PATRICIA A. PESHKA
PURCHASING AGENT

FRANK J. PICOZZI
MAYOR

CITY OF WARWICK
PURCHASING DIVISION
3275 POST ROAD
WARWICK, RHODE ISLAND 02886
TEL (401)738-2013
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The following notice is to appear on the City of Warwick's website Friday, August 20, 2021. The website address is http://www.warwickri.gov/bids.

CITY OF WARWICK
BIDS REQUESTED FOR

Bid2022-047 Crack Seal and Micro Surfacing

Specifications are available in the Purchasing Division, Warwick City Hall, Monday through Friday, 8:30 AM until 4:30 PM on or after Friday, August 20, 2021. **Please note that our office will be closed on Monday, September 6, 2021 and will re-open on Tuesday, September 7, 2021.**

Sealed bids will be received by the Purchasing Division, Warwick City Hall, 3275 Post Road, Warwick, Rhode Island 02886 up until 11:00 AM, Tuesday, September 14, 2021. The bids will be opened publicly commencing at 11:00 AM on the same day in the Lower Level Conference Room at Warwick City Hall. ***Please note due to COVID-19, employees and visitors must adhere to social distance guidelines. All visitors are advised to wear masks if not fully vaccinated.***

Awards will be made on the basis of the lowest evaluated or responsive bid price.
Please note that no bids can be accepted via email or fax.

The City of Warwick, in addition to soliciting bids in response to this bid, may consult, consider, and make an award for any and all open bid offers for a comparable unit as sought herein at the following websites:
RI State MPA: https://www.ridop.ri.gov/contract-portal/
NASPO: https://www.naspo.org/
NJPA (National Joint Powers Alliance): https://www.njpacoop.org/cooperative-purchasing
MHEC (Massachusetts Higher Education Consortium): https://www.mhec.net/

Individuals requesting interpreter services for the hearing impaired must notify the Purchasing Division at 401-738-2013 at least 48 hours in advance of the bid opening date.

Original Signature on File
Patricia A. Peshka
Purchasing Agent

PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID

Acknowledgement of Addendum (if applicable)

Addendum Number	**Signature of Bidder**
_____	_____
_____	_____

COMPANY NAME: _____

COMPANY ADDRESS: _____

COMPANY ADDRESS: _____

BIDDER'S SIGNATURE: _____

BIDDER'S NAME (PRINT): _____

TITLE: _____ TEL. NO.:_____

EMAIL ADDRESS: _____*

*Please include your email address. Future bids will be emailed, unless otherwise noted.

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II. AWARD AND CONTRACT:

The CITY OF WARWICK, acting as duly authorized through its Purchasing Agent/Finance Director/Mayor, accepts the above bid and hereby enters into a contract with the above party to pay the bid price upon completion of the project or receipt of the goods unless another payment schedule is contained in the specifications. All terms of the specifications, both substantive and procedural, are made terms of this contract.

DATE: _____ _____

Bid2022-047 Purchasing Agent

PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID

CERTIFICATION & WARRANT FORM*

This form must be completed and submitted with sealed bid.
Failure to do so will result in automatic rejection.

Any and all bids shall contain a certification and warrant that they comply with all relevant and pertinent statues, laws, ordinances and regulations, in particular, but not limited to Chapter 16-Conflicts of Interest, of the Code of Ordinances of the City of Warwick. Any proven violation of this warranty and representation by a bidder at the time of the bid or during the course of the contract, included, but not limited to negligent acts, either directly or indirectly through agents and/or sub-contractors, shall render the bidder's contract terminated and the bidder shall be required to reimburse the City for any and all costs incurred by the City, including reasonable attorney fees, to prosecute and/or enforce this provision.

_____ _____
Signature Date

_____
Company Name

_____
Address

_____
Address

***This form cannot be altered**

CITY OF WARWICK
NOTICE TO BIDDERS

Bid2022-047 Crack Seal and Micro Surfacing

If you received this document from our homepage or from a source other than the City of Warwick Purchasing Division, please check with our office prior to submitting your bid to ensure that you have a complete package. The Purchasing Division cannot be responsible to provide addenda if we do not have you on record as a plan holder.

The opening of bids will be in the order established by the posted agenda and the agenda will continue uninterrupted until completion.

Once an item has been reached and any bids on that item has been opened, no other bids on that item will be accepted and any such bid will be deemed late.

The contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap for any position for which the employee or applicant is qualified and that in the event of non-compliance the City may declare the contractor in breach and take any necessary legal recourse including termination or cancellation of the contract.

A bidder filing a bid thereby certifies that no officer, agent, or employee of the City has a pecuniary interest in the bid or has participated in contract negotiations on the part of the City, that the bid is made in good faith without fraud, collusion, or connection of any kind with any other bidder for the same call for bids, and that the bidder is competing solely in his own behalf without connection with, or obligation to, any undisclosed person or firm.

All bids should be submitted with one (1) original and one (1) copy in a sealed envelope, which should read: *YOUR COMPANY NAME* plainly marked on the exterior of the envelope as well as "Bid2022-047 Crack Seal and Micro Surfacing."

Bids received prior to the time of the opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a bid not properly addressed and identified. No bids will be accepted via facsimile or email.

All proposals submitted become the property of the City and will not be returned. If the company intends to submit **confidential or proprietary information** as part of the proposal, **any limits on the use or distribution of that material should be clearly delineated in writing**. **This information should be submitted in a sealed envelope, clearly labeled confidential** and where it should be submitted in the response. Please be advised of the Freedom of Information Act as it may pertain to your submittal.

Should you have any questions, please contact Eric Earls, Department of Public Works, at 401-921-9607.

All bids should be written in ink or typed. If there is a correction with whiteout, the bidder should initial the change.

Negligence on the part of the bidder in preparing the proposal confers no rights for the withdrawal of the proposal after it is open.

Any deviation from the specifications must be noted in writing and attached as part of the bid proposal. The bidder should indicate the item or part with the deviation and indicate how the bid will deviate from specifications.

The IRS Form W-9 is available on www.warwickri.gov should be completed and submitted with the bid if the bidder falls under IRS requirements to file this form.

Prevailing Wages will apply to this bid. Current rates may be viewed at http://www.dlt.state.ri.us/pw.

The successful bidder must comply with all Rhode Island Laws, applicable to public works projects, including, but not limited to provisions of Chapter 13 of Title 37 of the Rhode Island General Laws, pertaining to prevailing wage rates, and all other applicable local, state and federal laws.

The contractor must carry sufficient liability insurance and agree to indemnify the city against all claims of any nature, which might arise as a result of his operations or conduct of work.

The contractor must keep himself informed of and comply with all laws, ordinances and regulations of the federal, state and municipal governments which may apply and be in force during the life of the contract, in any manner which may affect himself/employees or the conduct of the work or the materials used or employed in the work. Before submitting bids, prospective bidders should examine the terms, covenants and conditions of all codes, permits and laws which may apply. By submitting a bid, the bidder agrees to comply with all pertinent laws/regulations if awarded a contract.

Every contractor and subcontractor awarded a contract for public works, construction, alteration and/or repair, including painting and decorating, or public buildings or public works must submit completed RI Certified Weekly Payroll forms listing employees employed on the project to the awarding authority on a monthly basis for all work completed in the preceding month. These forms may be found at: www.dlt.ri.gov/pw/pwFormsPubs.htm. Certified Payroll forms concerning RI Department of Transportation projects may be submitted on federal forms. However, when a complaint is being investigated by the RI Department of Labor & Training (DLT), the contractor must resubmit the payroll information on the RI Certified Weekly Payroll forms for the entire project.

Awarding authorities, contractors and subcontractors must provide any and all payroll records to the DLT within ten (10) days of any request that is made by the department.

The awarding authority of any public works project will withhold the next scheduled payment to any contractor or subcontractor who fails to comply with the above provisions, as well as any further payments until they comply. The DLT may also impose a penalty of up to $500 for each calendar day of noncompliance.

Please refer to Rhode Island state laws Section 37-13 for more information.

Bid surety in the form of a bank check, original bid bond or certified check in the amount of **ten (10) percent** of the total bid price must be submitted with each bid. If a bid bond is submitted, it must be duly executed by the bidder as principal and having as surety thereon a surety company licensed to do business in the State of Rhode Island and approved by the owner.

The successful bidder must provide the City of Warwick with an original **Certificate of Insurance** for General Liability and Automobile Liability in a minimum amount of $1 million, naming the **City of Warwick as the additional insured** and so stated on the certificate with the bid name and bid number. It is the vendor's responsibility to provide the City of Warwick with an updated Certificate of Insurance upon expiration of the original certificate.

Failure to provide adequate insurance coverage within the specified duration of time as set forth is a material breach of contract and grounds for termination of the contract.

The successful bidder must furnish a **performance and payment bond** in the amount of **100 percent of the total bid price.**

For a bid to be awarded to a corporation, limited liability company or other legal entity, prior to commencing work under the awarded bid, that corporation, company or legal entity may be required to provide to the Purchasing Agent a **Certificate of Good Standing** from **The Rhode Island Secretary of State** dated no more than thirty (30) days prior to the date upon which the bid approval was made. **Please note that no other State's Certificate of Good Standing will be accepted.**

If required, the successful bidder will provide said **Certificate of Insurance, bonds and State of Rhode Island's Certificate of Good Standing** within ten (10) calendar days after notification or the City reserves the right to rescind said award.

Prices to be held firm one (1) year from date of award. Term contracts may be extended for one (1) additional term upon mutual agreement unless otherwise stated.

The City is exempt from the payment of the Rhode Island Sales Tax under the 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph I, as amended.

The contractor must carry sufficient liability insurance and agree to indemnify the City against all claims of any nature, which might arise as a result of his operations or conduct of work.

The Purchasing Agent reserves the right to reject any and all bids, to waive any minor deviations or informalities in the bids received, and to accept the bid deemed most favorable to the interest of the City.

The City reserves the right to terminate the contract or any part of the contract in the best interests of the City, upon 30-day notice to the contractor. The City will incur no liability for materials or services not yet ordered if it terminates in the best interests of the City. If the City terminates in the interests of the City after an order for materials or services has been placed, the contractor will be entitled to compensation upon submission of invoices and proper proof of claim, in that proportion which its services and products were satisfactorily rendered or provided, as well as expenses necessarily incurred in the performance of work up to time of termination.

No extra charges for delivery, handling or other services will be honored. All claims for damage in transit will be the responsibility of the successful bidder. Deliveries must be made during normal working hours unless otherwise agreed upon.

All costs directly or indirectly related to the preparation of a response to this solicitation, or any presentation or communication to supplement and/or clarify any response to this solicitation which may be required or requested by the City of Warwick will be the sole responsibility of and will be borne by the respondent.

If the respondent is awarded a contract in accordance with this solicitation and fails or refuses to satisfy fully all of the respondents obligations thereunder, the City of Warwick will be entitled to recover from the respondent any losses, damages or costs incurred by the City as a result of such failure or refusal.

The City reserves the right to award in part or full and to increase or decrease quantities in the best interest of the City.

Any quantity reference in the bid specifications are estimates only, and do not represent a commitment on the part of the City of Warwick to any level of billing activity. It is understood and agreed that the agreement will cover the actual quantities ordered during the contract period.

The City reserves the right to rescind award for non-compliance to bid specifications.

The successful bidder must adhere to all City, State and Federal Laws, where applicable.

RANDOM CRACK SEALING – POLYMER & CRUMB RUBBER MODIFIED (PCRM) ASPHALT COMPOUND WITH REINFORCING FIBERS

1. DESCRIPTION

The work covered by this section of the specification consists of furnishing all plant, labor, equipment and materials necessary to perform all operations in connection with the cleaning and sealing of construction and random cracks in bituminous concrete pavements, including vegetation removal and sterilization of cracks, where necessary.

2. MATERIAL

Crack sealant shall be a modified asphalt-fiber compound designed specifically for improving the strength and performance of the parent asphalt sealant.

a) **The asphalt binder** shall consist of a blend of neat asphalt binder, chemically modified crumb rubber (CMCR), and a polymer package, all of which meet the following specifications:

1) The binder will meet PG 64-28E requirements after modification including:
   - PG grade requirements of AASHTO M320
   - Requirements of AASHTO TP70/MP19
2) Modification, at a minimum, shall consist of 7% crumb rubber, and the maximum particle size for the recycled tire rubber shall be 80 mesh (#80 sieve)
3) The asphalt supplier shall provide testing for both the neat and modified asphalt binders
4) See below for typical modified test results for 64-28E with crumb rubber:

DSR ORIGINAL

- kPa >1.00 @ 64° C. Fail temp = 76+° C

DSR RTFO

- kPa >2.20 @ 64° C. Fail temp = 76+° C

MSCR

- JNR (MSCR unit of measure): 3.2 E <0.5% @ 64° C
- R3200 (Average % Recovery): >70%

DSR PAV

- kPa <6000 @ 64° C

BBR

- Stiffness <300 @ -18° C. M-Value >0.300 @ -18° C

b) **The fiber reinforcing materials** shall be short-length polyester fibers having the following properties:

Length*	0.25 in. ± 0.02 in.
Elongation at Break (ASTM D2256-90)	35% ± 3%
Melting Point (ASTM D3418-82)	>475°F (246°C)
Crimps/Inch (ASTM D3937-90)	None
Cross Section	Round
Denier (ASTM D1577-90)	4.5 Nominal dpf
Tensile Strength (ASTM D2256-90)	>70,000 psi
Diameter	0.0008 in. **
Specific Gravity (ASTM D792-91)	1.32 to 1.40

** At temperatures ranging from ambient to maximum finished product mix temperature*
*** Subject to Normal Variations*

c) **Modifying Compound:** The modified asphalt-fiber compound shall be mixed at a rate of 8% fiber weight to weight of asphalt cement. This compound having the same chemical base provides compatibility and exhibits excellent bond strengths. The fiber functions to re-distribute high stress and strain concentrations that are imposed on the sealant by thermal sources, traffic loading, etc.

3. EQUIPMENT

Equipment used in the performance of the work required by this section of the specification shall be subject to approval by the Owner and maintained in a satisfactory working condition at all times.

a) **Air Compressor:** Air compressors shall be capable of furnishing not less than 100 cubic feet of air per minute at not less than 90 lbs. per square inch pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

b) **Broom or Sweeper:** Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt and dust from the cracks.

c) **Melter:** The unit used to melt or maintain the crack sealant compound at the recommended application temperature shall be the indirect fired type. It shall be equipped with a remote heat exchanger and hot oil circulation pump capable of maintaining a consistent temperature of the heat transfer oil. The heat transfer oil shall be circulated to all sides and the bottom of the vat containing the crack sealant compound making a continuous loop back to the heat exchanger and having a flash point of not less than 600°F. The melter shall be equipped with a satisfactory means of agitating the crack sealant at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or by a circulating gear pump attached to the melter. The melter must be equipped with a thermostatic control calibrated between 200°F and 550°F and must be capable of pumping an 8% fiber content blend.

4. PREPARATION OF CRACKS

a) **Debris and Vegetation Removal:** All cracks shall be blown clean and sterilized by use of a propane air torch generating 2,000°F and 3,000' feet/second velocity to eliminate all vegetation, dirt, moisture and seeds. All debris removed from the cracks shall be removed

b) **General:** No crack sealant material shall be applied in wet cracks or where frost, snow or ice is present; or when the ambient temperature is below 25°F.

5. PREPARATION AND PLACEMENT OF SEALANT

a) The asphalt-fiber compound shall be thoroughly mixed for a minimum of one hour before application can begin. To ensure a uniform fiber distribution in the sealant, and also to limit fluctuations in the application temperature of the blended material, the Contractor must have a full melter kettle of sealant mixed, heated to the proper application temperature, and ready for testing at the start of each work day. Once that batch of sealant is emptied from the melter kettle, crack sealing operations will cease for the remainder of the day. No new materials will be allowed to be added to the melter kettle during the work day under any circumstances. Minimum application temperature shall be 320°F.

b) Sealant shall be delivered to the pavement cracks through a high-pressure hose line and applicator shoe. Diameter of the applicator shoe is not to exceed 3.5" inches. Once the pavement cracks are sealed, the width of the sealant on the pavement (overbanding) shall be no greater than 3" inches. When traffic requires immediate use of the roadway, a liquid crack sealant barrier material or a boiler slag aggregate shall be broadcast over the cracks to prevent the sealant from being picked up at no additional cost to the Owner.

6. WORKMANSHIP

All workmanship shall be of the highest quality, and any excess of spilled sealant shall be removed from the pavement by approved methods and discarded. Any workmanship determined to be below the high standards of the particular craft involved will not be accepted and will be corrected and/or replaced as required by the Owner.

7. PERFORMANCE

a) It is the intention of the Owner not to award a contract for this work under this or any other proposal if the contractor cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work, and that he has sufficient capital and equipment to enable him to prosecute the work successfully and to complete it within the time named in the contract. The Owner reserves the right to reject this or any other proposal, or to award the contract as is deemed to be in the best interest of said Owner.

b) To ensure contractor's capabilities, the bidder shall provide with his bid evidence that at least two (2) of the company's crack sealing field supervisory personnel have completed AASHTO TSP2 training, and successfully passed the Crack Treatment certification exam administered by the National Center for Pavement Preservation (NCPP). During completion of the work, contractor will be required to have at least one (1) AASHTO TSP2 Crack Treatment certified employee assigned to the job and present at all times when crack sealing work is being performed.

c) Properly formulated and mixed asphalt fiber compound overbanding shall not be

greater than three inches (3") in width. Penalties will be imposed upon the Contractor for overbanding beyond three inches (3").

d) The Contractor must submit the following with his bid proposal:

   1) A list of six (6) jobs which he has successfully completed with the polymer and crumb rubber modified asphalt compound with reinforcing fibers specified herein, giving the name and address of these projects so they can be investigated prior to the award of the contract.

   2) The trade name of the crack sealant the contractor intends to use.

   3) The manufacturer of the crack sealant the contractor intends to use.

e) The Owner will require the Contractor to successfully perform a 200' foot test strip in the field prior to commencing work under the contract.

f) Manufacturer's certificate of material compliance will be furnished to the Owner certifying conformance to the above material specifications, including the following:

   1) Performance Grade of Unmodified Asphalt: **PG 64-28S** (standard)

   2) AASHTO M-320, Table 1

   3) 7% chemically-modified crumb rubber (CMCR)

      - Composed of 100% 80-mesh recycled tire rubber

   4) 3-4% specially formulated polymer package

   5) Performance Grade of Modified Asphalt: **PG 64-28E** (able to withstand "extremely heavy" traffic loads)

   6) AASHTO M-320, Table 1

      - "E" Jnr 3.2 kPa @ 64^0C: **<0.5%**
      - R3200 (Average % Recovery) @ 3.200 kPa: **>70%**

   7) 8% polyester reinforcing fibers

g) Time is of the essence in the completion of this work in order to minimize disruption to the traveling public, and to reduce the Owner's cost for police details and inspections of the work in progress. Accordingly, bidders shall submit with their bid the volumetric capacity (in gallons) of the melter kettle proposed to perform the work, together with a statement regarding their average anticipated daily production rate or range of gallons per day of material expected to be applied. The bidder's melter kettle must have a minimum capacity of 1000 gallons. The Owner reserves the right to consider its costs for traffic control and inspections in addition to contractor's bid prices to determine the proposal with lowest overall costs.

8. TRAFFIC CONTROL

The cost of flaggers and any police details, if required, will be paid or reimbursed by the Owner. The Owner will coordinate detail assignments which will be billed to the Contractor directly based on the hourly cost. The Contractor will not be reimbursed for police detail expenses incurred due to failure to cancel or cancelling without the required notice.

9. METHOD OF AWARD

To ensure contractor accountability, the Owner intends to award all items to a single contractor. Accordingly, contractors must bid on all items of work, and the low bidder will be the contractor whose total bid price is the lowest. The bid quantities are not guaranteed, and their primary purpose is for the determination of the low bidder.

10. MEASUREMENT AND PAYMENT

The quantity to be measured for payment will be the number of gallons of crack sealing actually applied, and this quantity shall be determined and verified daily. The accepted quantity of crack sealing will be paid for at the contract unit price per gallon of the type specified in the proposal, which shall be full compensation for furnishing, transporting, handling and placing the material specified and furnishing of all labor, tools, equipment and incidentals for the satisfactory completion of this item.

11. ASPHALT PRICING AND PRICE ADJUSTMENTS

a) **Asphalt Price Adjustments:** Contractor's bid prices below shall be based upon the current State DOT asphalt cement price index posted exactly two (2) weeks prior to the due date for receipt of bids ("Bid Index"). If the posted State DOT asphalt cement price index in place when the work is performed differs from the Bid Index, up or down, then Contractor's invoices shall include price adjustments for the asphaltic materials, and these adjustments shall be calculated based on the actual tons of liquid asphalt cement incorporated into the work.

b) **Future Year Price Adjustments:** The Owner reserves itself the option to extend the use, terms, conditions and prices of this bid for an additional three (3) years after the first year in which the contract is awarded. Such extension will be subject to the Owner reviewing and approving the Contractor's annual request for a price adjustment based on and limited to the prior year's actual rate of inflation. If such price adjustment cannot be mutually agreed upon between the Owner and Contractor, Owner may choose to re-bid the work in lieu of extending this contract.

MICRO SURFACING
(CONVENTIONAL, FIBER REINFORCED, & HIMA)

1. DESCRIPTION

Micro-Surfacing is a tough and durable thin overlay material which can restore the original service properties to worn but structurally sound pavements. Its properties are based on a blend of select crushed aggregate and a sophisticated chemical formulation of asphalt cement, cationic emulsifiers, additives, and polymers. This specification covers all materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces. The Micro-Surfacing shall be a mixture of cationic, polymer-modified asphalt emulsion, mineral aggregate, mineral and field control additives, and water, properly proportioned, mixed and spread on the paved surface in accordance with this specification and as directed by the Engineer.

Where required by the Engineer, additional Micro-Surfacing mixture additives shall be utilized for the purpose of improving performance and durability. These mixture additives shall include heavy polymer dosages in the emulsion (6% SBS polymer and referred to as "HiMA", or "Highly Modified Asphalt"), as determined by the Engineer, and all additives shall be homogenously blended with the other Micro-Surfacing components.

2. MATERIALS

a) **Emulsified Asphalt:** The emulsified asphalt shall be a quick-set, polymer-modified cationic type CSS-1H emulsion, and shall conform to the requirements specified in AASHTO M208 and ASTM 2397. It shall pass all applicable storage and settlement tests. The polymer shall be milled into the emulsion, or in the case of the HiMA (6% SBS) emulsion, may be blended into the unmodified base asphalt. The cement mixing test shall be waived for this emulsion.

1) **Conventional Micro-Surfacing Residue Properties**

Distillation of residue will be at a temperature of 350° F for 20 minutes. Softening Point (ASTM D36 or AASHTO T53) of the residue shall be not less than 140° F.

2) **Fiber-Reinforced Micro-Surfacing Residue Properties**

For fiber-reinforced mixtures, emulsion testing by distillation method (ASTM D5 or AASHTO T49) shall yield Penetration values of between 40 and 120 dmm at 77 degrees F, and a Softening Point (ASTM D36 or AASHTO T53) not less than 135 degrees F.

3) **HiMA (6% SBS) Micro-Surfacing Residue Properties**

For HiMA mixtures, emulsion testing by distillation method (ASTM D5 or AASHTO T49) shall yield a Softening Point (ASTM D36 or AASHTO T53) not less than 170° F.

b) **Aggregate:**

1) **General**

The mineral aggregate used shall be of the type and grade specified for Micro-Surfacing. The aggregate shall be manufactured crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate or combination thereof.

2) **Aggregate Physical Requirements**

- Grading- The aggregate including natural fines when tested by AASHTO methods T11 or T27 or ASTM C117 or C136, should meet the referenced gradation requirements.
- Deleterious Substances- To limit the permissible amount of clay-like fines in an aggregate, a sand equivalency value of 65 or higher is required when tested by ASTM 2419.
- Soundness- The aggregate shall have a weighted loss of not more than 15% when the sodium sulfate test is used, or 20% when the magnesium sulfate test is used.
- Hardness- The aggregate wear, from resistance to abrasion, shall be a maximum of 35% when using AASHTO T96 or ASTM C131 test methods.

c) **Water:** The water shall be potable and shall be free of harmful soluble salts.

d) **Modifier:** Special quick-setting emulsifier agents shall be milled into the asphalt emulsion. The emulsified asphalt shall be so formulated that when the paving mixture

is applied at a thickness of one inch with the relative humidity at not more than 50% and an ambient air temperature of at least 75° F, the material will cure sufficiently so that rolling traffic can be allowed in one hour with no damage to the surface, as verified by the Engineer.

e) **Additives:** A mineral additive shall be introduced to the aggregate and may be any recognized brand of non-air entrained Portland cement or hydrated lime that is free of lumps, or other approved mineral additive. It may be accepted upon visual inspection. The amount of mineral additive needed shall be determined by the laboratory mix design and will be considered as part of the material gradation requirement.

A liquid field control additive may be introduced and blended with water to provide effective control of the required quick-set properties. This additive shall be made available by the chemical supplier or emulsion manufacturer and certified to be compatible with the mixture.

3. ENGINEERING

a) **General:** Before work commences, the contractor shall submit a signed and certified mix design covering the specific materials to be used on the project. This design shall be performed by an AASHTO resource accredited facility specifically accredited for Pavement Preservation and micro-surfacing mix designs. Proof of such AASHTO accreditation shall be submitted with the mix design. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design.

b) **Mix Design:** The AASHTO resource accredited laboratory shall develop the job mix design and present certified test results for the contractor's approval. Compatibility of the aggregate and emulsion shall be verified by the mix design. The job mix formula shall meet standard ISSA A143 micro-surfacing mix design requirements. All component material used in the mix design shall be representative of the material proposed by the contractor for use on the project.

c) Fiber-Reinforced Mix Design

1) Fiber-reinforced mix designs shall be tested for flexibility utilizing the TxDOT Overlay Test (Tex-248-F) traditionally used for hot mix asphalts (HMA), and adapted for micro-surfacing as follows:

- **Emulsified Asphalt** -- constant maximum displacement should be increased from 0.025 in. to 0.050 in., 10 seconds (one cycle) to 60 seconds (one cycle).
- **Mixing Equipment** – replaced in its entirety to read "Test Specimens – specimen length and width must match Figure 1 (cutting template), and specimen height must be 0.50 in. Make and cure the micro-surfacing overlay test specimens using similar methods and resulting in similar mixture composition and mix consistency as done for the TB 100 (Wet Track Abrasion) and TB 147 (Loaded Wheel Test) specimens.

2) In the event that new performance testing standards are developed to supersede the modified TxDOT Overlay Test standards outlined above, such new standards shall be submitted and approved by the Engineer.

b) **Specifications:** The Engineer shall approve the design mix and all Micro-Surfacing materials and methods prior to use. The component materials shall be within the following limits.

Residual Asphalt	5% to 9% by dry weight of aggregate
Mineral Additive	0.5% to 3% by dry weight of aggregate
Polymer Modifier & Field Control Additives	As required to provide specified properties
Water	As required to produce consistency

Fibers 0.05% to 0.25% by dry weight of aggregate as required to meet the performance requirements of the TxDOT Overlay Test (Tex-248-F) as described above

Aggregate -	Recommended Gradations:	
	Type II	Type III
Screen Size	% Passing	% Passing
3/8"	100	100
#4	90-100	70-90
#8	65-90	45-70
#16	45-70	28-50
#30	30-50	19-34
#50	18-30	12-25
#100	10-21	7-18
#200	5-15	5-15

Suggested Application Rates:

Type II - Primary and Residential Streets and Airport Runways:

single course = 18-20 lbs./s.y.
Cape Seal wear course = 25-28 lbs./s.y.
double course = 30-32 lbs./s.y.
rut filling = as required

Type III - Interstate Routes:

double course = 30-36 lbs./s.y.
wheel ruts = as required

Note: all application rates above are dry aggregate weights exclusive of emulsion and all other additives.

4. EQUIPMENT

a) **General:** All equipment, tools, and machines used in the performance of this work shall be maintained in satisfactory working condition at all times to ensure a high-quality product.

b) **Mixing Equipment:** The material shall be mixed by a self-propelled Micro-Surfacing mixing machine which shall be a continuous flow, continuous run mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral and field control additives, and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The Contractor shall own and have available two (2) continuous flow, continuous run mixing machines to ensure highest quality, and to mitigate the effect of equipment breakdowns. The machines shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral and field control additives, and water to maintain an adequate supply to the proportioning controls. The machines shall be equipped with self-loading devices which provide for the loading of materials while continuing to lay Micro-Surfacing, thereby minimizing construction joints.

c) **Proportioning Devices:** Individual volume or weight controls for proportioning each

material to be added to the mix, i.e., aggregate, emulsified asphalt, mineral and field control additives, and water shall be provided and properly marked. These proportioning devices are usually revolution counters or similar devices and are used in material calibration and determining the materials output at any time.

c) **Emulsion Pump:** The emulsion pump shall be a heated, positive displacement type pump.

d) **Spreading Equipment:** The surfacing mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer, equipped with paddles to agitate and spread the materials throughout the box. The spreader box width shall be capable of adjustment while paving in order to accommodate the changing width of some roadways without excessive overlaps. A front seal shall be provided to ensure no loss of the mixture at the road contact point. The rear seal and secondary strike-off shall act as the final strike-off, and both shall be adjustable. The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of material on the surface. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The longitudinal joint where two passes join shall be neat in appearance, uniform and lapped. All excess material shall be removed from the jobsite prior to opening the road. The spreader box shall have suitable means provided to side-shift the box to compensate for variations in pavement width and longitudinal alignment. A rut box shall be available to pre-fill wheel ruts when necessary prior to overlay to eliminate puddles or runoff interruption. The rut box shall be no less than 4' wide and no more than 6' wide.

e) **Auxiliary Equipment:** Suitable surface cleaning equipment, traffic control equipment, hand tools and any support equipment shall be provided as necessary to perform the work.

f) **Screening Plant:** All aggregate shall be rescreened immediately prior to being loaded onto Micro-Surfacing equipment. The screening plant shall be equipped with a 3/8" screen to remove all oversized aggregate and shall be capable of discharging screened aggregate directly onto the support equipment. Any material discharged onto the ground must be rescreened prior to use.

5. MACHINE CALIBRATION

Each mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer prior to construction, or previous calibration documentation covering the exact materials to be used may be acceptable provided they were made during the same calendar year. The documentation shall include the individual calibration of each material at various settings, which can be related to the machine metering devices.

6. WEATHER LIMITATIONS

The material shall be spread only when the road surface and atmospheric temperatures are at least 45° F and rising, the weather is not rainy, and there is no forecast of temperatures below 32°F within 48 hours from the time of placement of the mixture.

7. SURFACE PREPARATION

a) **General:** The area to be resurfaced shall be thoroughly cleaned of vegetation, loose aggregate and soil, particularly soil that is bound to the surface. Manholes, valve boxes and other service entrances will be protected from the surfacing material with polyethylene sheeting. All services will be uncovered upon completion of work.

b) **Cracks in Surface:** If required by the Engineer, pre-treat the cracks in the surface with a fiberized crack sealer prior to the application of the Micro-Surfacing. Crack sealer shall be a polymer and crumb rubber modified asphalt cement including not less than 3% polymers, 7% recycled tire crumb rubber (80 mesh), and 8% polyester fibers (PCRM + fibers). The modified asphalt cement incorporated in the PCRM + fibers material must meet PG 64-28E MSCR testing requirements. If crack sealing pre-treatment is required by the Engineer a separate pay item will be included in the bid proposal form.

c) **Tack Coat:** The Contractor may be required to apply a tack coat on any heavily oxidized pavements, and on high traffic roadways as directed by the Engineer. The tack coat shall consist of one part emulsified asphalt (CSS-1H) and three parts water, and be applied with a distributor at a rate of 0.05-0.10 gallons per square yard. If tack coat is required by the Engineer, a separate pay item will be included in the bid proposal form.

8. STOCKPILE

Precautions shall be taken to ensure that aggregate stockpiles do not become contaminated. The mineral aggregate shall be re-screened prior to being directly loaded onto Micro-Surfacing equipment. Owner shall provide suitable stockpile and staging area to Contractor.

9. APPLICATION

a) **General:** The surface should be pre-wetted by fogging ahead of the spreader box when required by surface and ambient conditions. The rate of application of the fog spray shall be adjusted during the day to suit temperatures, surface texture, humidity, and dryness of the pavement surface.

The Micro-Surfacing mixture shall be of the desired consistency upon leaving the mixer and no additional materials should be added. A sufficient amount of material shall be carried in all parts of the spreader at all times so that a complete coverage is obtained. Overloading of the spreader shall be avoided. No lumping, balling, or unmixed aggregate shall be permitted.

No streaks, such as those caused by oversized aggregate, will be left in the finished surface. If excessive amounts of oversized aggregates appear in the mix, the job will be stopped until the Contractor proves to the Engineer that the situation has been corrected.

b) **Joints:** No excessive buildup, uncovered areas or unsightly appearances shall be permitted on longitudinal or transverse joints. The Contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. When possible, longitudinal joints shall be placed on lane lines. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they shall not be the last pass of any paved areas.

c) **Mix Stability:** The Micro-Surfacing mixture shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsion, and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

d) **Hand Work:** Areas which cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand-worked shall be lightly dampened prior to mix placement. Care shall be

exercised to leave no unsightly appearance from handwork. The same type finish as applied by the spreader box shall be required. Handwork shall be completed immediately after the Micro-Surfacing mixture is discharged from the spreader box.

e) **Lines:** Care shall be taken to ensure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a neat workmanship appearance.

f) **Rolling:** If required by the Engineer, specified areas shall be rolled by a self-propelled, 5 to10 ton pneumatic roller with a tire pressure of 50 PSI and equipped with a water spray system. If rolling is required by the Engineer, a separate pay item will be included in the bid proposal form.

10. QUALITY CONTROL

a) **Materials:** The Contractor will permit the Engineer to take samples of the aggregate and asphalt emulsion to be used in the project at the Engineer's discretion. Gradation and sand equivalency tests may be run on the aggregate, and residual asphalt content test run on the emulsion. Test results will be compared to specifications. Tests will be run by a qualified laboratory at the expense of the Owner. The Owner must notify the Contractor immediately if any test fails to meet the specifications.

b) **Micro-Surfacing Mixture:** Samples of the mixture should be taken daily and may be taken directly from the mixing unit(s). Consistency and residual asphalt content tests may be made on the samples and compared to the specifications. Tests will be run by a qualified laboratory at the expense of the Owner. The Owner must notify the Contractor immediately if any test fails to meet specifications. The Engineer may use the recorder and measuring facilities of the unit to determine application rates, asphalt emulsion content, mineral and field control additives, and water.

c) **Non-Compliance:** If any two successive tests fail on the stockpile material, the job shall be stopped. It is the responsibility of the Contractor, at his own expense, to prove to the Engineer that the conditions have been corrected. If any two successive tests on the mix from the same machine fail, the use of the machine shall be suspended. It will be the responsibility of the Contractor, at his own expense, to prove to the Engineer that the problems have been corrected and that the machine is working properly.

11. PERFORMANCE

It is the intention of the Owner not to award a contract for Micro-Surfacing work under this or any other proposal if the contractor cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work, and that he has sufficient capital and equipment to enable him to prosecute the work successfully, and to complete it within the time named in the contract. The Owner also reserves the right to reject this or any other proposal, or to award the contract as is deemed to be in the best interest of said Owner

a) **Proof of Experience:** To illustrate its experience and capabilities to perform Micro-Surfacing work, contractor shall provide with his bid a list of similar projects completed within the last 3 years. Such list shall include the project names and locations, Owner or agency contact names and telephone numbers, and the total area of work completed for each project. The total area of work for all projects on this list shall not be less than 1 million square yards. In addition to experience with conventional Micro-Surfacing, the contractor must also be able to demonstrate experience applying the highly modified asphalt (HiMA 6% SBS polymer) variation of Micro-Surfacing, and such experience shall be noted on the above required list of similar recent projects including the contact information for each project.

b) **Contractor Certification:** To ensure contractor's capabilities, the bidder shall provide with his bid evidence that at least two (2) of the company's micro-surfacing field supervisory personnel have completed AASHTO TSP2 training and successfully passed the Slurry Systems certification exam administered by the National Center for Pavement Preservation (NCPP). During completion of the work, contractor will be required to have at least two (2) AASHTO TSP2 Slurry Systems certified employees including the crew foreman assigned to the job and present at all times when micro-surfacing work is being performed.

c) **State DOT Prequalification:** To further ensure the contractor's capabilities, the contractor shall provide with his bid evidence of his current prequalification status by the State DOT for the categories of work contained herein.

12. PERFORMANCE WARRANTY

The Contractor must furnish the following warranty after completion of the work and prior to final payment: The Contractor hereby warrants that all workmanship and all materials furnished under this contract comply fully with requirements of these Micro-Surfacing Specifications. If at any time within two years after the date of the final inspection, any unfaithful or defective work should appear which, in the opinion of the Owner, is due to inferior materials or workmanship, the Contractor warrants to do whatever is necessary to remedy the defects immediately without cost to the Owner. The Owner will notify the Contractor in writing of the defects and the repairs to be made, and the Contractor will begin repairs within a mutually agreed time frame.

13. NOTIFICATION

All homeowners and businesses affected by the construction shall be notified a minimum of one day in advance of the surfacing by the Owner.

14. TRAFFIC CONTROL

Suitable methods shall be used by the Contractor to protect the micro-surface from traffic until the new surface will support traffic without damage. All traffic control methods used shall be in accordance with the Engineer's specifications and shall be employed in a safe manner. The cost of flaggers and any police details, if required, will be paid or reimbursed by the Owner. The Owner will coordinate detail assignments which will be billed to the contractor directly based on the hourly cost. The Contractor will not be reimbursed for police detail expenses incurred due to failure to cancel or cancelling without the required notice.

15. METHOD OF AWARD

To ensure contractor accountability, the Owner intends to award all items to a single contractor. Accordingly, contractors must bid on all items of work, and the low bidder will be the contractor whose total bid price is the lowest. The bid quantities are not guaranteed, and their primary purpose is for the determination of the low bidder.

16. MEASUREMENT AND PAYMENT

The quantity to be measured for payment will be the number of square yards of micro-surfacing actually completed, and this quantity shall be determined and verified daily. The accepted quantity of micro-surfacing will be paid for at the contract unit price per square yard of the type specified in the proposal, which shall be full compensation for furnishing, transporting, handling and placing the material specified and furnishing of all labor, tools, equipment and incidentals for the satisfactory completion of this item. Rut filling will be paid by the ton, and tack coat and crack sealing (if required) will be paid for by the gallon of material applied as determined and approved daily by the Engineer.

17. ASPHALT PRICING AND PRICE ADJUSTMENTS

a) **Asphalt Price Adjustments:** Contractor's bid prices below shall be based upon the current State DOT asphalt cement price index posted exactly two (2) weeks prior to the due date for receipt of bids ("Bid Index"). If the posted State DOT asphalt cement price index in place when the work is performed differs from the Bid Index, up or down, then Contractor's invoices shall include price adjustments for the asphaltic materials, and these adjustments shall be calculated based on the actual tons of liquid asphalt cement incorporated into the work.

b) **Future Year Price Adjustments:** The Owner reserves itself the option to extend the use, terms, conditions and prices of this bid for an additional one (1) year after the first year in which the contract is awarded. Such extension will be subject to the Owner reviewing and approving the Contractor's annual request for a price adjustment based on and limited to the prior year's actual rate of inflation. If such price adjustment cannot be mutually agreed upon between the Owner and Contractor, Owner may choose to re-bid the work in lieu of extending this contract.

CITY OF WARWICK

BID AND CONTRACT FORM

TITLE OF SPECIFICATION: Bid2022-047 Crack Seal and Micro Surfacing

I. BID:

WHEREAS, the CITY OF WARWICK has duly asked for bids for performance of services and/or supply of goods in accordance with the above-indicated specifications.

The person or entity does irrevocably offer to perform the services and/or furnish the goods in accordance with the specifications, which are hereby incorporated by reference in exchange for the bid price.

This offer will remain open and irrevocable until the CITY OF WARWICK has accepted this bid or another bid on the specifications or abandoned the project.

The bidder agrees that acceptance by the CITY OF WARWICK will transform the bid into a contract. This bid and contract will be secured by Bonds, if required by the specifications.

Pricing as Submitted

Continued next page

PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID

(PRICING SHEET MAY NOT BE CONFIDENTIAL)

Bid2022-047 Crack Seal and Micro Surfacing

	Bid Quantity	**Unit Price**	**Bid Total**
HiMA Micro-Surfacing			
Type II - Leveling & Surface Course (2 lifts)	40,000 s.y.	$_____/s.y.	$_____
Crack Sealing			
Polymer & Crumb Rubber Modified with Fibers	16,000 gallons	$_____/gal.	$_____
		Total Bid Price	**$_____**
Total Bid Price in Words _____			
Company_____			
Signature_____Date_____			
Printed Name _____Title_____			