resin and hardening agent in a safe manner to achieve the desired results according to the manufacturer's instructions. Do not apply the overlay system if any of the following exists:
1. Ambient air temperature is below 50 F or above 100 F.
2. Deck temperature is below 50 F.
3. Moisture content in the deck exceeds 4.5 percent when measured by an electronic moisture meter or shows visible moisture after 2 hours when measured according to ASTM D4263.
4. Rain is forecasted within gelling period.
5. Materials component temperatures below 65 F or above 99 F.
6. Concrete deck age is less than 28 days, with High Early Concrete Bag mix being the exception.

After the deck has been shotblasted or during the overlay curing period, only necessary surface preparation and overlay application equipment will be allowed on the deck. Provide appropriate protective measures to prevent contamination from equipment allowed on the deck during preparation and application operations. Begin overlay placement as soon as possible after surface preparation operations.
The polymer overlay shall consist of a two-course application of polymer and aggregate. Each of the two courses shall consist of a layer of polymer covered with a layer of aggregate in sufficient quantity to completely cover the polymer. Apply the polymer and aggregate according to the manufacturer's requirements. Apply the overlay using equipment designed for this purpose. The application machine shall feature positive displacement volumetric metering and be capable of storing and mixing the polymer resins at the proper mix ratio. Disperse the aggregate using a method that provides a uniform, consistent coverage of aggregate and minimizes aggregate rolling or bouncing into final position.
After completion of each course, cure the overlay according to the manufacturer's instructions. Remove the excess aggregate from the surface treatment by sweeping, blowing, or vacuuming without tearing or damaging the surface; the material may be re-used if approved by the engineer and manufacturer.
After the first layer of coating has cured to the point where the aggregate cannot be pulled out, apply the second layer. Before applying the second layer, broom or blow off the first layer with compressed air to remove all loose excess aggregate.

Application Rates

Apply the polymer overlay in two separate courses according to the manufacturer's instructions, but not less than the following rate of application.

Course	Minimum Polymer Rate[1] (GAL/100 SF)	Aggregate[2] (LBS/SY)
1	2.5	10+
2	5.0	14+

[1] The minimum total applications rate is 7.5 GAL/100 SF.

[2] Application of aggregate shall be of sufficient quantity to completely cover the polymer.