



**CITY OF SPRINGFIELD, MISSOURI  
DIVISION OF PURCHASES  
INVITATION FOR BID #029-2010**

**THIS IS NOT AN ORDER**

**RETURN**

**TO:** Lynn Gates, Buyer  
City of Springfield  
Division of Purchases  
218 E. Central  
Springfield, MO 65802

Date Issued: September 22, 2009  
Buyer's Email: lgates@springfieldmo.gov  
Telephone Number: 417-864-1621  
Fax Number: 417-864-1927  
**DUE DATE: October 8, 2009**

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SEALED BIDS MUST BE PHYSICALLY RECEIVED IN THE DIVISION OF PURCHASES PRIOR TO **3:00 P.M. ON THURSDAY, OCTOBER 8, 2009**. Bids will be opened by the buyer at the location listed above.

- Bids shall be submitted on the forms provided and must be manually signed by the individual authorized to legally bind the company.
- Bids shall be submitted with the IFB number clearly indicated on the outside of the mailing envelope.
- Bids received after the opening date and time will be rejected.
- The attached Terms and Conditions shall become part of any purchase order resulting from this bid.
- **FAXED/EMAILED BIDS WILL NOT BE ACCEPTED.**

You are invited to submit your bid to furnish the materials and/or services described herein. Please submit your prices/fees net of all discounts.

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**DESCRIPTION**

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**PAVEMENT MARKING & SIGN FACE MATERIALS**

*See attached General Conditions, Specifications, and Bid Form for detailed information.*

DELIVERY: F.O.B. DESTINATION

*The articles to be furnished hereunder shall be delivered all transportation charges paid by the bidder to destination.*

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It is the intent of the City that this Invitation for Bid promotes competitive bidding. It shall be the Vendor's responsibility to advise the Division of Purchases if any language, requirements, etc. any combination thereof, inadvertently restricts or limits the requirements stated in this Invitation for Bid to a single source. Such notification must be submitted in writing and must be received by the Division of Purchases not later than three (3) days prior to the bid opening date.

**CITY OF SPRINGFIELD  
INSTRUCTION TO BIDDERS**

**01. Opening Location**

The Bids will be opened at the City of Springfield, Division of Purchases, 218 E. Central, Springfield, MO 65802 in the presence of Purchasing officials at the due date and time indicated on the IFB. All bidders or their representatives are invited to attend the opening of the IFB.

**02. IFB Delivery Requirements**

Any Bids received after the above stated time and date will not be considered. It shall be the sole responsibility of the bidder to have their Bid delivered to the Division of Purchases for receipt on or before the due date and time indicated. If a Bid is sent by U.S. Mail, the bidder shall be responsible for its timely delivery to the Division of Purchases office. Bids delayed by mail shall not be considered, shall not be opened, and shall be rejected. Arrangements may be made for their return at the bidder's request and expense. Bids may be mailed to the Division of Purchases and accepted if the signed bid form and required information was mailed and received prior to the due date and time. Bids sent by email will not be accepted.

**03. Sealed and Marked**

If sent by mail, one original signed Bid shall be submitted in one sealed package, clearly marked on the outside of the package with the Invitation for Bid number and addressed to:

City of Springfield  
Division of Purchases  
218 E. Central  
Springfield, MO 65802

**04. Legal Name and Signature**

Bids shall clearly indicate the legal name, address, and telephone number of the bidder (company, firm, corporation, partnership, or individual). Bids shall be manually signed above the printed name and title of signer on the Affidavit of Compliance page. The signer shall have the authority to bind the company to the submitted Bid. Failure to properly sign the Bid form shall invalidate same, and it shall not be considered for award.

**05. Corrections**

No erasures are permitted. If a correction is necessary, draw a single line through the entered figure and enter the corrected figure above it. Corrections must be initialed by the person signing the Bid.

**06. Clarification and Addenda**

Each bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries or suggestions, concerning interpretation, clarification, or additional information pertaining to the Invitation for Bid shall be made through the Division of Purchases in writing or through email. The Division of Purchases shall not be responsible for oral interpretations given by any City employee, representative, or others. The issuance of written addenda is the official method whereby interpretation, clarification, or additional information can be given.

It shall be the responsibility of each bidder, prior to submitting their Bid, to contact the Division of Purchases at phone number 417-864-1620, or to check the Purchasing website to determine if addenda were issued and to make such addenda a part of their Bid at: [www.springfieldmo.gov/egov/finance/bid\\_center.html](http://www.springfieldmo.gov/egov/finance/bid_center.html)

**07. IFB Expenses**

All expenses for making Bids to the City are to be borne by the bidder.

**08. Irrevocable Offer**

Any Bid may be withdrawn up until the due date and time set for opening of the IFB. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a minimum period of 90 days to sell to the City the goods or services set forth in the IFB, until one or more of the Bids have been duly accepted by the City.

**09. Responsive and Responsible Bidder**

To be responsive, a bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsible bidder, the bidder shall have the capability in all respects to perform fully the contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment and credit which will ensure good faith performance. The lowest responsible bidder shall mean the bidder who makes the lowest Bid to sell goods or services of a quality which conforms closest to the quality of goods or services set forth in the specifications or otherwise required by the City and who is known to be fit and capable to perform the Bid as made.

**10. Reserved Rights**

The City reserves the right to make such investigations as it deems necessary to make the determination of the bidder's responsiveness and responsibility. Such information may include, but shall not be limited to: current financial statement, verification of availability of equipment and personnel, and past performance records.

**11. The Right to Audit**

The bidder agrees to furnish supporting detail as may be required by the City to support charges or invoices, to make available for audit purposes all records covering charges pertinent to the purchase, and to make appropriate adjustments in the event discrepancies are found. The cost of any audit will be paid by the City. The City shall have the right to audit the bidder's records pertaining to the work/product for a period of three (3) years after final payment.

## **12. Applicable Law**

All applicable laws and regulations of the State of Missouri and the City including the City Procurement Regulations and Procedures will apply to any resulting agreement, contract, or purchase order. Any involvement with the City Procurement shall be in accordance with the Procurement Regulations and Procedures.

## **13. Right to Protest**

Appeals and remedies are provided for in the City Procurement Regulations. Protestors shall seek resolution of their complaints initially with the City Purchasing Agent.

Any protest shall state the basis upon which the solicitation or award is contested and shall be submitted within ten (10) calendar days after such aggrieved person knew or could have reasonably been expected to know of the facts giving rise thereto.

## **14. Ethical Standards**

With respect to this IFB, if any bidder violates or is a party to a violation of the general ethical standards of the City Procurement Code or the State of Missouri Statutes, such bidder may be disqualified from furnishing the goods or services for which the Bid is submitted and shall be further disqualified from submitting any future Bids. A copy of the City's General Ethical Standards is available at the Division of Purchases.

## **15. Collusion**

By offering a submission to this Invitation for Bid, the bidder certifies the bidder has not divulged, discussed, or compared the Bid with other bidders and has not colluded with any other bidder or parties to this IFB whatsoever. Also, the bidder certifies, and in the case of a joint Bid, each party thereto certifies as to their own organization, that in connection with this IFB:

- a. Any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other bidder or with any competitor.
- b. Any prices and/or cost data for this Bid have not knowingly been disclosed by the bidder and will not knowingly be disclosed by the bidder prior to the scheduled opening directly or indirectly to any other bidder or to any competitor.
- c. No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition.
- d. The only person or persons interested in this Bid, principal or principals are named therein and that no person other than therein mentioned has any interest in this Bid or in the contract to be entered into.
- e. No person or agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee exempting bona fide employees or established commercial agencies maintained by the Purchaser for the purpose of doing business.

## **16. Contract Forms**

Any agreement, contract, or purchase order resulting from the acceptance of a Bid shall be on forms either supplied by or approved by the City.

## **17. Liability and Indemnity**

- a. In no event shall the City be liable to the Contractor for special, indirect, or consequential damages, except those caused by the City's gross negligence or willful or wanton misconduct arising out of or in any way connected with a breach of this contract. The maximum liability of the City shall be limited to the amount of money to be paid or received by the City under this contract.
- b. The Contractor shall defend, indemnify and save harmless the City, its elected or appointed officials, agents and employees from and against any and all liability, suits, damages, costs (including attorney fees), losses, outlays and expenses from claims in any manner caused by, or allegedly caused by, or arising out of, or connected with, this contract, or the work or any subcontract thereunder (the Contractor hereby assuming full responsibility for relations with subcontractors), including, but not limited to, claims for personal injuries, death, property damage, or for damages from the award of this contract to Contractor.
- c. The Contractor shall indemnify and hold the City harmless from all wages or overtime compensation due any employees in rendering services pursuant to this agreement or any subcontract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law or any other federal or state law.

## **18. IFB Forms, Variances, Alternates**

Bids must be submitted on attached City IFB forms, although additional information may be attached. Bidders must indicate any variances from the City requested specifications and/or terms and conditions, on the IFB Affidavit of Compliance. Otherwise, bidders must fully comply with the City requested specifications and terms and conditions. Alternate Bids may or may not be considered at the sole discretion of the City Purchasing Agent.

## **19. Bid Form**

All blank spaces must be completed with the appropriate response. The bidder must state the price, written in ink, for what is proposed to complete each item of the project. Bidders shall insert the words "no bid" in the space provided for an item for which no Bid is made. The bidder shall submit an executed Bid form, affidavit of compliance with other requested documents.

**20. Modifications or Withdrawal of Bid**

A modification for a Bid already received will be considered only if the modification is received prior to the time announced for opening of Bids. All modifications shall be made in writing, executed, and submitted on the same form and manner as the original Bid. Modifications submitted by telephone, fax, or email will not be considered.

**21. No Bid**

If not submitting a Bid, respond by returning the "Statement of No Bid" no later than the stated Bid opening time and date, and explain the reason in the space provided.

**22. Errors in Bids**

Bidders or their authorized representatives are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting Bids; failure to do so will be at the bidder's own risk. Neither law nor regulations make allowance for errors either of omission or commission on the part of bidders. In case of error of extension of prices in the Bid, the unit price shall govern.

**23. Prices Bid**

Give both unit price and extended total. Price must be stated in units of quantity specified in the bidding specifications. In case of discrepancy in computing the amount of the Bid, the unit price of the Bid will govern. All prices shall be F.O.B. destination, freight prepaid (unless otherwise stated in special conditions). Each item must be bid separately and no attempt is to be made to tie any item or items in with any other item or items. If a bidder offers a discount on payment terms, the discount time will be computed from the date of satisfactory delivery at place of acceptance and receipt of correct invoice at the office specified. Payment terms shall be Net 30 if not otherwise specified. Pre-payment terms are not acceptable.

**24. Discounts**

Any and all discounts except cash discounts for prompt payments must be incorporated as a reduction in the Bid price and not shown separately. The price as shown on the Bid shall be the price used in determining award(s).

**25. Descriptive Information**

All equipment, materials, and articles incorporated in the product/work covered by this IFB are to be new and of suitable grade for the purpose intended. Brand or trade names referenced in specifications are for comparison purposes only. Bidders may submit Bids on items manufactured by other than the manufacturer specified when an "or equal" is stated.

**26. Deviations to Specifications and Requirements**

When bidding on an "or equal," Bids must be accompanied with all descriptive information necessary for an evaluation of the proposed material or equipment such as the detailed drawings and specifications, certified operation and test data, and experience records. Failure of any bidder to furnish the data necessary to determine whether the product is equivalent, may be cause for rejection of the specific item(s) to which it pertains. All deviations from the specifications must be noted in detail by the bidder on the Affidavit of Compliance form, at the time of submittal of Bid. The absence of listed deviations at the time of submittal of the Bid will hold the bidder strictly accountable to the specifications as written. Any deviation from the specifications as written and accepted by the City may be grounds for rejection of the material and/or equipment when delivered.

**27. Samples (if required)**

For certain types of procurements, samples may be required. If samples are required, it will be stated in the IFB. The following conditions and requirements apply to all samples submitted.

- a. The samples submitted by bidders on items for which they have received an award may be retained by the City until the delivery of contracted items is completed and accepted. Bidders whose samples are retained may remove them after delivery is accepted.
- b. Samples not retained must be removed as soon as possible after award has been made on the item or items for which the samples have been submitted. The City will not be responsible for such samples not removed by the bidder within 30 days after the award has been made. The City reserves the right to consume any or all samples for testing purposes.
- c. Bidders shall make all arrangements for delivery of samples to place designated as well as the removal of samples. Cost of delivery and removal of samples shall be borne by the bidder.
- d. All samples packages shall be marked "Sample for Division of Purchases" and each sample shall bear the name of the bidder, item number, Bid number, and shall be carefully tagged or marked in a substantial manner. Failure of the bidder to clearly identify samples as indicated may be considered sufficient reason for rejection of Bid.

**28. Quality Guaranty**

If any product delivered does not meet applicable specifications or if the product will not produce the effect that the bidder represents to the City, the bidder shall pick up the product from the City at no expense. Also, the bidder shall refund to the City any money which has been paid for same. The bidder will be responsible for attorney fees in the event the bidder defaults and court action is required.

**29. Quality Terms**

The City reserves the right to reject any or all materials if, in its judgment, the item reflects unsatisfactory workmanship, manufacturing, or shipping damages.

**30. Tax-Exempt**

The City is exempt from sales taxes and Federal Excise Taxes: Missouri Tax ID Number 12493651.

### **31. Awards**

- a. *Unless otherwise stated in the Invitation for Bid, cash discounts for prompt payment of invoices will not be considered in the evaluation of prices. However, such discounts are encouraged to motivate prompt payment.*
- b. *As the best interest of the City may require, the right is reserved to make awards by item, group of items, all or none, or a combination thereof; to reject any and all Bids or waive any minor irregularity or technicality in Bids received.*
- c. *Awards will be made to the Bidder whose Bid (1) meets the specifications and all other requirements of the Invitation for Bid and (2) is the lowest and best Bid, considering price, delivery, responsibility of the bidder, and all other relevant factors.*

### **32. Authorized Product Representation**

*The successful bidder(s) by virtue of submitting the name and specifications of a manufacturer's product will be required to furnish the named manufacturer's product. By virtue of submission of the stated documents, it will be presumed by the City that the bidder(s) is legally authorized to submit and the successful bidder(s) will be legally bound to perform according to the documents.*

### **33. Regulations**

*It shall be the responsibility of each bidder to assure compliance with OSHA, EPA, Federal, State of Missouri, and City rules, regulations, or other requirements, as each may apply.*

### **34. Termination of Award**

*Any failure of the bidder to satisfy the requirements of the City shall be reason for termination of the award. Any Bid may be rejected in whole or in part for good cause when in the best interest of the City.*

### **35. Royalties and Patents**

*The successful bidder(s) shall pay all royalties and license fees for equipment or processes in conjunction with the equipment being furnished. Bidder shall defend all suits or claims for infringement of any patent right and shall hold the City harmless from loss on account or cost and attorney's fees incurred.*

### **36. Equal Employment Opportunity Clause**

*The City of Springfield, in accordance with the provision of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Department of Commerce (15 CFR, Part 8) issued pursuant to such Act, hereby notifies all bidders that affirmatively ensure that in any contract entered into pursuant to this advertisement that minority businesses will be afforded full opportunity to submit Bids in response to this advertisement and will not be discriminated against on the grounds of race, color, or national origin in consideration for award.*

### **37. Bid Tabulation**

*Bidders may request a copy of the bid tabulation of the Invitation for Bid.*

### **38. Budgetary Constraints**

*The City reserves the right to reduce or increase the quantity, retract any item from the Bid, or upon notification, terminate entire agreement without any obligations or penalty based upon availability of funds.*

### **39. Additional Purchases by Other Public Agencies**

*The bidder by submitting a Bid authorizes other public agencies to "Piggy-Back" or purchase equipment and services being proposed in this Invitation for Bid unless otherwise noted on the Affidavit of Compliance Form.*

### **40. Order of Precedence**

*Any and all Special/General Conditions and Specifications attached hereto, which varies from the instruction to bidders, shall take precedence.*

### **41. Affidavit for Service Contracts**

*The Bidder represents, in accordance with RSMO 285.530.2 that they have not employed, or subcontracted with, unauthorized aliens in connection with the scope of work to be done under the IFB and agrees to provide an affidavit to the City of Springfield affirming that they have not, and will not in connection with the IFB, knowingly employ, or subcontract with, any person who is an unauthorized alien.*

### **42. Inspection and Acceptance**

*No item(s) received by the City pursuant to this contract shall be deemed accepted until the City has had reasonable opportunity to inspect the item(s). Any item(s) which are discovered to be defective or which do not conform to any warranty of the Seller upon inspection may be returned at the seller's expense for full credit or replacement. If at a later time, the defects were not ascertainable upon the initial inspection may also be returned at the Seller's expense for full credit or replacement. The City's return of defective items shall not exclude any other legal, equitable or contractual remedies the City may have.*

**CITY OF SPRINGFIELD  
INVITATION FOR BID #029-2010  
GENERAL TERMS AND CONDITIONS**

1. **Term:** One year beginning on date of award on an as required basis. The City may, at its option, extend the contract for up to two additional one-year terms.

2. **Escalation/De-Escalation:** Bid prices shall remain firm for a period of six months from the date of award. The contract prices may be changed after that time for the following reasons:

An increase or decrease in the supplier's cost of materials may be justification for price change; however, this shall not be construed in any way to increase vendor's margin of profit.

All written requests for price increase must include backup documentation as to the nature of the increase and shall be submitted to the City Purchasing Agent at least 60 days prior to the scheduled price increase/decrease or renewal of contract. Approval of each request shall be by written confirmation from the City Purchasing Agent. If the City should consider said increase unwarranted or unreasonable, the City reserves the right to terminate the contract with the vendor. Any price decline at the manufacturer's level shall be reflected in an immediate reduction of the contract prices and the vendor shall notify the buyer of said decline.

3. **Quantity:** Quantities listed are estimates for bid purposes only; actual usage may be more or less.

4. **Purchasing Card Program:** The City has implemented a purchasing card program through Commerce Bank, using the Visa network. Bidders may receive payment from the purchasing card in the same manner as other Visa purchases. Bidders should have the ability to accept Visa.

City departments will be encouraged to use purchasing cards to order from this annual contract. In the event the department does not use a purchasing card, a written purchase order will be issued.

5. **Specifications:** If bidding an equal, Bidders must include with their bid specification sheets or information sufficient for thorough evaluation. Failure may be cause for rejection as non-compliant.

6. **SAMPLES:** Bidders must make available to the City of Springfield Division of Purchases samples of the materials being bid within seven (7) days from the date of request. **DO NOT SEND SAMPLES UNTIL REQUESTED TO DO SO BY PURCHASING.**

7. **ACCEPTANCE:** Acceptance is subject to inspection by the City.

8. The successful Bidder must provide **Manufacturers Certification** that all materials meets the specifications set forth in the bid documents. This includes the State of Missouri Standard Specifications for Highway Construction and the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.

10. **PERFORMANCE:** Bidder MUST list the performance life of the products being bid. If failure occurs any time during the effective performance life, the sheeting and inks shall be replaced by the contractor.

10.1 The City of Springfield shall be responsible for dating all signs at the time of application. That date constitutes the start of the field performance obligation period.

**CITY OF SPRINGFIELD  
INVITATION FOR BID #029-2010  
SPECIFICATIONS**

All sheet reflective materials shall conform to the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-96 and ASTM D-4956 and shall permit processing with transparent and opaque processing inks that are soluble with petroleum based mineral spirit.

Where specified at the time of order, all types of 15" wide material shall have sprocket holes along the full length of each edge to fit the material transportation mechanism of the Gerber Scientific Model #7500 equipment currently in use by the City of Springfield Traffic Sign Shop. All types of sheets shall be cut square.

**SPECIFICATIONS FOR SHEET REFLECTIVE MATERIALS (SECTION 633.06, FP-96)**

REPRINTED FROM: STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (1974). US DEPT OF TRANSPORTATION. FEDERAL HIGHWAY ADMINISTRATION

**MATERIALS:**

633.06 Sheet Reflective Materials: Type I-Enclosed lens and Type II-Encapsulated lens sheeting.

A) **Description:** The reflective sheeting shall be of Type I-Enclosed Lens consisting of spherical lens elements embedded with a transparent weatherproof film having a smooth, flat outer surface or Type II-Encapsulated Lens consisting of spherical lens elements adhered to a synthetic resin and encapsulated by a flexible, transparent, weather-proof plastic having a smooth outer surface. The sheeting shall have a pre-coated adhesive backing protected by a removable liner and be either of three levels of reflective intensity as specified on the plans or in the special provisions.

B) **Color Requirements:**

1. The colors specified shall be matched visually and be within the color tolerance limits shown on the appropriate Highway Color Tolerance Charts issued by the Federal Highway Administration utilizing the instructions thereon. Certifications as to conformance with this requirement may be accepted by the purchaser. (or)
2. Through instrumental color testing the diffuse day color of the relative materials shall conform to the requirements of Table I or II and shall be determined in accordance with ASTM E 97, "Standard Method of Test for 45-Degree, 0-Degree Directional Reflectance of Opaque Specimens by Filter Photometry". (Geometric characteristics must be confined to illumination incident within 10 degrees of and centered about, a direction of 45 degree from the perpendicular to the test surface; viewing is within 15 degrees of and centered about the perpendicular to the test surface. Conditions of illumination and observation must not be interchanged.) The standards to be used for reference shall be the MUNSSELL PAPERS designated in Table I or II. The papers must be recently calibrated on a spectrophotometer. The test instrument shall be one of the following or approved equal:

A) GARDNER Multipurpose Reflectometer

B) GARDNER Model AC-2a Color Difference Meter

C) MEECO Model V Colormaster

D) HUNTERLAB D25 Color Difference Meter

C) **Reflective Intensity:** The reflective sheeting shall have a minimum reflective intensity values at 0.2° and 0.5° divergence as shown in Table III or IV, expressed as candlepower per foot candle per square foot (candelas per lux per square meter) of material. Two levels of performance, Level A and Level B, are available for Type I-Enclosed Lens sheeting and one level is available for Type II-Encapsulated Lens sheeting to be selected by the purchaser for specific uses. Reflective intensity shall be determined by the method detailed in Section 718.

D) **Specular Glass:** The reflective sheeting shall have an 85-degree specular glass of not less than 10 for Type I and not less than 50 for Type II when tested in accordance with ASTM D 523.

E) **Processing:** The sheeting shall permit cutting and color processing with compatible transparent and opaque process inks at temperatures of 60° F to 100° (15° to 38° C) and relative humidity at 20 to 80 percent. The sheeting shall be heat resistant and permit force curing without staining of applied or unapplied sheeting at temperatures as recommended by the manufacturer. Color processing for Type II material shall be restricted to sheeting with heat activated adhesive backing unless otherwise recommended by the manufacturer.

F) **Shrinkage:** A 9 inch by 9 inch (229mm by 229mm) reflective sheeting specimen with liner shall be conditioned a minimum of 1 hour at 72° (23° C) and 50 percent relative humidity. The liner shall be removed and the specimen placed on a flat surface with the adhesive side up. Ten minutes after liner is removed and again after 24 hours, the specimen shall be measured to determine the amount of dimensional change. The reflective sheeting shall not shrink in any dimension more than 1/22 inch (0.79mm) in 10 minutes not more than 1/8 inch (3.18mm) in 24 hours.

G) **Flexibility:**

**Type I-Enclosed Lens Material:** The sheeting applied according to the manufacturer's recommendations to a clean, etched 0.020 inch by 2 inch by 8 inch (0.51mm by 50.8mm by 203mm) aluminum panel of alloy 6061-T6 conditioned a minimum of 48 hours and tested at 72° F (23° C) and 50 percent relative humidity shall be sufficiently flexible to show no cracking when bent around a 3/4 inch (19.1mm) mandrel.

**Type II-Encapsulated Lens Material:** The sheeting with the liner removed and conditioned for 24 hours at 72° F (22° C) and 50 percent RH shall be sufficiently flexible to show no cracking when slowly bent, in one second's time, around a 1/8 inch (3.2mm) mandrel with adhesive contacting, spread talcum powder on adhesive to prevent sticking to the mandrel.

H) **Adhesive:** The reflective sheeting shall include a pre-coated pressure sensitive adhesive backing (Class 1) or a tack-free heat activated adhesive backing (Class 2) either of which may be applied without necessity of additional adhesive coats on either the reflective sheeting or application surface.

The Class 1 adhesive backing shall be a pressure sensitive adhesive of the aggressive tack type requiring no heat solvent or the preparation for adhesion to smooth clean surfaces. The Class 2 adhesive backing shall be tack-free adhesive activated by applying heat in excess of 175° F (73° C) to the material as in the heat-vacuum process of sign fabrication.

The protective liner attached to the adhesive shall be removed by peeling without soaking in water or other solvents without breaking, tearing or removing any adhesive from the backing. The protective liner shall be easily removed following accelerated storage for 4 hours at 160° F (71° C) under a weight of 2.5 pounds per square inch (17kPa).

The adhesive baking of the reflective sheeting shall produce a bond to support a 1-3/4 pound (0.79kg) weight for 5 minutes without the bond peeling for a distance of more than 2.0 inches (50.8mm) when applied to smooth aluminum surface and tested as specified in Section 718.

- I) **Impact Resistance:** The reflective sheeting material, applied according to the manufacturer's recommendations to a cleaned, etched aluminum panel of alloy 6061-T6 .04 inches by 3.0 inches by 5 inches (.10mm by 76.2mm by 127mm) and conditioned for 24 hours at 72° F (23° C) and 50 percent RH, shall show no cracking when the face of the panel is subjected to an impact of 2.0 pounds (0.9 kg) weight with a 5/8 inch (15.9mm) rounded tip dropped from a 10 inch pound (1.13 newton meter) setting on a Gardner Variable Impact Tester, 1G-1120.
- J) **Durability:** Processed and applied in accordance with recommended procedures the reflective material shall be weather resistant and following cleaning shall show no appreciable discoloration, cracking, blistering or dimensional change and shall not have less than 50 percent of the specified minimum reflective intensity values (Tables III and IV) for Type I-Enclosed Lens sheeting and not less than 70 percent for Type II-Encapsulated Lens sheeting when subjected to accelerated weathering for 1,000 hours or 2,200 hours, respectively, in accordance with ASTM Standard G23, Type E or EII Weatherometer Colorfastness and fungus resistance shall conform to the requirements of Section 718.
- K) **Intended Use:** The reflective sheeting specified herein is intended for use on surfaces of highway signs to assure their optimum visibility by day and at night when exposed to a light source and whether dry or totally wet by rain. Purchasers should select colors and preferred options permitted herein and specify (1) the desired level of reflective intensity values (Level A or Level B) for Type I-Enclosed Lens or Type II-Encapsulated Lens, as appropriate; and (2) the type of adhesive backing, Class 1-precoated pressure sensitive adhesive or Class 2-heat activated adhesive, as required.

**CITY OF SPRINGFIELD, MISSOURI  
PUBLIC WORKS DEPARTMENT  
TRAFFIC REGULATIONS DIVISION  
SPECIFICATIONS FOR RETROREFLECTIVE SHEETING (SECTION 718.01 FP-92)  
REPRINTED FROM:**

STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (1974). US  
DEPT OF TRANSPORTATION. FEDERAL HIGHWAY ADMINISTRATION

**718.01 RETRO-REFLECTIVE SHEETING:**

Retro-reflective sheeting material shall conform to ASTM D 4956, except the minimum coefficients of retro-reflection for brown type I sheeting showing in ASTM D 4956, Table 1 are amended as follows: 2.0 cd/fc/ft<sup>2</sup> (cd/lx/m<sup>2</sup>) at 0.2 observation angle and -4 entrance angle, 1.0 cd/fc/ft<sup>2</sup> (cd/lx/m<sup>2</sup>) at 0.2 observation angle and +30 entrance angle and at 0.5 observation angle and -4 entrance angle, and 0.5 cd/fc/ft<sup>2</sup> (cd/lx/m<sup>2</sup>) at 0.5 observation angle and +30 entrance angle.

Retro-reflective sheeting material shall conform to ASTM D 4956 supplemental requirement S1 if specified. Reboundable retro-reflective sheeting shall conform to ASTM D 4956 including supplemental requirement S2.

Retro-reflective material is typed as follows:

- A) **Type I:** A medium intensity sheeting. An enclosed lens glass-bead material.
- B) **Type II:** A high intensity sheeting. An enclosed lens glass-bead material.
- C) **Type III:** A high intensity sheeting. An encapsulated glass bead or prismatic material.
- D) **Type IV:** A high intensity sheeting. An unmetallized microprismatic element material.
- E) **Type V:** A super-high intensity sheeting. A metallized microprismatic element material.
- F) **Type VI:** An elastomeric high-intensity sheeting. A vinyl microprismatic material.

**718.02 Test Procedures:**

Test procedures shall conform to ASTM D 4956 except subsection S1.3.3 is amended as follows: The stock cultures of *Aspergillus niger*, ATCC NO. 6275, may be kept for not more than 4 months in a refrigerator at a temperature from 37 to 50°F (3 to 10C). Use subcultures incubated at 82 to 86F (28 to 30C) for 10 to 14 days in preparing the inoculum.

1. All sheet reflective materials shall conform to the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-96 and ASTM D-4956 and shall permit processing with transparent and opaque processing inks that are soluble with petroleum based mineral spirit.
2. Where specified at the time of order, all types of 15" wide material shall have sprocket holes along the full length of each edge to fit the material transportation mechanism of the Gerber Scientific Model #7500 equipment currently in use by the City of Springfield Traffic Sign Shop. All types of sheets shall be cut square.

**City of Springfield, Missouri**  
**Traffic Operations**  
**Specifications for Thermoplastic Materials Applied to PCC**  
**and Aged Asphalt Without Sealer or Primer**

**1. Scope**

1.1. This specification covers a reflectorized adhesive thermoplastic pavement striping material that is applied to road surfaces, including Portland Cement Concrete (PCC) and aged asphalt without need of a primer/sealer. The material is applied to the road surface in a molten state by mechanical means with surface application of glass beads at a rate specified by the manufacturer. Upon cooling to normal pavement temperature, it produces an adherent reflectorized stripe of specified thickness and width with limited thermal/seasonal deformation as specified by the manufacturer. this material must be applied at thicknesses greater than or equal to 90 mils for optimum durability. In order to qualify as a non-sealer thermoplastic that can be applied to concrete surfaces without a sealer, the material must meet or exceed the requirements listed in Section 4.

**2. Referenced Documents**

2.1. Federal Standards:

- Federal Test Standard No. 5958
- AASHTO Standard Test Method M 249
- AASHTO Standard Test Method T 250
- ASTM Standard Test Method D 4796 (Bond Strength)
- ASTM Standard Test Method D 5420 (Impact Resistance)
- ASTM Standard Test Method D 256 (Notched Izod Impact Resistance)
- Others as referenced within specification

**3. Materials**

3.1. The thermoplastic material shall be homogeneously composed of pigments, resins, polymers (adhesive constituent), glass reflectorizing spheres and other fillers.

3.2. The thermoplastic material shall be available in a variety of surface delineation colors from the same manufacturer. The manufacturer shall have the option of formulating the material according to its own specifications. However, certain physical and chemical requirements specified in Section 4 must be satisfied in order to qualify as a non-primed striping application for PCC and aged asphalt surfaces.

3.3. The material shall not exude fumes which are toxic, or injurious to persons or properties upon heating to application temperature.

3.4. Glass Beads (Intermix and Drop-on) the beads shall be coated and conform to AASHTO Specification M-247.

3.5. Specific Gravity The specific gravity of the white and yellow thermoplastic traffic line material shall not exceed 2.15.

**4. Requirements**

4.1. NTPEP Test Program - Material must have been applied, without surface primer, on two NTPEP Decks (PCC) and evaluated for a period of at least one year. A minimum of 90% of the original pavement striping must be intact on the PCC decks after a one year review period. The percent retention is calculated based on the measured test area square footage (neglecting mil thickness wear down) minus the road surface areas that are exposed due to cracking and chipping away of thermoplastic from the concrete surface caused by product bond failure to the substrate.( Black is excluded from this provision)

4.2. Composition - The pigment, intermix reflectorizing spheres, and fillers shall be uniformly dispersed in the resin and polymer upon heating to application temperature. The material shall be free of dirt and foreign matter and must meet or exceed the compositional requirements given in Table 1. The total resin/binder content must be 22% min 26% max (weight) of total product ingredients.

4.2.1.1. TABLE 1. COMPOSITION (Percentage by Weight)

Test Component	White	Yellow (lead Chromate)	Yellow (Heavy Metal Free)	Black
Glass Beads	30% min	30% min	30% min	N/A
Pigment - TiO2	10 % min	N/A	N/A	N/A
Yellow(PbCrO3 )	N/A	2% min	N/A	N/A
Organic Yellow	N/A	N/A	Federal Color	N/A
Resin/Binder Content	22 % -26%	22%-26%	22 %-26%	22%-26%
Inert Fillers	38 %- 34%	46%-42%	48%-44%	N/A

Note: heavy metal free yellow and black pigment content shall be formulated at the manufactures discretion provided all other requirements are met

4.3. Physical Characteristics:

4.3.1. Color the thermoplastic material after heating for four hours 5 min. at 218 2C (425 3F) and cooled to 25 2C (77 3F) shall meet the following:

White: Daylight reflectance at 45 degrees 0 degrees 80% min.

Yellow: Daylight reflectance at 45 degrees 0 degrees 45% min.

For highway use, the yellow color shall match Federal Test Standard Number 5958 Color 13538 and lie within the following ranges:

$$x = 0.485 \text{ } 0.510$$

$$y = 0.445 \text{ } 0.470$$

4.3.1.1. The chromaticities and luminance factors of ordinary colors of retro-reflecting material shall be determined under the following standard conditions:

(a) angle of illumination: 45 degrees;

(b) direction of view: perpendicular to surface; and

(c) illumination CIE standard illuminant D65.

4.3.2. Bond Strength After heating the thermoplastic material for four (4) hours 5 minutes at 218 2C (425 3F), the bond strength to Portland Cement Concrete (PCC) shall equal or exceed 275 psi (ASTM Standard Test Method for Bond Strength of Thermoplastic Traffic Marking Materials D 4796-88 or ASTM C321-93).

4.3.2.1. Failures of type described in Section 6.1 of ASTM D 4796-88 bond test, must be repeated to obtain a quantifiable number. Failure of types 6.2, 6.3, and 6.4 of ASTM D 4796-88 bond test, must exceed the specified thermoplastic cement brick separation given in Section 4.3.2. herein.

4.3.3. Low Temperatures Cracking (Stress) Resistance for Extended Period The material shall be tested according to AASHTO T 250 Section 7 with Section 7.2.3. modified for an extended cold temperature (-9.4 2C (15 3F) exposure period of 72 hours. Any cracking shall constitute failure of the material to qualify as a non-sealer aggressive bonding material for PCC road surfaces.

4.3.4. Impact Resistance (Gardner Falling Weight) The test specimens should be formed according to the following procedure:

4.3.4.1. Heat approximately 400 grams of material in an open pint can for 4 hours at 218 2C (425 3F).

4.3.4.2: Preheat specimen draw down blade, (2 X 4, with a 1/8 die opening) for approximately one hour at 218 2C (425 3F). The blade is usually placed in the oven containing the sample material during the last hour of sample heating.

4.3.4.3. After heating the sample for four hours, remove the sample and the draw down blade from the oven. Place the 125 mil blade onto a PCC block.

4.3.4.4. Quickly pour the sample 218 2C (425 3F) into the opening of the draw down screed and draw down the sample for the entire length of the concrete block.

4.3.4.5. Allow the drawn down test sample to condition in the open in the standard laboratory atmosphere, 23 2C (73.4 3F) and 50 5% relative humidity.

4.3.4.6. Perform the testing procedure according to ASTM test method D 5420 Section 11. Record and report the type of failure as (a) crack or cracks on the surface, (b) cracks that penetrate the entire thickness, (c) brittle shatter(the test specimen in several pieces after impact), or (d) ductile failure (the specimen is penetrated by a blunt tear).

4.3.4.7. Both the yellow and white non-sealer materials shall have minimum impact resistance of 80 inch pounds (no visible surface cracks).

4.3.5. Impact Resistance (Notched Izod) After heating the material for four hours 5 minutes at 218 2C (425 3F) and forming test specimens according to ASTM T 250 Section 8, both the yellow and white samples shall be a minimum notched impact resistance of 11.0 0.3 inch pounds. The specimens shall be tested both at room temperature 23 2C (73.4 3F) and low temperature 9.4 2C (15 3F) in accordance with ASTM D 256 test method A.

4.3.6. Oil and Grease Resistance The thermoplastic material shall show no signs of deterioration or solubility after motor oil is rubbed vigorously into a sample for 2 minutes and allowed to penetrate for 5 minutes.

4.3.7. Set Time When applied at a temperature range of 21.1 7C (41.2.5 12.5F) and thickness of .090 to .125 inch the material shall set to bear traffic in not more than 2 minutes when the air temperature is 10 2C (50 3F) and not more than ten minutes when the air temperature is 32 2C (90 3F).

4.3.8. Flash Point The thermoplastic material shall have a flash point of not less than 260C (500F) when tested in accordance with ASTM D 92 Flash and Fire Points By Cleveland Open Cup.

## 5. Application Properties

5.1. The thermoplastic material shall readily spray and extrude at temperatures of 204 to 218C (400 to 425F), from approved equipment and produce lines of 90 125 mil thicknesses. Application temperatures shall not exceed 232C (450F).

5.2. The material shall not exude fumes which are toxic, obnoxious or injurious to persons or property when it is heated during application.

5.3. Drop-On Beads Rate: The application of additional glass beads by drop-on methods shall be at a rate of 10 lbs/100 ft.

## 6. Application, Sampling and Testing

### 6.1. Material Application Surfaces:

#### 6.1.1. Asphalt Road Surfaces:

Existing thermoplastic markings may be over laid with thermoplastic material providing that the existing markings (thermoplastic) are less than 30 mils thick, and are securely bonded to the substrate. If the thermoplastic is greater than 30 mils, or not securely bonded to the substrate, then it shall be ground to 30 mils, or removed completely if not securely bonded to the road. .

Existing solvent based paint may be over laid with thermoplastic provided that more than 75% of the road surface is exposed, and there is no more than a single coat of paint on the remaining unexposed area. If more than one layer of paint exists, the paint is not securely anchored to the substrate, or there is less than 75% of the road surface exposed, then the paint must be thoroughly removed.

Existing polyester, epoxy, or other type pavement marking paints must be completely removed from all road surfaces prior to the installation of thermoplastic material.

#### 6.1.2. Concrete (PCC) Road Surfaces:

All existing thermoplastic, polyester, epoxy, or other type pavement marking paints must be removed completely.

### 6.2 Material Application:

Durability of road markings is directly related to the applied mil thickness of the thermoplastic material. Therefore, in order to achieve the performance described herein, the subsequent requirements listed below must be followed:

#### 6.2.1. Pavement Surface:

The pavement surfaces where thermoplastic is to be applied must be clean and dry and at a minimum temperature of 50F to 65F and rising depending upon the application method being used (Screed extrude @ 50F, Spray@ 55F and Ribbon extrude @ 65F).

### 6.2.2. Air Temperature:

The minimum ambient air temperature should be no less than 50F and rising at the time of actual marking. The temperature should be verified at the start of each days work and monitored accordingly throughout the day. Application at lower temperatures is permitted only if the road temperature is above minimum temperature requirements and the screed extrude method of application is being used. Failure to comply with temperature specifications can lead to premature bond failure.

### 6.2.3. Application Thickness:

All minimum application thicknesses shall be measured above the plane of the road surface for the thermoplastic material only.

Drop-on glass beads shall not be included in the measurement, or if so, then appropriate allowances shall be made for the added mil thickness:

Symbols and Legends 125 mils

Stop bars, crosswalks 125 mils

Longitudinal Edge Lines 90 mils

Longitudinal Skip Lines 90 mils

### 6.3. Inspection:

Success of the project depends upon the proper continuous inspection of the installation process by authorized DOT personnel. Failure to properly monitor and record compliance with the manufacturers recommended procedures, or specification application requirements can lead to a substandard installation.

The thermoplastic material supplied by the manufacturer shall be manufactured in accordance with the specifications described herein. A verifiable material certification report showing detailed analysis and compliance shall be provided by the material manufacturer, and submitted to the State Inspecting Engineer by the contractor performing the installation work, and made part of the Inspecting Engineers project file.

## 7. Storage Life

The material shall maintain the requirements of this specification for a minimum period of one year. The thermoplastic material must melt uniformly with no evidence of skins or unmelted particles for this one year time period. Any material failing to do so shall be replaced by the manufacturer at their expense.

## 8. Packaging and Markings

The thermoplastic material shall be packaged in suitable containers to which it will not adhere during shipment and storage. The container of thermoplastic material shall weigh approximately 50 lb. (23kg). Each container shall designate user information, manufacturers name and address, batch number and date of manufacture. Each batch manufactured shall have its own separate number. The label shall carry appropriate user warnings and instructions.

## **Specifications for Thermoplastic Materials Applied to PCC and Aged Asphalt Without Sealer or Primer**

### 1. Scope

- 1.1. This specification covers a reflectorized adhesive thermoplastic pavement striping material that is applied to road surfaces, including Portland Cement Concrete (PCC) and aged asphalt without need of a primer/sealer. The material is applied to the road surface in a molten state by mechanical means with surface application of glass beads at a rate specified by the manufacturer. Upon cooling to normal pavement temperature, it produces an adherent reflectorized stripe of specified thickness and width with limited thermal/seasonal deformation as specified by the manufacturer. This material must be applied at thicknesses greater than or equal to 90 mils for optimum durability. In order to qualify as a non-sealer thermoplastic that can be applied to concrete surfaces without a sealer, the material must meet or exceed the requirements listed in Section 4.

### 2. Referenced Documents

#### 2.1. Federal Standards

Federal Test Standard No. 5958  
AASHTO Standard Test Method M 249  
AASHTO Standard Test Method T 250  
ASTM Standard Test Method D 4796 (Bond Strength)  
ASTM Standard Test Method D 5420 (Impact Resistance)  
ASTM Standard Test Method D 256 (Notched Izod Impact Resistance)  
Others as referenced within specification

### 3. Materials

- 3.1. The thermoplastic material shall be homogeneously composed of pigments, resins, polymers (adhesive constituent), glass reflectorizing spheres and other fillers.
- 3.2. The thermoplastic material shall be available in a variety of surface delineation colors from the same manufacturer. The manufacturer shall have the option of formulating the material according to his own specifications. However, certain physical and chemical requirements specified in Section 4 must be satisfied in order to qualify as a non-primed striping application for PCC and aged asphalt surfaces.
- 3.3. The material shall not exude fumes which are toxic, or injurious to persons or properties upon heating to application temperature.
- 3.4. Glass Beads (Intermix and Drop-on) – The beads shall be coated and conform to AASHTO Specification M-247.
- 3.5. Specific Gravity – The specific gravity of the white and yellow thermoplastic traffic line material shall not exceed 2.15.

### 4. Requirements

- 4.1. NTPEP Test Program – Material must have been applied, without surface primer, on two NTPEP Decks (PCC) and evaluated for a period of at least one year. A minimum of 90% of the original pavement striping must be intact on the PCC decks after a one year review period. The percent retention is calculated

based on the measured test area square footage (neglecting mil thickness wear down) minus the road surface areas that are exposed due to cracking and chipping away of thermoplastic from the concrete surface caused by product bond failure to the substrate. ( Black is excluded from this provision)

4.2. Composition – The pigment, intermix reflectorizing spheres, and fillers shall be uniformly dispersed in the resin and polymer upon heating to application temperature. The material shall be free of dirt and foreign matter and must meet or exceed the compositional requirements given in Table 1. The total resin/binder content must be 22% min – 26% max (weight) of total product ingredients.

4.2.1.1. TABLE 1. COMPOSITION (Percentage by Weight)

Test Component	White	Yellow (Lead Chromate)	Yellow (Heavy Metal Free)	Black
Glass Beads	30 % min	30 % min	30 % min	N/A
Pigment – TiO2	10 % min	N/A	N/A	N/A
Yellow (PbCrO3)	N/A	2 % min	N/A	N/A
Organic Yellow	N/A	N/A	Federal Color	N/A
Resin/Binder Content	22 % - 26 %	22 % - 26 %	22 % - 26 %	22%-26%
Inert Fillers	38 % - 34 %	46 % - 42 %	48 % - 44 %	N/A

Note: heavy metal free yellow and black pigment content shall be formulated at the manufactures discretion provided all other requirements are met

4.3. Physical Characteristics:

4.3.1. Color – The thermoplastic material after heating for four hours  $\pm$  5 min. at  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ) and cooled to  $25 \pm 2^\circ\text{C}$  ( $77 \pm 3^\circ\text{F}$ ) shall meet the following:

White: Daylight reflectance at 45 degrees – 0 degrees – 80% min.  
 Yellow: Daylight reflectance at 45 degrees – 0 degrees – 45% min.  
 For highway use, the yellow color shall match Federal Test Standard Number 5958 – Color 13538 and lie within the following ranges:  
 $x = 0.485 - 0.510$   
 $y = 0.445 - 0.470$

4.3.1.1. The chromaticities and luminance factors of ordinary colors of retro-reflecting material shall be determined under the following standard conditions:

- (a) angle of illumination: 45 degrees;
- (b) direction of view: perpendicular to surface; and
- (c) illumination CIE standard illuminant D65.

- 4.3.2. Bond Strength – After heating the thermoplastic material for four (4) hours  $\pm$  5 minutes at  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ), the bond strength to Portland Cement Concrete (PCC) shall equal or exceed 275 psi (ASTM Standard Test Method for Bond Strength of Thermoplastic Traffic Marking Materials – D 4796-88 or ASTM C321-93).
- 4.3.2.1. Failures of type described in Section 6.1 of ASTM D 4796-88 bond test, must be repeated to obtain a quantifiable number. Failure of types 6.2, 6.3, and 6.4 of ASTM D 4796-88 bond test, must exceed the specified thermoplastic – cement brick separation given in Section 4.3.2. herein.
- 4.3.3. Low Temperatures Cracking (Stress) Resistance for Extended Period – The material shall be tested according to AASHTO T 250 Section 7 with Section 7.2.3. modified for an extended cold temperature ( $-9.4 \pm 2^\circ\text{C}$  ( $15 \pm 3^\circ\text{F}$ )) exposure period of 72 hours. Any cracking shall constitute failure of the material to qualify as a non-sealer aggressive bonding material for PCC road surfaces.
- 4.3.4. Impact Resistance (Gardner Falling Weight) – The test specimens should be formed according to the following procedure:
- 4.3.4.1. Heat approximately 400 grams of material in an open pint can for 4 hours at  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ).
- 4.3.4.2. Preheat specimen draw down blade, (2" X 4", with a 1/8" die opening) for approximately one hour at  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ). The blade is usually placed in the oven containing the sample material during the last hour of sample heating.
- 4.3.4.3. After heating the sample for four hours, remove the sample and the draw down blade from the oven. Place the 125 mil blade onto a PCC block.
- 4.3.4.4. Quickly pour the sample  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ) into the opening of the draw down screed and draw down the sample for the entire length of the concrete block.
- 4.3.4.5. Allow the drawn down test sample to condition in the open in the standard laboratory atmosphere,  $23 \pm 2^\circ\text{C}$  ( $73.4 \pm 3^\circ\text{F}$ ) and  $50 \pm 5\%$  relative humidity.
- 4.3.4.6. Perform the testing procedure according to ASTM test method D 5420 Section 11. Record and report the type of failure as (a) crack or cracks on the surface, (b) cracks that penetrate the entire thickness, (c) brittle shatter (the test specimen in several pieces after impact), or (d) ductile failure (the specimen is penetrated by a blunt tear).
- 4.3.4.7. Both the yellow and white non-sealer materials shall have minimum impact resistance of 80 inch pounds (no visible surface cracks).
- 4.3.5. Impact Resistance (Notched Izod) – After heating the material for four hours  $\pm$  5 minutes at  $218 \pm 2^\circ\text{C}$  ( $425 \pm 3^\circ\text{F}$ ) and forming test specimens according to ASTM T 250 Section 8, both the yellow and white samples shall be a minimum notched impact resistance of  $11.0 \pm 0.3$  inch pounds. The specimens shall be tested both at room temperature  $23 \pm 2^\circ\text{C}$  ( $73.4 \pm 3^\circ\text{F}$ ) and low temperature  $-9.4 \pm 2^\circ\text{C}$  ( $15 \pm 3^\circ\text{F}$ ) in accordance with ASTM D 256 test method A.
- 4.3.6. Oil and Grease Resistance – The thermoplastic material shall show no signs of deterioration or solubility after motor oil is rubbed vigorously into a sample for 2 minutes and allowed to penetrate for 5 minutes.

4.3.7. Set Time – When applied at a temperature range of  $211 \pm 7^{\circ}\text{C}$  ( $412.5 \pm 12.5^{\circ}\text{F}$ ) and thickness of .090 to .125 inch the material shall set to bear traffic in not more than 2 minutes when the air temperature is  $10 \pm 2^{\circ}\text{C}$  ( $50 \pm 3^{\circ}\text{F}$ ) and not more than ten minutes when the air temperature is  $32 \pm 2^{\circ}\text{C}$  ( $90 \pm 3^{\circ}\text{F}$ ).

4.3.8. Flash Point – The thermoplastic material shall have a flash point of not less than  $260^{\circ}\text{C}$  ( $500^{\circ}\text{F}$ ) when tested in accordance with ASTM D 92 “Flash and Fire Points By Cleveland Open Cup.”

## 5. Application Properties

5.1. The thermoplastic material shall readily spray and extrude at temperatures of  $204$  to  $218^{\circ}\text{C}$  ( $400$  to  $425^{\circ}\text{F}$ ), from approved equipment and produce lines of 90 – 125 mil thicknesses. Application temperatures shall not exceed  $232^{\circ}\text{C}$  ( $450^{\circ}\text{F}$ ).

5.2. The material shall not exude fumes which are toxic, obnoxious or injurious to persons or property when it is heated during application.

5.3. Drop-On Beads Rate – The application of additional glass beads by drop-on methods shall be at a rate of 10 lbs/100<sup>2</sup> ft.

## 6. Application, Sampling and Testing

### 6.1. Material Application Surfaces:

#### 6.1.1. Asphalt Road Surfaces:

Existing thermoplastic markings may be over laid with thermoplastic material providing that the existing markings (thermoplastic) are less than 30 mils thick, and are securely bonded to the substrate. If the thermoplastic is greater than 30 mils, or not securely bonded to the substrate, then it shall be ground to 30 mils, or removed completely if not securely bonded to the road.

Existing solvent based paint may be over laid with thermoplastic provided that more than 75% of the road surface is exposed, and there is no more than a single coat of paint on the remaining unexposed area. If more than one layer of paint exists, the paint is not securely anchored to the substrate, or there is less than 75% of the road surface exposed, then the paint must be thoroughly removed.

Existing polyester, epoxy, or other type pavement marking paints must be completely removed from all road surfaces prior to the installation of thermoplastic material.

#### 6.1.2. Concrete (PCC) Road Surfaces:

All existing thermoplastic, polyester, epoxy, or other type pavement marking paints must be removed completely.

## 6.2. Material Application:

Durability of road markings is directly related to the applied mil thickness of the thermoplastic material. Therefore, in order to achieve the performance described herein, the subsequent requirements listed below must be followed:

### 6.2.1. Pavement Surface:

The pavement surfaces where thermoplastic is to be applied must be clean and dry and at a minimum temperature of 50°F to 65°F and rising depending upon the application method being used (Screed extrude @ 50°F, Spray @ 55°F and Ribbon extrude @ 65°F).

### 6.2.2. Air Temperature:

The minimum ambient air temperature should be no less than 50°F and rising at the time of actual marking. The temperature should be verified at the start of each day's work and monitored accordingly throughout the day. Application at lower temperatures is permitted only if the road temperature is above minimum temperature requirements and the screed extrude method of application is being used. Failure to comply with temperature specifications can lead to premature bond failure.

### 6.2.3. Application Thickness:

All minimum application thicknesses shall be measured above the plane of the road surface for the thermoplastic material only. Drop-on glass beads shall not be included in the measurement, or if so, then appropriate allowances shall be made for the added mil thickness:

Symbols and Legends 125 mils  
Stop bars, crosswalks 125 mils  
Longitudinal Edge Lines 90 mils  
Longitudinal Skip Lines 90 mils

## 6.3. Inspection:

Success of the project depends upon the proper continuous inspection of the installation process by authorized DOT personnel. Failure to properly monitor and record compliance with the manufacturer's recommended procedures, or specification application requirements can lead to a substandard installation.

The thermoplastic material supplied by the manufacturer shall be manufactured in accordance with the specifications described herein. A verifiable material certification report showing detailed analysis and compliance shall be provided by the material manufacturer, and submitted to the State Inspecting Engineer by the contractor performing the installation work, and made part of the Inspecting Engineer's project file.

## 7. Storage Life

The material shall maintain the requirements of this specification for a minimum period of one year. The thermoplastic material must melt uniformly with no evidence of skins or unmelted particles for this one year time period. Any material failing to do so shall be replaced by the manufacturer at their expense.

## 8. Packaging and Markings

The thermoplastic material shall be packaged in suitable containers to which it will not adhere during shipment and storage. The container of thermoplastic material shall weigh approximately 50 lb. (23kg). Each container shall designate user information, manufacturer's name and address, batch number and date of manufacture. Each batch manufactured shall have its own separate number. The label shall carry appropriate user warnings and instructions.

**CITY OF SPRINGFIELD  
BID FORM – PROPOSAL  
IFB #029-2010**

SUBMITTED BY \_\_\_\_\_  
Company Name

Pursuant to and in accordance with the above stated Invitation for Bid, the undersigned hereby declares that they have examined the IFB documents and specifications for the item(s) listed below.

The undersigned proposes and agrees, if their Bid is accepted to furnish the item(s) submitted below, including delivery to Springfield, Missouri in accordance with the delivery schedule indicated below and according to the prices products/services information submitted. CITY OF SPRINGFIELD

**INVITATION FOR BID #029-2010**

**SCHEDULE OF PRICES**

**SHEET REFLECTIVE MATERIALS**

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***SIGN SHEETING***

**Type I: Reflective Sheeting, Punched & Non-punched, Engineer Grade or Super Engineer Grade, Various Colors, Scotchlite or equal.**

**Performance life: \_\_\_\_\_ years**

**Type I: Reflective Sheeting, Non-punched, Engineer Grade, Various Colors, 3M 3200 series or equal. Colors Needed: White, Red, Green, Brown, Blue, Orange**

<u>Item</u>	<u>Estimated Usage</u>	<u>Size</u>	<u>Type</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
1	20 rolls	6" x 50 yd	PS	3M3200 or equal					
2.	15 rolls	6-3/4" x 50 yd	PS	3M3200 or equal					
3.	15 rolls	9" x 50 yd	PS	3M3200 or equal					
4.	10 rolls	15" x 50 yd	PS	3M3200 or equal					
5.	10 rolls	18" x 50 yd	PS	3M3200 or equal					
6.	5 rolls	24" x 50 yd	PS	3M3200 or equal					
7.	5 rolls	30" x 50 yd	PS	3M3200 or equal					

**Type II: Reflective Sheeting, High Intensity Grade, Glass Beaded Only, Pressure Sensitive Avery T5500 Series or equal. Colors: White, Red, Green, Brown, Blue, Orange Performance life: \_\_\_\_\_years**

<u>Item</u>	<u>Estimated Usage</u>	<u>Size</u>	<u>Type</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
8.	5 rolls	15" x 50 yd	PS	T5500 or equal					
9.	5 rolls	18" x 50 yd	PS	T5500 or equal					
10.	5 rolls	24" x 50 yd	PS	T5500 or equal					
11.	10 rolls	30" x 50 yd	PS	T5500 or equal					

Sign Sheeting, Non-reflective, Pressure Sensitive. Performance life: \_\_\_\_\_years

<u>Item</u>	<u>Estimated Usage</u>	<u>Size</u>	<u>Type</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
12.	10 rolls	15" x 50 yd	Black/White/Red						
13.	10 rolls	24" x 50 yd	Black/White/Red						
14.	10 rolls	30" x 50 yd	Black/White/Red						

Type IV Sign Sheeting, High Intensity, Prismatic with opaque adhesive, 3M 3930x series or equivalent, Pressure Sensitive. Performance life: \_\_\_\_\_years

<u>Item</u>	<u>Estimated Usage</u>	<u>Size</u>	<u>Type</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
15.	5 rolls	15" x 50 yd	White	3M3930x or equal					
16.	5 rolls	18" x 50 yd	White, Orange, Yellow, Green, Blue, Brown	3M3930x or equal					
17.	5 rolls	24" x 50 yd	White, Orange, Yellow, Green, Blue, Brown	3M3930x or equal					
18.	5 rolls	30" x 50 yd	White, Orange, Yellow, Green, Blue, Brown	3M3930x or equal					
19.	5 rolls	30" x 50 yd	Florescent Yellow/Green	3M3930x or equal					

Transparent Acrylic Colored Film, 3M ElectroCut Film 1177c or equal, Pressure Sensitive. Performance life: \_\_\_\_\_years

<u>Item</u>	<u>Estimated Usage</u>	<u>Size</u>	<u>Type</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
20.	15 rolls	18" x 50 yd	Green, Brown	3M1177c or equal					

Hot Applied Retro-reflective Thermoplastic Marking Materials. Performance life: \_\_\_\_\_years

<u>Item</u>	<u>Estimated Usage</u>	<u>Description</u>	<u>Color</u>	<u>Mfg</u>	<u>Type</u>	<u>Series</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
21.	500 bags	Bag form, provided in 50 lb. bags	Yellow						
22.	600 bags	Bag form, provided in 50 lb. bags	White						

Hot Applied Retro-reflective Aggressive Thermoplastic Marking Materials. Performance life: \_\_\_\_\_years

<u>Item</u>	<u>Estimated Usage</u>	<u>Description</u>	<u>Color</u>	<u>Mfg</u>	<u>Type</u>	<u>Series</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
23.	500 bags	Bag form, provided in 50 lb. bags	Yellow						
24.	600 bags	Bag form, provided in 50 lb. bags	White						

Pre-formed Hot Applied Thermoplastic, Flametape, or equal, 90mil. Performance life: \_\_\_\_\_ years

<u>Item</u>	<u>Estimated Usage</u>	<u>Description</u>	<u>Series</u>	<u>Mfg</u>	<u>Type</u>	<u>Series</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
25.	240 ft	24" x 36" pieces	702429 or equal						
26.	100 each	8 ft left/right/ turn arrows	700839 or equal						
27.	20 each	6 ft. straight arrows	700639 or equal						
28.	20 each	9.6 ft straight arrows	709539 or equal						
29.	20 each	Bike symbols, 5ft 8in x 3 ft	70589 or equal						
30.	20 each	Gator Teeth - triangles 2 ft. x 3 ft.	702489 or equal						

Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, White Background, 3M 3930X or equal. Performance life: \_\_\_\_\_ years

<u>Item</u>	<u>Estimated Usage</u>	<u>Legend/ MUTCD No. / Size (inches)</u>			<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
31.	75 each	One Way Arrow Left	R6-1L	12 x 36			
32.	75 each	One Way Arrow Right	R6-1R	12 x 36			
33.	10 each	No Left Turn – Symbol	R3-2	24 x 24			
34.	10 each	No Right Turn – Symbol	R3-1	24 x 24			
35.	10 each	Center Lane sign	R3-9b	24 x 30			

Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, White Background. 3M 3930X or equal (continued)

<u>Item</u>	<u>Estimated Usage</u>	<u>Legend/ MUTCD No. / Size (inches)</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
36.	200 each	Cross Traffic Does Not Stop (w/arrows) W4-4P 18 x 30			
37.	30 each	Speed Limit 20 R2-1 24 x 30			
38.	30 each	Speed Limit 25 R2-1 24 x 30			
39.	20 each	Speed Limit 25 w/ yellow border: 4" sides, 9" bottom, special 32 x 42			
40.	50 each	Speed Limit 30 R2-1 24 x 30			
41.	50 each	Speed Limit 35 R2-1 24 x 30			
42.	20 each	Speed Limit 40 R2-1 24 x 30			
43.	25 each	Right Lane Must Turn Right R3-7R 30 x 30			
44.	20 each	Left Turn or Straight Only Symbol R3-6L 30 x 36			
45.	75 each	Keep Right Symbol R4-7 18 x 24			
46.	30 each	Keep Right Symbol R4-7 24 x 30			
47.	50 each	Do Not Enter Symbol R5-1 30 x 30			
48.	25 each	Left Turn on Green w/Ball Symbol R10-12 24 x 30			
49.	10 each	No Trucks Symbol R5-2 24 x 24			
50.	30 each	Stop Ahead Symbol W3-1A 30 x 30			
51.	10 each	Signal Ahead Symbol W3-3 30 x 30			
52.	10 each	Road Closed R11-2 48 x 30			
53.	30 each	Road Closed Local Traffic Only R11-4 60 x 30			

Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, White Background. 3M 3930X or equal (continued)

<u>Item</u>	<u>Estimated Usage</u>	<u>Legend/ MUTCD No. / Size (inches)</u>	<u>Unit Price</u>	<u>Extension</u>	<u>Delivery</u>
54.	10 each	Sidewalk Closed R9-9 24 x 12			
55.	150 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			
56.	50 each	No Parking W/A R w/o "Anytime" R7-1R 12 x 18			
57.	150 each	No Parking W/D A w/o "Anytime" R7-1D 12 x 18			
58.	50 each	No Parking (symbol) W/R R8-3R 12 x 18			
59.	50 each	No Parking (symbol) W/L R8-3L 12 x 18			
60.	50 each	No Parking (symbol) W/D R8-3D 12 x 18			
61.	50 each	No Parking (symbol) W/R R8-3R 18 x 24			
62.	50 each	No Parking (symbol) W/L R8-3L 18 x 24			
63.	50 each	No Parking (symbol) W/D R8-3D 18 x 24			
64.	10 each	No Parking/Stop/Stand (symbol NP) W/L 18 x 24			
65.	10 each	No Parking/Stop/Stand (symbol NP) W/R 18 x 24			
66.	10 each	No Parking/Stop/Stand (symbol NP) W/D 18 x 24			
67.	50 each	Handicap Parking R7-8 12 x 18			
68.	25 each	2 Hr -8-5 M-F D/A (translucent green) R7-108D 12 x 18			
69.	25 each	2 Hr -8-5 M-F A/L (translucent green) R7-108L 12 x 18			
70.	25 each	2 Hr -8-5 M-F A/R (translucent green) R7-108R 12 x 18			
71.	150 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			

Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Yellow Background, 3M 3930X or equal. Performance life: \_\_\_\_\_ years

Item	Estimated Usage	Legend/ MUTCD No. / Size (inches)			Unit Price	Extension	Delivery
72.	50 each	R. R. Adv Warning Sym	W10-1	30			
73.	10 each	Chevron	W1-8	18 x 24			
74.	75 each	Stripe Board	OM-3L/R	8 x 18			
75.	40 each	Stripe Board	OM-3L/R	10 x 30			
76.	10 each	Street Ends	W14-1	24 x 24			
77.	10 each	Avenue Ends	W14-1a	24 x 24			
78.	10 each	Street Ends arrow left	W14-1L	24 x 24			
79.	10 each	Street Ends arrow right	W14-1R	24 x 24			
80.	10 each	Avenue Ends arrow left	W14-1aL	24 x 24			
81.	10 each	Avenue Ends arrow right	W14-1aR	24 x 24			
82.	5 each	Fire Station Symbol	W11-8	30 x 30			
83.	10 each	S Curve	W1-4L/R	30 x 30			
84.	10 each	Two 90 Degree Curve	W1-3	30 x 30			
85.	10 each	90 Degree Curve with Speed	W1-1a	30 x 30			
86.	10 each	45 Degree Curve with Speed	W1-2a	30 x 30			
87.	10 each	Splitter Sign	W12-1	24 x 24			
88.	10 each	Bike Warning Sign	W11-1	24 x 24			
89.	10 each	Share the Road	W16-1	18 x 24			
90.	10 each	4-way intersection ahead warning sign	W2-1	30 x 30			

**Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Yellow Background, 3M 3930X or equal (continued)**

<b>Item</b>	<b>Estimated Usage</b>	<b><u>Legend/ MUTCD No. / Size (inches)</u></b>			<b><u>Unit Price</u></b>	<b><u>Extension</u></b>	<b><u>Delivery</u></b>
91.	10 each	Directional Arrow - R/L	W1-6 R/L	24 x 48			
92.	10 each	Directional Arrow - D	W1-7 D	24 x 48			
93.	10 each	No Outlet	W14-2	24 x 24			
94.	10 each	Not a Through Street	W14-1b	24 x 24			
95.	5 each	R/L Lane Ends Merge L/R	W9-2	30 x 30			

**Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Red Background, 3M 3930X or equal. Performance life: \_\_\_\_\_ years**

<b>Item</b>	<b>Estimated Usage</b>	<b><u>Legend/ MUTCD No. / Size (inches)</u></b>			<b><u>Unit Price</u></b>	<b><u>Extension</u></b>	<b><u>Delivery</u></b>
96.	2,000 each	Stop	R1-1	30 x 30			
97.	50 each	Stop	R1-1	36 x 36			
98.	50 each	Yield	R1-2	36			
99.	10 each	3-way Stop plaques	R1-3-3	12 x 12			
100.	200 each	4-way stop plaques	R1-3-4	12 x 12			

**Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Florescent Yellow/Green Background, 3M 3930X or equal. Performance life: \_\_\_\_\_ years**

<b>Item</b>	<b>Estimated Usage</b>	<b><u>Legend/ MUTCD No. / Size (inches)</u></b>			<b><u>Unit Price</u></b>	<b><u>Extension</u></b>	<b><u>Delivery</u></b>
101.	60 each	School Advance Symbol	S1-1	30 x 30			

**Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Florescent Yellow/Green Background, 3M 3930X or equal (continued)**

<b>Item</b>	<b>Estimated Usage</b>	<b>Legend/ MUTCD No. / Size (inches)</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Delivery</b>
102.	30 each	School diagonal arrow (left) W16-7p 12 x 30			
103.	10 each	School "AHEAD" W16-9p 12 x 30			
104.	10 each	School "SCHOOL" S4-3 12 x 30			
105.	10 each	School Speed Limit 20 when Flashing S5-1 24 x 48			

**Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Florescent Orange Background, 3M 3930X or equal. Performance life: \_\_\_\_\_ years**

<b>Item</b>	<b>Estimated Usage</b>	<b>Legend/ MUTCD No. / Size (inches)</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Delivery</b>
106.	10 each	Detour L/R/S M4-9 30 x 24			
107.	10 each	Detour Arrow L/R M4-10 48 x 18			
108.	5 each	End Detour M4-8a 24 x 18			
109.	5 each	Road Closed R11-2 48 x 30			
110.	5 each	R/L Lane Closed Ahead W20-5R/L 30 x 30			
111.	5 each	Detour Ahead W20-2 30 x 30			
112.	5 each	Road Work Ahead W20-1 30 x 30			
113.	5 each	Businesses Open special 24 x 18			
114.	5 each	Road Closed Ahead W20-3 36 x 36			
115.	5 each	R/L Lane Closed Ahead W20-5R/L 36 x 36			
116.	5 each	Detour Ahead W20-2 36 x 36			
117.	5 each	Road Work Ahead W20-1 36 x 36			

Sign Faces, High Intensity, with Opaque Adhesive, Pressure Sensitive, Blue Background, 3M 3930X or equal. Performance life: \_\_\_\_\_years

Item	Estimated Usage	Legend/ MUTCD No. / Size (inches)	Unit Price	Extension	Delivery
118.	10 each	Hospital Sign D9-2 24 x 24			
119.	10 each	Hospital Sign D9-2L/R 24 x 36			

Sign Faces, Engineer Grade, Pressure Sensitive, 3M 3200 or equal. Performance life: \_\_\_\_\_years

Item	Estimated Usage	Legend/ MUTCD No. / Size (inches)	Unit Price	Extension	Delivery
120.	150 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			
121.	50 each	No Parking W/A R w/o "Anytime" R7-1R 12 x 18			
122.	150 each	No Parking W/D A w/o "Anytime" R7-1D 12 x 18			
123.	50 each	No Parking (symbol) W/R R8-3R 12 x 18			
124.	50 each	No Parking (symbol) W/L R8-3L 12 x 18			
125.	50 each	No Parking (symbol) W/D R8-3D 12 x 18			
126.	50 each	No Parking (symbol) W/R R8-3R 18 x 24			
127.	50 each	No Parking (symbol) W/L R8-3L 18 x 24			
128.	50 each	No Parking (symbol) W/D R8-3D 18 x 24			
129.	10 each	No Parking/Stop/Stand (symbol NP) W/L 18 x 24			
130.	10 each	No Parking/Stop/Stand (symbol NP) W/R 18 x 24			
131.	10 each	No Parking/Stop/Stand (symbol NP) W/D 18 x 24			

**Sign Faces, Engineer Grade, Pressure Sensitive, 3M 3200 or equal (continued)**

<b>Item</b>	<b>Estimated Usage</b>	<b>Legend/ MUTCD No. / Size (inches)</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Delivery</b>
132.	50 each	Handicap Parking R7-8 12 x 18			
133.	25 each	2 Hr -8-5 M-F D/A (translucent green) R7-108D 12 x 18			
134.	25 each	2 Hr -8-5 M-F A/L (translucent green) R7-108L 12 x 18			
135.	25 each	2 Hr -8-5 M-F A/R (translucent green) R7-108R 12 x 18			
136.	25 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			
137.	25 each	No Parking W/A R w/o "Anytime" R7-1R 12 x 18			
138.	25 each	No Parking W/D A w/o "Anytime" R7-1D 12 x 18			
139.	25 each	Res. Per. Parking -7-7, Exc S/S-A/L (translucent green) 12 x 18			
140.	25 each	Res. Per. Parking -7-7, Exc S/S-D/R (translucent green) 12 x 18			
141.	25 each	Res. Per. Parking -7-7, Exc S/S-D/D (translucent green) 12 x 18			
142.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
143.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
144.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
145.	25 each	Res. Per. Parking -11-6, A/L (translucent green) 12 x 18			
146.	25 each	Res. Per. Parking -11-6, A/R (translucent green) 12 x 18			
147.	25 each	Res. Per. Parking -11-6, A/D (translucent green) 12 x 18			
148.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (trans. green) 12 x 18			
149.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (trans. green) 12 x 18			
150.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (translucent green) 12 x 18			

Sign Faces, High Intensity, with Opaque Adhesive, (3M 3930x or equal), Pressure Sensitive, White Background. Performance life: \_\_\_\_\_years

Item	Estimated Usage	Legend/ MUTCD No. / Size (inches)	Unit Price	Extension	Delivery
151.	150 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			
152.	50 each	No Parking W/A R w/o "Anytime" R7-1R 12 x 18			
153.	150 each	No Parking W/D A w/o "Anytime" R7-1D 12 x 18			
154.	50 each	No Parking (symbol) W/R R8-3R 12 x 18			
155.	50 each	No Parking (symbol) W/L R8-3L 12 x 18			
156.	50 each	No Parking (symbol) W/D R8-3D 12 x 18			
157.	50 each	No Parking (symbol) W/R R8-3R 18 x 24			
158.	50 each	No Parking (symbol) W/L R8-3L 18 x 24			
159.	50 each	No Parking (symbol) W/D R8-3D 18 x 24			
160.	10 each	No Parking/Stop/Stand (symbol NP) W/L 18 x 24			
161.	10 each	No Parking/Stop/Stand (symbol NP) W/R 18 x 24			
162.	10 each	No Parking/Stop/Stand (symbol NP) W/D 18 x 24			
163.	50 each	Handicap Parking R7-8 12 x 18			
164.	25 each	2 Hr -8-5 M-F D/A (translucent green) R7-108D 12 x 18			
165.	25 each	2 Hr -8-5 M-F A/L (translucent green) R7-108L 12 x 18			
166.	25 each	2 Hr -8-5 M-F A/R (translucent green) R7-108R 12 x 18			
167.	25 each	No Parking W/A L w/o "Anytime" R7-1L 12 x 18			

**Sign Faces, High Intensity, with Opaque Adhesive, (3M 3930x or equal), Pressure Sensitive, White Background (continued)**

<b>Item</b>	<b>Estimated Usage</b>	<b><u>Legend/ MUTCD No. / Size (inches)</u></b>	<b><u>Unit Price</u></b>	<b><u>Extension</u></b>	<b><u>Delivery</u></b>
168.	25 each	No Parking W/A R w/o "Anytime" R7-1R 12 x 18			
169.	25 each	No Parking W/D A w/o "Anytime" R7-1D 12 x 18			
170.	25 each	Res. Per. Parking -7-7, Exc S/S-A/L (translucent green) 12 x 18			
171.	25 each	Res. Per. Parking -7-7, Exc S/S-D/R (translucent green) 12 x 18			
172.	25 each	Res. Per. Parking -7-7, Exc S/S-D/D (translucent green) 12 x 18			
173.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
174.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
175.	25 each	Res. Per. Parking - Exc Sun -7-7 A/L (translucent green) 12 x 18			
176.	25 each	Res. Per. Parking -11-6, A/L (translucent green) 12 x 18			
177.	25 each	Res. Per. Parking -11-6, A/R (translucent green) 12 x 18			
178.	25 each	Res. Per. Parking -11-6, A/D (translucent green) 12 x 18			
179.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (trans. green) 12 x 18			
180.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (trans. green) 12 x 18			
181.	25 each	Res. Per. Parking -8-5, Exc S/S Sept-May A/L (translucent green) 12 x 18			

**DELIVERY: FOB DESTINATION**

**ACCEPT VISA P-CARD: YES\_\_\_\_\_ NO\_\_\_\_\_**

Prompt Payment Discount \_\_\_\_\_% \_\_\_\_\_ Days, Net \_\_\_\_\_ Prompt Payment Discount \_\_\_\_\_% \_\_\_\_\_ Days, Net \_\_\_\_\_ Days



**CITY OF SPRINGFIELD  
STATEMENT OF "NO BID"  
IFB #029-2010**

**RETURN THIS PAGE ONLY IF YOUR COMPANY PROVIDES THE PRODUCTS/SERVICES BEING BID AND DECLINES  
TO DO SO.**

WE, THE UNDERSIGNED, HAVE DECLINED TO BID ON YOUR **IFB #029-2010** FOR **PAVEMENT MARKING & SIGN  
FACE MATERIALS** FOR THE FOLLOWING REASON(S):

\_\_\_\_\_ SPECIFICATIONS ARE TOO "TIGHT," I.E. GEARED TOWARD ONE BRAND OR MANUFACTURER ONLY  
(PLEASE EXPLAIN BELOW).

\_\_\_\_\_ INSUFFICIENT TIME TO RESPOND TO INVITATION FOR BID.

\_\_\_\_\_ OUR PRODUCT SCHEDULE WOULD NOT PERMIT US TO PERFORM.

\_\_\_\_\_ UNABLE TO MEET SPECIFICATIONS.

\_\_\_\_\_ UNABLE TO MEET INSURANCE REQUIREMENTS.

\_\_\_\_\_ SPECIFICATIONS UNCLEAR (PLEASE EXPLAIN BELOW).

\_\_\_\_\_ OTHER (PLEASE SPECIFY BELOW).

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

SIGNATURE AND TITLE: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

DATE: \_\_\_\_\_