

BID REGISTRATION

You **MUST** register using this form in order to receive notice of any addenda to these documents. Please fax the completed form to the Procurement Division as soon as possible. It is the vendor's responsibility to verify if addenda have been issued.

Bid Number: 17-068, Painted Pavement Markings and Thermoplastic Pavement Markings

Description: Provide the necessary labor, supervision, material, equipment, and tools to supply, install, and remove traffic markings on Polk County maintained roadways.

Receiving Period: Wednesday, December 21, 2016, prior to 2:00 p.m.

Bid Opening: Wednesday, December 21, 2016, 2:00 p.m.

Special Conditions: This is an annual bid therefore, there is no established budget. The services contained within this bid are utilized on an as-needed basis. Prior bid information is available on our website: <http://www.polk-county.net/boccsite/departments/budget-and-procurement/bids/multi-year-bids/>.

This form is for bid registration only. Please scroll down for additional information.

**BIDDER REGISTRATION
FAX THIS FORM BACK IMMEDIATELY
FAX: (863) 534-6789**

Carefully complete this form and e-mail or fax it to the Procurement Division. You must submit one form for each bid that you are registering for.

Company Name: _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ E-mail: _____

Cut along the outer border and affix this label to your sealed bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the bid where requested.

SEALED BID • DO NOT OPEN

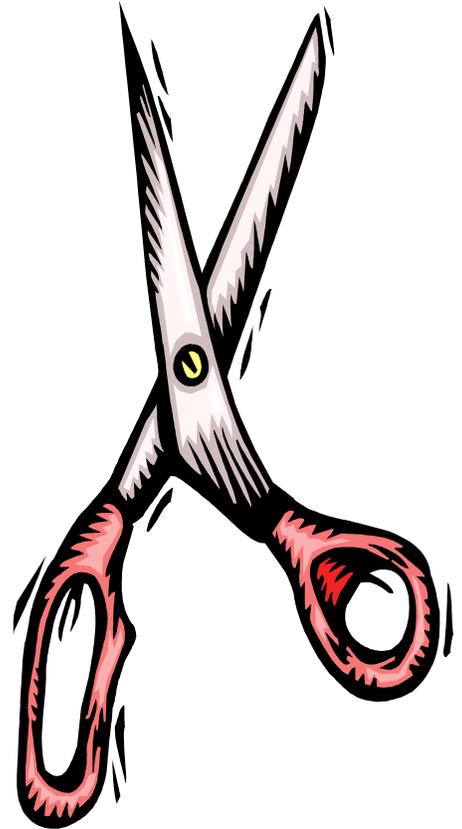
SEALED BID NO.: 17-068

BID TITLE: Painted Pavement Markings and Thermoplastic Pavement Markings

DUE DATE/TIME: Wednesday, December 21, 2016 prior to 2:00 p.m.

SUBMITTED BY: _____
(Name of Company)

DELIVER TO: PROCUREMENT DIVISION
330 West Church Street, Room 150
Bartow, Florida 33830



POLK COUNTY

**Procurement Division
Fran McAskill
Procurement Director**

Bid #17-068

Painted Pavement Markings and Thermoplastic Pavement Markings

Polk County, a political subdivision of the State of Florida, requests the submittal of bids from vendors that are interested in providing the necessary labor, supervision, material, equipment, and tools to supply, install, and remove traffic markings on Polk County maintained roadways as described herein. Sealed bids will be received in the Procurement Division, **prior to 2:00p.m, December 21, 2016**. Bids will be opened at 2:00p.m., December 21, 2016.

Attached are important instructions and specifications regarding responses to this Bid. Failure to follow these instructions could result in Bid disqualification.

Questions regarding this bid should be in writing and should reference the above Bid number. Submit all questions to **Jeremy Mattingly, Procurement Specialist**, via email at jeremymattingly@polk-county.net or via fax at (863) 534-6789 by 4:00 p.m., Wednesday, December 14, 2016.

Bids may be mailed, express mailed or hand delivered to:

**Procurement Division
330 W Church St, Rm 150
Bartow, Florida 33830
(863) 534-6757**

STATEMENT OF NO BID

If you do not intend to submit a bid, please complete the information below and return to the Procurement Division via fax or e-mail. If returning by mail, please be sure the bid number and title are clearly marked on the front of the envelope.

- | | |
|---|---|
| <input type="checkbox"/> Insufficient time to respond | <input type="checkbox"/> Unable to meet specifications |
| <input type="checkbox"/> Do not offer this product | <input type="checkbox"/> Unable to meet bond/insurance requirements |
| <input type="checkbox"/> Specifications unclear | <input type="checkbox"/> Schedule would not permit us to perform |
| <input type="checkbox"/> Specifications too restrictive | <input type="checkbox"/> Other (please specify below) |

Company Name: _____ Date: _____

Telephone Number: _____ Signature: _____

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BIDDER INSTRUCTIONS AND GENERAL INFORMATION

BIDDER INSTRUCTIONS: To ensure acceptance of this bid, follow these instructions.

BID DOCUMENTS MUST BE DELIVERED TO THE PROCUREMENT DIVISION PRIOR TO 2:00 P.M. ON THE DATE SPECIFIED. THERE WILL BE NO EXCEPTIONS.

1. **EXECUTION OF BID:** Bid must contain an original signature of an authorized representative in the space provided on the signature page. Bid must be typed or printed in black ink. Erasable ink is not permitted. Corrections made by bidder to any bid entry must be initialed by the person who signs the bid.
2. **NO BID:** Bidders not interested in submitting a bid should return a “no bid,” with an indication of the reason for no bid and the interest in future bid solicitations.
3. **BID OPENING:** It is the responsibility of the bidder to assure that their bid is delivered at the proper time and place prior to the bid opening. All bid openings shall be public, at 2:00 p.m., on the date specified in the Notice to Bidders. Bids, which for any reason are not so delivered, will not be considered. **BID SUBMITTAL FORMS USING FACSIMILE OR EMAIL WILL NOT BE ACCEPTED.**

NOTE: In accordance with Florida Statute 119.071, a listing of vendors that provide a bid submittal shall be posted to the County’s website at <http://www.polk-county.net/boccsite/departments/budget-and-procurement/bids/bid-status/> . The sealed bids shall remain exempt from disclosure, including bid amounts, until recommendation of award or 30 days after bid opening, whichever event occurs first.

Should the Procurement Director reject all bids, before the recommendation of award or 30 days after bid opening, and concurrently provide notice of the County’s intent to reissue the bid, the rejected bids will remain exempt from Florida Statute 119.07 until such time as the County provides notice of recommendation of award of the reissued bid or until the County withdraws the reissued bid. The bid is not exempt for longer than 12 months after the notice of rejection of all bids.

4. **COUNTY AS GATEKEEPER OF DOCUMENTS:** This document is issued by Polk County and as such shall be the sole distributor of all addendums and/or changes to these documents. It is the responsibility of the bidder to determine issuance of documents directly with the Procurement Division. The County is not responsible for any solicitations issued through subscriber, publications, or other sources not connected with the County and the bidder should not rely on such sources for information regarding the solicitation.
5. **TAXES:** Bidders are responsible for the payment of any applicable taxes that are connected to the purchase of any materials or subcontractors used in the execution of this bid.

6. **DISCOUNTS:** Bidders may offer a cash discount for prompt payment; however, such discounts shall NOT be considered in determining the lowest net cost for bid evaluation purposes. Bidders are encouraged to reflect cash discounts in the unit prices quoted.
7. **MISTAKES:** Bidders are required to examine the specifications, delivery schedule, bid prices and all instructions pertaining to the requirements of this bid. Failure to do so will be at bidder's risk. In case of a mistake in extension of a unit price, the unit price will govern. Corrections made by bidder to any bid entry must be initialed by the person who signs the bid.
8. **INVOICING AND PAYMENT:** The successful bidder shall submit a properly certified invoice to the County at the prices bid. **An original invoice shall be submitted to the appropriate User Division.** The vendor shall include the bid number and/or the purchase order number on all invoices. The vendor's Project Manager or any authorized officer shall, by affidavit, attest to the correctness and accuracy of all charges. Invoices will be processed for payment when approved by the appropriate Division's Project Manager or designee.
9. **CONFLICT OF INTEREST:** All bidders must disclose, with their bid, the name of any officer, director or agent who is also an employee of the County or any of their agencies. Furthermore, all bidders must disclose the name of any County employee who owns, directly or indirectly, any interest of any amount in the bidder's firms or any of their branches. Award of this bid shall be subject to the provisions of Chapter 112, Florida Statutes.
10. **WARRANTY:** Unless otherwise specified, the bidder agrees that the services furnished under this bid shall be covered by the most favorable commercial warranty the bidder gives to any customer for comparable services, and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the County by any other provision of this bid.
11. **ADDENDUM:** Any changes in the bid shall be made in the form of a written addendum by the Procurement Director or their designee. No other person shall be authorized to make changes verbally or in writing. If an addendum is issued, the addendum sheet should be signed and submitted with your bid submittal.
12. **LIABILITY:** The vendor shall hold and save the County, its officers, agents and employees harmless from liability of any kind in the performance of this bid and against claims by third parties resulting from the supplier's breach of contract or the supplier's negligence.
13. **PATENTS AND ROYALTIES:** The bidder, without exception, shall indemnify and save harmless the County and its employees from liability of any nature or kind, including cost and expenses for, or on account of, any copyrighted, patented or non-patented invention, process, or article manufactured and used in the performance of this bid. If the bidder uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all

royalties or cost arising from the use of such design, device or material in any way involved in the work.

14. **CONE OF SILENCE:** Bidders and any prospective bidders shall not contact, communicate with or discuss any matter relating in any way to this Bid with any member of the Polk County Board of County Commissioners or any employee of Polk County other than the County Procurement Director or the individual designated in the Procurement Division. This prohibition begins with the issuance of the Bid and ends upon award or execution of the final contract. Any such communication initiated by a bidder or prospective bidder shall be grounds for disqualifying the offender from consideration for an award pursuant to this bid and for bids or contracts to be awarded pursuant to RFPs, or Requests for Bid that the County may issue in the future.
15. **BID PROTEST:** Any bidder desiring to file a bid protest, with respect to a recommended award of any bid, shall do so by filing a written protest. The written protest must be in the possession of the Procurement Division within three (3) working days of the Notice of Recommended Award mailing date. All bidders who bid will be sent a Notice of Recommended Award, unless only one bid was received.

A copy of the bid protest procedures may be obtained from the Polk County Procurement Division or can be downloaded from the County's website at <http://www.polk-county.net/boccsite/departments/budget-and-procurement/bids/bid-status/>.

FAILURE TO FOLLOW BID PROTEST PROCEDURE REQUIREMENTS WITHIN THE TIME FRAMES PRESCRIBED HEREIN AS ESTABLISHED BY POLK COUNTY, FLORIDA, SHALL CONSTITUTE A WAIVER OF THE BIDDER'S RIGHT TO PROTEST AND ANY RESULTING CLAIM.

16. **INDEMNIFICATION:** Vendor, to the extent permitted by law, shall indemnify, defend (by counsel reasonably acceptable to County), protect and hold the County, and its officers, employees and agents, harmless from and against any and all, claims, actions, causes of action, liabilities, penalties, forfeitures, damages, losses, and expenses whatsoever (including, without limitation, attorneys' fees, costs, and expenses incurred during negotiation, through litigation and all appeals therefrom) including, without limitation, those pertaining to the death of or injury to any person, or damage to any property, arising out of or resulting from (i) the failure of Vendor to comply with applicable laws, rules or regulations, (ii) the breach by Vendor of its obligations under any Agreement with the County entered into pursuant to this solicitation, (iii) any claim for trademark, patent, or copyright infringement arising out of the scope of Vendor's performance or nonperformance of the Agreement, or (iv) the negligent acts, errors or omissions, or intentional or willful misconduct, of Vendor, its professional associates, subcontractors, agents, and employees; provided, however, that Vendor shall not be obligated to defend or indemnify the County with respect to any such claims or damages arising out of the County's sole negligence. The obligations imposed by this Section shall survive the expiration or earlier termination of the Agreement.

17. **PUBLIC ENTITY:** A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. When submitting this bid, the bidder hereby certifies that they have complied with said statute.
18. **PREFERENCE FOR DRUG FREE WORKPLACE:** Whenever two or more bids, which are equal with respect to price, quality and service, are received, preference shall be given to a bid received from a business that certifies that it has implemented a drug free workplace program in accordance with Section 287.087, Florida Statutes. In order to receive preference, a signed certification of compliance must be submitted with the bid response.
19. **CODE OF ETHICS:** If any bidder violates or is a party to a violation of the code of ethics of Polk County or the State of Florida, with respect to this bid, such bidder may be disqualified from performing the work described in this bid or from furnishing the goods or services for which the bid is submitted and shall be further disqualified from bidding on any future bids for work, goods, or services for the County.
20. **SEALED BIDS:** All bid submittals must be completed and submitted in a sealed parcel. **(DO NOT INCLUDE MORE THAN ONE BID SUBMITTAL PER ENVELOPE. BID SUBMITTAL SHALL INCLUDE ONE (1) ORIGINAL AND ONE (1) COPY OF ORIGINAL.)** The **Original** bid submittal(s) shall be submitted on the forms provided by Polk County. All bids are subject to the conditions herein; failure to comply will subject bid to rejection.

GENERAL INFORMATION

1. **DEFINITIONS:** The term "County" means the Polk County Board of County Commissioners, a political subdivision of the State of Florida, and its authorized designees, agents or employees.
2. **AWARD(S):** The award of this bid shall be based on low bid meeting specifications and other criteria as specifically called out in this document. As the best interest of the County may require, the right is reserved to make award(s) by individual item, group of items or as indicated in the bid form; to reject all bids or waive any minor irregularities or technicalities in bids received. In determining the lowest responsive and responsible bidder, in addition to price, the following may be considered:
 - Vendor's evaluation – quality of performance on previous projects.
 - The ability, capacity, equipment and skill of the bidder to fulfill the contract.
 - Whether or not the bidder can fulfill the contract within the time specified, without delay or interference.

- The character, integrity, reputation, judgment, experience and efficiency of the bidder.
- The previous and existing compliance by the bidder with laws and ordinances relating to the contract.
- The sufficiency of the financial resources to fulfill the contract to provide the goods and/or services.
- The quality, availability and adaptability of the suppliers or contractual services to the particular use required.
- The ability of the bidder to provide future maintenance and service, as required or needed.
- The number and scope of conditions attached to the bid.

3. **LOCAL PREFERENCE:** It is the policy of the Board of County Commissioners to afford local preference to Polk County entities in the award of bids. Preference shall be administered in accordance with the following:

When bids are received that do not exceed \$3,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within 2% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

When bids are received that are greater than \$3,000,000.00 but do not exceed \$5,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within 1% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest-price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

When bids are received that are greater than \$5,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within .5% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

For purposes of this provision the term "Polk County entity" means any business having a physical location within the boundaries of Polk County, Florida, at which employees are located and business activity is managed and controlled on a day to day basis. Additionally, the business must have been located within the boundaries of Polk County for a minimum of 12 months prior to the date the applicable solicitation is issued. This requirement may be evidenced through a recorded deed, an executed lease agreement, or other form of written documentation acceptable to the County. The County shall have the right, but not the obligation, to verify the foregoing requirements.

If a contract is being funded in whole or in part by assistance of any federal, state or local agency which disallows local preference, the County will adhere to those requirements by not applying this section.

This policy does not apply if this bid qualifies as a Sheltered Market bid.

4. **VENDOR PREFERENCE:** It is the policy of the Board of County Commissioners to afford vendor preference to women or minority owned businesses in the award of bids. Preference shall be administered in accordance with the following:

When sealed bids are received that do not exceed \$3,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within 2% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

When sealed bids are received that are greater than \$3,000,000.00 but do not exceed \$5,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within 1% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

When sealed bids are received that are greater than \$5,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within .5% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

The term "Women or Minority Owned Entity" means any business having at least 51% ownership by women or minority group members who independently control the management and day-to-day operations of the firm. Group members are Females, African Americans, Hispanic Americans, Asian-Pacific Americans, Native Americans, and Asian-Indian Americans.

If a contract is being funded in whole or in part by assistance of any federal, state or local agency which disallows this form of preference, the County will adhere to those requirements by not applying this section.

This policy in no way supersedes the Local Preference Policy.

This policy does not apply if this bid qualifies as a Sheltered Market bid.

5. **NON-CONFORMANCE TO BID CONDITIONS:** Services not delivered as per delivery date in bid and purchase order may result in bidder being found in default, in which event any and all re-procurement costs may be charged against the defaulting vendor. This non-conformance to bid conditions may result in immediate cancellation of the purchase order.
6. **ASSIGNMENT:** Any purchase order issued pursuant to this bid and the monies which may become due herein is not assignable except with the prior written approval of the Procurement Director.
7. **DISPUTES:** In the event of any doubt or difference of opinion as to the methods provided herein, or the level of performance rendered, the decision of the user department/division director shall be final and binding on both parties.
8. **FACILITIES:** The County reserves the right to inspect the bidder's facilities at any time, with prior notice.
9. **PLACING OF ORDERS:** The award of this bid does not constitute an order. Before any services can be performed, the successful bidder must receive written or oral notification in accordance with the practices of the User Division.
10. **PRECEDENCE:** Any requirement set forth in any section of the bid documents shall be binding as if called for by all sections. If there is a difference in the terms anywhere in this document, the most restrictive shall prevail.
11. **ADDITIONS/REVISIONS/DELETIONS:** Additions, revisions or deletions to the general conditions, specifications or bid price sheets that change the intent of the bid will cause the bid to be non-responsive and the bid will not be considered. The Procurement Director shall be the sole judge as to whether or not any addition, revision or deletion changes the intent of the bid.
12. **TERMINATION/SUSPENSION:** The County may terminate this Bid at any time, in whole or in part, either for the County's convenience or because of the Bidder's material default of its Bid obligations, by delivering a written notice of termination to the Bidder. Upon receipt of such notice, the Bidder shall:
 - Immediately discontinue all work unless the County's notice directs otherwise, and
 - Deliver to the County any and all data, reports, summaries, and all other information and materials of any type or nature whatsoever, whether completed or in process, the Bidder may have accumulated or generated in the course of performing the work of the Bid.

If at any time the User Division determines that the Bidder is in material default of its Bid obligations, then the User Division shall complete and deliver a Vendor Complaint Form to the Bidder that specifically states the basis for the Bidder's default. Within ten (10)

days after its receipt of the Vendor Complaint Form, the Bidder shall correct all events of default. If, however, the Bidder's material default is such that it cannot be reasonably cured within the ten (10) day time period, then the County will not terminate the Bid for such default if the Bidder commences the necessary curative actions within ten (10) days after its receipt of the Vendor Complaint Form and thereafter diligently pursues the cure to completion.

If the Bidder's default continues beyond the allotted cure period, the Procurement Director: (i) may terminate the Bid, and (ii) may also suspend the Bidder in accordance with the Suspension and Debarment Section of the County Procurement Procedures Manual.

13. **CANCELLATION:** All annual bid obligations shall prevail for at least one hundred eighty (180) days after effective date of the bid, unless bid conditions are breached as specified herein. After that period, for the protection of both parties, either party may cancel this bid in whole or part by giving thirty (30) days prior notice in writing to the other party. The County reserves the right to cancel any bid after reasonable written notice to the successful bidder should the service not be in the best interest of the County. Should the service rendered for any bid cause or threaten endangerment to public safety or welfare, the Procurement Director may cancel the bid immediately.
14. **PRICE ADJUSTMENTS:** Any price decrease executed during the contract period, either by reason of market change or on the part of the contractor to other customers, shall be passed on to the County.
15. **PLANS AND SPECIFICATIONS:** The specifications and other bid documents upon which the prices in the vendor's bid proposal are based on are hereby made a part of the purchase order by reference thereto.
16. **PERFORMANCE AND PAYMENT BOND:** If a bond is required, it will be called out in the Special Conditions section of the bid. The vendor shall furnish a performance and payment bond, in an amount equal to the amount awarded, as security for the faithful performance and payment of all the vendor's obligations under the bid documents. The bond shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the bid documents. All bonds shall be in the form prescribed by the bid document except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department and A.M. Best rated A VIII or better.
17. **UNAUTHORIZED ALIEN(S):** The vendor agrees that unauthorized aliens shall not be employed nor utilized in the performance of the requirements of this solicitation. The County shall consider the employment or utilization of unauthorized aliens a violation of Section 274A(e) of the Immigration and Naturalization Act (8 U.S.C. 1324a). Such violation shall be cause for unilateral termination of this Agreement by the County. As

part of the response to this solicitation, the successful vendor will complete and submit the attached form "AFFIDAVIT CERTIFICATION IMMIGRATION LAWS."

Employers may avail themselves of a program by the U.S. Immigration and Customs Enforcement called E-Verify. E-Verify is an Internet-based system operated by U.S. Citizenship and Immigration Services (USCIS), part of the Department of Homeland Security (DHS), in partnership with the Social Security Administration (SSA). E-Verify is currently free to employers. E-Verify provides an automated link to Federal databases to help employers determine employment eligibility of new hires and the validity of their Social Security numbers.

If your company wishes to avail themselves of this program, you can register online for E-Verify at <http://www.dhs.gov/how-do-i/verify-employment-eligibility-e-verify> which provides instructions for completing the registration process. At the end of the registration process, you will be required to sign a Memorandum of Understanding (MOU) that provides the terms of agreement between you as the employer, the SSA, and DHS. An employee who has signatory authority for the employer can sign the MOU. Employers can use their discretion in identifying the best method by which to sign up their locations for E-Verify. To find out more about E-Verify, please visit www.dhs.gov/e-verify or contact USCIS at **1-888-464-4218**.

18. **ANNUAL APPROPRIATIONS:** The vendor acknowledges that the County, during any fiscal year, shall not expend money, incur any liability, or enter into any agreement which, by its terms, involves the expenditure of money in excess of the amounts budgeted or the reduction of revenues for those budgeted agreements that may be available for expenditure during such fiscal year. Any agreement, verbal or written, made in violation of this subsection is null and void, and no money may be paid on such agreement. Nothing herein contained shall prevent the making of agreements for a period exceeding one year, but any agreement so made shall be executory only for the value of the services to be rendered or agreed to be paid for in succeeding fiscal years. Accordingly, the County's performance and obligation to pay under this agreement is contingent upon annual appropriation.
19. **PRICE INCREASES:** The Procurement Director Reserves the right to increase/decrease prices after the bid has been in place for a minimum of 12-months, when it is in the best interest of the County. Increases/decreases will be determined by the appropriate price index.
20. **UNCONTROLLABLE FORCES (FORCE MAJEURE):** When events occur that are not of the Contractor or County's doing, neither the Contractor nor the County will be deemed in default should the events meet the definition of "Uncontrollable Forces", also known as "Force Majeure". The term "Uncontrollable Forces" or "Force Majeure" shall mean any event which results in the prevention or delay of performance by a party of its obligations and which is beyond the reasonable control of the non-performing party. The events include, but are not limited to, fire, flood, earthquakes, storms, hurricanes, lightning, epidemic, war, riot, civil disturbance, sabotage, and governmental actions.

Neither party shall be excused from performance if non-performance is due to forces which are reasonably preventable, removable, or remediable and which the non-performing party could have, with the exercise of reasonable diligence, prevented, removed, or remedied the event prior to its occurrence.

The non-performing party shall, within five (5) calendar days after being prevented or delayed from performance by an uncontrollable force, deliver written notice to the other party particularly describing the circumstance that prevented its continued performance of the obligations of the work and a good faith estimate as to the anticipated duration of the delay and the means and methods for correcting the delay.

21. In the event of default by the successful Bidder, the County reserves the right to utilize the next lowest Bidder as the new Awardee when the default occurs within the first term of the bid. Should this occur, the next lowest Bidder will be required to provide the bid items at the prices as noted on their bid submittal.
22. The County shall request the services on an as-needed basis. There is no guarantee that any or all of the services described in this bid will be assigned during the term of this bid. Further, the successful vendor is providing these services on a nonexclusive basis. The County, at its option, may elect to have any of the services set forth herein performed by other vendors or County staff.
23. **ATTORNEY'S FEES AND COSTS:** Each party shall be responsible for its own legal and attorney's fees, costs and expenses incurred in connection with any dispute or any litigation arising out of, or relating to this Agreement, including attorney's fees, costs and expenses incurred for any appellate or bankruptcy proceedings.
24. **PUBLIC RECORD LAWS**

(a) The Vendor acknowledges the County's obligations under Article I, Section 24, of the Florida Constitution and under Chapter 119, Florida Statutes, to release public records to members of the public upon request and comply in the handling of the materials created under this Agreement. The Vendor further acknowledges that the constitutional and statutory provisions control over the terms of this Agreement. In association with its performance pursuant to this Agreement, the Vendor shall not release or otherwise disclose the content of any documents or information that is specifically exempt from disclosure pursuant to all applicable laws.

(b) Without in any manner limiting the generality of the foregoing, to the extent applicable, the Vendor acknowledges its obligations to comply with Section 119.0701, Florida Statutes, with regard to public records, and shall:

(1) keep and maintain public records required by the County to perform the services required under this Agreement;

(2) upon request from the County's Custodian of Public Records or his/her designee, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

(3) ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the term of this Agreement and following completion of this Agreement if the Vendor does not transfer the records to the County; and

(4) upon completion of this Agreement, transfer, at no cost, to the County all public records in possession of the Vendor or keep and maintain public records required by the County to perform the service. If the Vendor transfers all public records to the County upon completion of this Agreement, the Vendor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Vendor keeps and maintains public records upon completion of this Agreement, the Vendor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the County's Custodian of Public Records, in a format that is compatible with the information technology systems of the County.

(c) IF THE VENDOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE VENDOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT:

**RECORDS MANAGEMENT LIASON OFFICER
POLK COUNTY
330 WEST CHURCH ST.
BARTOW, FL 33830
TELEPHONE: (863) 534-7527
EMAIL: RMLO@POLK-COUNTY.NET**

ATTENTION BIDDERS

The Successful Bidder must register in our new Vendor Database if you have not already done so prior to award of this bid. A purchase order cannot be issued to a vendor until they have registered.

You may register by going to the following link:

<http://www.polk-county.net/boccsite/Doing-Business/Vendor-Registration/>

Registered vendors will receive a User ID and Password to access their company information. All registered vendors must provide their owner gender, owner ethnicity, corporate status, and a minimum of one (1) commodity code to be considered registered. It is the responsibility of all vendors to update their vendor information.

Only registered vendors will receive notifications of future bids and quotes.

SPECIAL CONDITIONS

1. Award will be made based on overall low bid meeting specifications. All bid items that are part of the basis of award should be bid at a fair and reasonable price; failure to do so may cause the bid to be non-responsive. Contractors must bid on all items for the bid to be considered responsive. The Procurement Director reserves the right to reject any or all bids and/or waive any minor irregularities in the bids received, whichever would be in the best interest of the County.
2. **PERFORMANCE OF WORK:** The work required under this bid shall be performed by the entity submitting the bid.
3. The period of performance for this bid is from date of award through December 31, 2017. The bid will automatically renew for two (2) one (1) year periods, unless otherwise terminated in accordance with General Information Items #12 and #13.
4. All prices bid shall remain unchanged during the period of performance, as specified herein, and as may be adjusted in accordance with General Information, Item # 19.
5. If it becomes necessary to revise or amend any part of this bid, an addendum will be issued and will be posted on the County's website at <http://www.polk-county.net/boccsite/doing-business/bids/>. It is the sole responsibility of the contractors to check the website to ensure that all available information has been received prior to submitting a bid.
6. Vendors must possess a Polk County Local Business Tax Receipt (f/k/a Business License) in order to do business with the County. A copy of such license must be provided to the Procurement Division before award is made to the successful contractor.
7. Three (3) letters of reference on client's letter head for similar projects completed in the last five (5) years should be submitted with your submittal and must be submitted prior to recommendation of award. Each letter should demonstrate pavement makings similar to the services the County is requesting. References must include the client's name, telephone number, address and email address. Letters of reference (of successful contractor) may be verified.
8. Any additions, deletions, or modifications similar in cost or material after bid award will need to be signed off by both the user division and the successful vendor. Price for any additions, deletions, or modifications to the bid will be negotiated and agreed upon by both parties. All agreed upon additions, deletions, or modifications will also require the Procurement Director's (or designee) approval. If the addition, deletion or modification is accepted an amendment to the Bid award will be issued to the successful Contractor.

SPECIFICATIONS

1. PAINTED PAVEMENT MARKINGS:

A) All painted pavement markings will be in accordance with the 2016 or most current Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 710 (Attachment "A")

B) Basis of Payment shall be:

- Traffic Stripes, Solid – per net mile
- Traffic Stripes, Solid – per linear foot
- Traffic Stripes, Skip – per gross mile
- Traffic Stripes, Skip – per linear foot
- Dotted/Guideline – per foot

2. THERMOPLASTIC PAVEMENT MARKINGS:

A) All thermoplastic pavement markings will be in accordance with the 2016 or most current Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 711 (Attachment "A")

B) Thermoplastic pavement markings shall be installed using alkyd thermoplastic binder.

C) Basis of Payment shall be:

- Square foot of materials installed
- Square foot of existing materials removed
- Pavement word messages and symbols installed per each
- Directional arrows installed per each

3. Work performed under this bid will be governed by the latest editions now in force, or hereafter adopted of the following:

- 2016 or most current Florida Department of Transportation Standard Specifications for Road and Bridge Construction
- 2016 or most current Florida Department of Transportation Roadway Traffic Design Standards Index
- Manual on Uniform Traffic Control Devices (MUTCD)

4. This contract will include:
 - All cleaning and preparing of roadway surfaces with a truck mounted broom or other means approved by the Traffic Manager or County Inspector
 - Layout of Markings on new or resurfaced roadways
 - Furnishing of all materials
 - Application, curing and protection of all units and items
 - Furnish all tools, machines, equipment, and all incidentals necessary to work
 - Removal of all temporary markings prior to installing markings
 - All cleanup and disposal of waste and removed materials.
5. Work shall also include the removing and refurbishing of existing markings on roadways, intersections, and high volume areas as well as the layout and installation of markings on new and resurfaced roadways, intersections, and high volume areas.
6. Traffic control markings consists of all markings, word messages, symbols, and other related special items as directed by the Traffic Manager.
7. The Roads and Drainage Division will issue a work order, which may include more than one intersection per project.
8. The work order will determine which type of material shall be used per intersection. Upon receipt of the work order the successful Contractor will have five (5) working days under normal working conditions to complete the assigned work or an agreeable timeframe approved by the County's Traffic Manager.
9. Payment for each work order will be based on actual quantities used and unit prices from the bid, as approved by the County.
10. The Roads and Drainage Division Inspector assigned to the project will determine actual quantities used and acceptable work quality. Any unacceptable markings due to Contractor negligence or inadequate procedures shall be removed by grinding or water blasting, as determined by the Traffic Manager or County Inspector, and replaced at the Contractor's expense.
11. The Contractor will be responsible for setting up their own Maintenance of Traffic per F.D.O.T. Specifications Index No. 600 (Attachment "A") General Information for Traffic Control through Work Zones. The Contractor will be responsible for having all necessary equipment and flaggers on project site before work commences. Payment for MOT is incidental to the line items. Lane closure requests must be submitted by the Contractor and, approved prior to commencing the work. Lane closures may be restricted on certain roads during peak hours.
12. Where possible, plans will be provided by the County. If no plans are available, the Contractor will install pavement markings as previously laid out, or as directed by the Traffic Manager or Inspector.

13. The Contractor shall give 48 hour notice to the Roads and Drainage Division Office at 863-535-2200 before starting any project.

14. The normal working hours of the Roads and Drainage Division Inspector will be 7:00 A.M. to 5:30 P.M. Monday through Friday, excluding County holidays. If the Contractor desires to work outside of the regular hours, they must get prior approval from the Roads and Drainage Division Inspector.

BID SHEET

Item #	Description	Unit	Estimated Quantity	Unit Price	Total (Estimated Qty x Unit Price)
Section 710 Painted Pavement Markings					
1	0710-11111 Painted Pavement Markings, Standard, White, Solid, 6"	NM	1800	\$	\$
2	0710-11122 Painted Pavement Markings, Standard, White, Solid, 8"	LF	500	\$	\$
3	0710-11131 Painted Pavement Markings, Standard, White, Skip, 6" 10-30 or 3-9 Skip	GM	50	\$	\$
4	0710-11211 Painted Pavement Markings, Standard, Yellow, Solid 6"	NM	1200	\$	\$
5	0710-11222 Painted Pavement Markings, Standard, Yellow, Solid 8"	LF	500	\$	\$
6	0710-11231 Painted Pavement Markings, Standard, Yellow, Skip 6"	GM	600	\$	\$
7	0710-11331 Painted Pavement Markings, Standard, Black, Skip 6"	GM	5	\$	\$
Section 711 Thermoplastic Design					
8	2,000 SF or less per work order	SF	20000	\$	\$

BID SHEET (continued)

9	2,001 – 5,999 SF per work order	SF	25000	\$	\$
10	6,000 SF or greater per work order	SF	15000	\$	\$
11	Word Messages per work order	EA	20	\$	\$
12	Directional Arrows per work order	EA	120	\$	\$
13	Removal by water blasting per work order	SF	100	\$	\$
14	Removal by grinding per work order	SF	1500	\$	\$
Section 706 Raised Retro-Reflective Pavement Markers and Bituminous Adhesive					
15	Raised Pavement Marker per work order	EA	100	\$	\$
Basis of Award – (Total of Items #1-15)				\$	

**SIGNATURE ACKNOWLEDGEMENT
(SUBMITTAL PAGE)**

To Polk County, a Political Subdivision of the State of Florida

Date: _____

I certify that this bid is made without prior understanding, agreement or connection with any corporation, firm or person submitting a bid for the same construction, service or material and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I have read and understand the bidding documents. I have completed and submitted all bid submittal forms, and I am authorized to sign this bid for the bidder. In submitting a bid to the County, the bidder offers and agrees that if the bid is accepted, the bidder will convey, sell, assign or transfer to the County all rights, titles and interests in and to all causes of action it may now or hereafter acquire under the Anti-Trust Laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the County. At the County's discretion, such assignment shall be made and become effective at the time the County tenders final payment to the bidder.

VENDOR NAME

AUTHORIZED SIGNATURE (MANUAL)

MAILING ADDRESS

NAME (TYPED OR PRINTED)

CITY, STATE AND ZIP CODE

TITLE (TYPED OR PRINTED)

(AREA CODE) TELEPHONE NUMBER

TOLL FREE NUMBER

E-MAIL ADDRESS

This bid may be used by any other Government Agency. [] YES [] NO [] N/A

**THE FOLLOWING SECTION SHOULD BE COMPLETED BY ALL BIDDERS:
(SUBMITTAL PAGE)**

Company Name: _____

DBA/Fictitious Name (if applicable): _____

NOTE: COMPANY NAME MUST MATCH LEGAL NAME ASSIGNED TO TIN NUMBER.
CURRENT W9 SHOULD BE SUBMITTED WITH BID.

TIN #: _____

(Street No or PO Box Number) (Street Name) (City)

(County) (State) (Zip Code)

Contact Person: _____

Phone Number: _____

Cell Phone Number: _____

Email Address: _____

Type of Organization:

- _____ Sole Proprietorship _____ Partnership _____ Non-Profit _____ Sub-Chapter
- _____ Joint Venture _____ Corporation _____ LLC _____ LLP
- _____ Publicly Traded _____ Employee Owned

State of Incorporation _____

The Successful vendor must complete and submit this section prior to award. The Successful vendor must invoice using the company name listed above.

**DRUG-FREE WORKPLACE FORM
(SUBMITTAL PAGE)**

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies

that _____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation programs, employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, plea of guilty or nolo contendere to, any violation of Chapter 1893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program, if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Bidder's Signature

Date

**NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(SUBMITTAL PAGE)**

State of _____)

County of _____)

_____, being first
duly sworn, deposes and says that:

1. He/she is _____ of _____, the Bidder that has submitted the attached Bid;
2. He/she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstance respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidders nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with such Contract or has in any manner, directly or indirectly, sought by agreement or collusion of communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid of any other Bidder, or to fix any overhead, profit or cost element of the Bid Price or the Bid Price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the County or any person interested in the proposed Contract; and
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this affiant.

Signed: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20_____

(Title)

My Commission Expires: _____

INSURANCE REQUIREMENTS

The successful vendor shall purchase and maintain in force General Liability policies of insurance during the contract period. Where the County is required to be listed on a policy, the County shall be referred to and listed as: Polk County, a political subdivision of the State of Florida.

Commercial General Liability Insurance, including County and Contractor Protective, Contractual, Products and Completed Operations Liability coverage on an occurrence Broad form policy. The deductible may not exceed \$25,000 unless a vendor obtains express written agreement from the County regarding a higher deductible. XCU Property Damage exclusion must be removed from the policy.

Each Occurrence:	\$1,000,000
Completed Operation	\$1,000,000
Pollution Liability	\$1,000,000

Comprehensive Automobile Liability Insurance \$1,000,000; combined single limit of liability for bodily injuries, death, property damage, and personal injury resulting from any one occurrence, including all owned, hired and non-owned vehicles.

The Commercial General Liability Worker's Compensation Liability and Comprehensive Automobile Liability policy must name the County as an additional insured on the policy as to both ongoing and completed operations. The policy must also include a waiver of subrogation in favor of the County.

Worker's Compensation and Employer's Liability Insurance providing statutory benefits, including those that may be required by any applicable federal statute:

Admitted in the State of Florida	Yes
Employer's Liability	\$1,000,000
All States Endorsement	Statutory
Voluntary Compensation	Statutory

All insurance policies must be provided through Insurance Companies admitted in the State of Florida. All insurance policies must be issued by Insurance Companies that have an A.M. Best rating of A VIII or better.

Each Certificate of Insurance must list the Certificate Holder as:

Polk County, a political subdivision of the State of Florida
330 W Church St, Room 150
Bartow, FL 33830

Certificates of Insurance for policies requiring additional insured status and/or the waiver of subrogation must include notations that these requirements apply. In addition, the Contractor shall supply to the County copies of the endorsements to verify these requirements.

The Contractor must provide, or cause to be provided, the County with 30 days' prior written notice regarding the cancellation, suspension, or non-renewal of or material change to any policy.

All Certificates of Insurance must be submitted on ACORD 25 forms.

The Contractor must submit updated Certificates of Insurance to the County upon the expiration of or material change to any policy.

**INSURANCE
(SUBMITTAL PAGE)**

By signing below the Bidder is stating that they fully understand the insurance requirements for the project and if awarded the bid will provide all insurance coverage as required in Bid # 17-068.

The requirements are as follows:

- Bidder is insured with a company licensed to do business in the State of Florida
- The insurance company is rated A VIII or better by A.M. Best Rating Company (Workers Compensation, General and Automobile policies)
- Polk County will be named as an additional insured for general and automobile liability
- The General Liability and Worker’s Compensation policies will contain waiver of subrogation in favor of Polk County

Company Name

Bidder (signature)

SAFETY REQUIREMENTS/REGULATIONS

1.0 All Bidders are required to submit, with their Bid Proposal, the Safety Requirements/Regulations form. Any questions regarding compliance with the safety requirements/regulations provision shall be directed to the County Safety Officer, Risk Management, at (863) 534-5267.

1.1 The Contractor is responsible for observing all OSHA regulations and shall self-inspect to ensure this is accomplished. The Contractor shall ensure that all personnel are properly trained and shall be able to provide documentation for their personnel that have attended training courses. Examples of such training courses are: Hazard Communications, Traffic Work Zone Safety, Personal Protective Equipment, First Aid/CPR, Permit Required Confined Space, Lock out/Tag Out of Hazardous Energy. All contractors are required to comply with OSHA Standards regardless of the number of employees they may have.

1.2 A County representative may periodically monitor work site safety. Should there be safety and/or health violations, classified as Serious, Willful or Criminal/Willful Violations, the County's representative may have the authority, but not the duty, to require the Contractor to correct the violation in an expeditious manner. Inspections shall be based on requirements contained in law. The definitions of serious, willful and criminal/willful violations are as follows:

Serious Violation: A serious violation shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not, with the exercise of reasonable diligence, know of the presence of the violation.

Willful Violation: May exist where evidence shows that the employer committed an intentional and knowing violation of the Act.

Criminal/Willful Violation: A repeat violation of a previously cited willful violation.

Violation of Serious, Willful or Criminal violation may have the following consequences:

First violation: correction may be a verbal warning and the correction shall be done the same day. Written documentation may be maintained by the County.

Second violation: may result in work stoppage until the violation is corrected. The work stoppage shall not entitle the Contractor to additional contract time or compensation. Liquidated damages provision will remain in full force and effect.

Third violation: this may constitute a breach of contract for safety violations and may result in termination of the contract at the sole discretion of the County.

Note: The County Safety Officer may stop any job to ensure the safety of all concerned.

1.3 Should the work site be in a hazardous area, the County shall furnish the Contractor with information concerning hazards such as types or identification of known toxic material, machine hazards, Material Safety Data Sheets, or any other information that would assist the Contractor in the planning of a safe work site.

1.4 The Contractor shall be aware that while working for the County, representatives from agencies such as the United States Department of Labor, Occupational Safety and Health Administration (OSHA), and the Division of Safety, State of Florida, are invitees and need not have warrants or permission to enter the work site. These agencies, as well as the County Safety Officer, enter at the pleasure of the County.

1.5 The Contractor shall designate a competent person of its organization whose duty shall be the prevention of accidents at the site. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the County. All communications to the superintendent shall be as binding as if given to the Contractor.

SAFETY REQUIREMENTS/REGULATIONS FORM

Bidder must sign and have notarized:

The undersigned bidder hereby certifies that they fully understand the safety requirements/regulation provisions and will comply.

Dated this _____ day of _____, 20_____

Name of Firm_____

By_____

Title of Person Signing (SEAL)

SWORN TO AND SUBSCRIBED BEFORE ME

This _____ day of _____, 20_____

Notary Public:_____

My Commission Expires:_____

**AFFIDAVIT CERTIFICATION
IMMIGRATION LAWS**

SOLICITATION NO.: 17-068 PROJECT NAME: Painted Pavement Markings and Thermoplastic Pavement Markings

POLK COUNTY WILL NOT INTENTIONALLY AWARD COUNTY CONTRACTS TO ANY CONTRACTOR WHO KNOWINGLY EMPLOYS UNAUTHORIZED ALIEN WORKERS, CONSTITUTING A VIOLATION OF THE EMPLOYMENT PROVISIONS CONTAINED IN 8 U.S.C. SECTION 1324 a(e) {SECTION 274A(e) OF THE IMMIGRATION AND NATIONALITY ACT ("INA").

POLK COUNTY MAY CONSIDER THE EMPLOYMENT BY ANY CONTRACTOR OF UNAUTHORIZED ALIENS A VIOLATION OF SECTION 274A(e) OF THE INA. **SUCH VIOLATION BY THE RECIPIENT OF THE EMPLOYMENT PROVISIONS CONTAINED IN SECTION 274A(e) OF THE INA SHALL BE GROUNDS FOR UNILATERAL CANCELLATION OF THE CONTRACT BY POLK COUNTY.**

BIDDER ATTESTS THAT THEY ARE FULLY COMPLIANT WITH ALL APPLICABLE IMMIGRATION LAWS (SPECIFICALLY TO THE 1986 IMMIGRATION ACT AND SUBSEQUENT AMENDMENTS).

Company Name: _____

Signature Title Date

STATE OF: _____
COUNTY OF: _____

The foregoing instrument was signed and acknowledged before me this ____day of _____, 20____, by _____ who has produced _____
(Print or Type Name)

_____ as identification.
(Type of Identification and Number)

Notary Public Signature

Printed Name of Notary Public

Notary Commission Number/Expiration

Attachment "A"



SECTION 706 RETROREFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE

706-1 Description.

Place retroreflective pavement markers (RPMs) and adhesive, which upon installation produces a positive guidance system to supplement other reflective pavement markings.

706-2 Materials.

Use only Class B markers unless otherwise shown in the Plans.
Meet the requirements of Section 970.

706-2.1 Product Acceptance on the Project. Use only reflective pavement markers and bituminous adhesive that are listed on the Department's Approved Product List (APL).

706-3 Equipment.

Use equipment having either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots to install hot applied bituminous adhesive. Do not use direct flame melting units with flexible adhesives; however, this type of unit may be used with standard adhesive in accordance with manufacturer's recommendations. Use a melter/applicator unit suited for both melting and pumping the adhesive through heated applicator hoses.

Heat the adhesive to between 375°F and 425°F and apply directly to the bonding surface from the melter/applicator by either pumping or pouring. Maintain the application temperature between 375°F and 425°F. The adhesive may be reheated. However, do not exceed the manufacturer's recommendations for pot life at application temperatures.

706-4 Application.

Apply RPMs to the bonding surface using bituminous adhesives only. The Engineer will conduct field testing in accordance with FM 5-566. Correct RPMs not applied in accordance with these requirements at no cost to the Department.

Prior to application of adhesive, clean the portion of the bonding surface of any material which would adversely affect the adhesive.

Apply the adhesive to the bonding surface (not the marker) so that 100% of the bonding area of the marker will be covered, in accordance with adhesive manufacturer's recommendations. Apply sufficient adhesive to ensure, that when the marker is pressed downward into the adhesive, adhesive will be forced out around the entire perimeter of the marker.

Immediately remove excess adhesive from the bonding surface and exposed surfaces of the RPMs. Soft rags moistened with mineral spirits meeting Federal Specifications TT-T-291 or kerosene may be used to remove adhesive from exposed faces of the RPMs. Do not use any other solvent. If any adhesive, pavement marking materials or other foreign matter adheres to the reflective face of the marker, replace the marker at no cost to the Department.

Install RPMs with the reflective face of the RPM perpendicular to a line parallel to the roadway centerline.

Ensure that all final RPMs are in place prior to opening the road to traffic.

If more than 2% of the RPMs fail in adhesion or alignment within the first 45 days under traffic, replace all failed markers at no expense to the Department. If more than 5% of the markers fail in adhesion and or alignment during the initial 45 day period, the Engineer will extend the replacement period an additional 45 days from the date that all replacement markers have been installed. If, at the end of the additional 45 day period, more than 2% of all markers (initial installation and 45 day replacements combined) fail in adhesion or alignment, replace all failed markers at no expense to the Department.

706-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of RPMs. At the time of notification, submit the APL number and the batch or Lot numbers of RPMs and bituminous adhesive to be used.

706-6 Method of Measurement.

The quantities to be paid for will be the number of RPMs, furnished and installed, completed and accepted.

706-7 Basis of Payment.

706-7.1 General: Price and payment will be full compensation for all work specified in this Section.

706-7.2 Lump Sum Payment: Price and payment for retroreflective pavement markers will not be measured or paid for separately, when the item for painted pavement markings (Final Surface) is included in the proposal. Price and payment will be made in accordance with 710-11.2.

SECTION 710 PAINTED PAVEMENT MARKINGS

710-1 Description.

Apply painted pavement markings, in accordance with the Contract Documents.

710-2 Materials.

Use only materials listed on the Department's Approved Product List (APL) meeting the following requirements:

Materials for Retroreflective Pavement Markers and Bituminous Adhesive	Section 970
Standard Paint	971-1 and 971-3
Durable Paint	971-1 and 971-4
Glass Spheres	971-1 and 971-2

The Engineer will take random samples of all material in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

710-3 Equipment.

Use equipment that will produce continuous uniform dimensions of pavement markings of varying widths and meet the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of paint and capable of following straight lines and making normal curves in a true arc.
2. Capable of applying glass spheres to the surface of the completed line by an automatic sphere dispenser attached to the pavement marking machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the paint and applies the glass spheres in a manner such that the spheres appear uniform on the entire pavement markings surface.
3. Capable of spraying the paint to the required thickness and width without thinning of the paint. Equip the paint tank with nozzles equipped with cut-off valves, which will apply broken or skip lines automatically.

710-4 Application.

710-4.1 General: Remove existing pavement markings, such that scars or traces of removed markings will not conflict with new pavement markings, by a method approved by the Engineer.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Apply standard paint to dry surfaces only, and when the ambient air and surface temperature is at least 40°F and rising.

Apply durable paint to dry surfaces only. Do not apply durable paint when the ambient air and surface temperature is below 50°F, relative humidity is above 80% or when the dew point is within 5°F of the ambient air temperature.

Do not apply painted pavement markings when winds are sufficient to cause spray dust.

Apply painted pavement markings, having well defined edges, over existing pavement markings such that not more than 2 inches on either end and not more than 1 inch on either side is visible. When stencils are used to apply symbols and messages, the areas covered by the stencil reinforcing will not be required to be painted.

Mix the paint thoroughly prior to pouring into the painting machine. Apply paint to the pavement by spray or other means approved by the Engineer.

Conduct field testing in accordance with FM 5-541. Remove and replace painted pavement markings not meeting the requirements of this Section at no additional cost to the Department.

Apply all pavement markings prior to opening the road to traffic.

710-4.1.1 Painted Pavement Markings (Final Surface): On concrete surfaces or newly constructed asphalt without rumble striping, the painted pavement markings (final surface) will include one application of standard paint and one application of Class B retroreflective pavement markers applied to the final surface.

On newly constructed asphalt with rumble striping, apply two applications of standard paint and one application of Class B retroreflective pavement markers. Additionally, for center line rumble striping installations, install Class D retroreflective pavement markers with the first application of standard paint. Remove Class D markers prior to grinding, and install Class B retroreflective pavement markers in an unground area after grinding. The second application of standard paint must be applied within 24 hours of each day's grinding operation.

Apply all retroreflective pavement markers in accordance with Design Standards, Index No. 17352, prior to opening the road to traffic.

Apply all temporary retroreflective pavement markers meeting the requirements of Section 102.

Apply all permanent retroreflective pavement markers meeting the requirements of Section 706.

710-4.2 Thickness: Apply standard paint to attain a minimum wet film thickness in accordance with the manufacturer's recommendations. Apply durable paint to attain a minimum wet film thickness of 0.025 inches or 25 mils. Measure, record, and certify on a Department approved form and submit to the Engineer, the thickness of white and yellow durable paint pavement markings in accordance with FM 5-541.

710-4.3 Retroreflectivity: Apply white and yellow standard paint that will attain an initial retroreflectance of not less than 300 mcd/lx·m² and not less than 250 mcd/lx·m², respectively. Apply white and yellow durable paint that will attain an initial retroreflectance of not less than 450 mcd/lx·m² and not less than 300 mcd/lx·m², respectively.

Measure, record and certify on a Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

The Department reserves the right to test the markings within three days of receipt of the Contractor's certification. Failure to afford the Department opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's pavement marking performance. If the retroreflectivity values measure below values shown above, reapply the pavement marking at no additional cost to the Department.

For standard paint, ensure that the minimum retroreflectance of white and yellow pavement markings are not less than 150 mcd/lx m². If the retroreflectivity values for standard paint fall below the 150 mcd/lx m² value within 180 days of initial application, the pavement

marking will be reapplied at the Contractor's expense. If the retroreflectivity values for durable paint fall below the initial values of 450 mcd/lx m² value for white and 300 mcd/lx m² for yellow within 180 days of initial application, the pavement marking will be reapplied at the Contractor's expense.

710-4.4 Color: Use paint material that meets the requirements of 971-1.

710-4.5 Glass Spheres: Apply glass spheres on all pavement markings immediately and uniformly following the paint application. The rate of application shall be based on the manufacturer's recommendation.

For longitudinal durable paint markings, apply a double drop of Type 1 and Type 3 glass spheres. For transverse durable paint markings, apply a single drop of Type 3 glass spheres.

The rate of application shall be based on the manufacturer's recommendation.

710-5 Tolerances in Dimensions and in Alignment.

Establish tack points at appropriate intervals for use in aligning pavement markings, and set a stringline from such points to achieve accuracy.

710-5.1 Dimensions:

710-5.1.1 Longitudinal Lines: Apply painted skip line segments with no more than plus or minus 12 inches variance, so that over-tolerance and under-tolerance lengths between skip line and the gap will approximately balance. Apply longitudinal lines at least 2 inches from construction joints of portland cement concrete pavement.

710-5.1.2 Transverse Markings, Gore Markings, Arrows, and Messages: Apply paint in multiple passes when the marking cannot be completed in one pass, with an overall line width allowable tolerance of plus or minus 1 inch.

710-5.1.3 Contrast Lines: Use black paint to provide contrast on concrete or light asphalt pavement, when specified by the Engineer. Apply black paint in 10 foot segments following each longitudinal skip line.

710-5.2 Alignment: Apply painted pavement markings that will not deviate more than 1 inch from the stringline on tangents and curves one degree or less. Apply painted pavement markings that will not deviate more than 2 inches from the stringline on curves greater than one degree. Apply painted edge markings uniformly, not less than 2 inches or more than 4 inches from the edge of pavement, without noticeable breaks or deviations in alignment or width.

Remove and replace at no additional cost to the Department, pavement markings that deviate more than the above stated requirements.

710-5.3 Correction Rates: Make corrections of variations in width at a maximum rate of 10 feet for each 0.5 inch of correction. Make corrections of variations in alignment at a maximum rate of 25 feet for each 1 inch of correction, to return to the stringline.

710-6 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the materials. At the time of notification, submit a certification to the Engineer with the APL number and the batch or Lot numbers of the paint and glass spheres to be used.

710-7 Protection of Newly Applied Pavement Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

710-8 Corrections for Deficiencies to Applied Painted Pavement Markings.

Reapply a 1.0 mile section, centered around any deficiency, at no additional cost to the Department.

710-9 Submittals.

710-9.1 Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

710-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O'clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

710-10 Method of Measurement.

The quantities, authorized and acceptably applied, under this Section will be paid as follows:

1. The length, in gross miles, of solid, 10'-30' skip, 3'-9' dotted, 6'-10' dotted, and 2'-4' dotted lines.

2. The length, in linear feet, of transverse lines, diagonal lines, chevrons, and parking spaces.

3. The number of pavement messages, symbols, and arrows. Each arrow is paid as a complete marking, regardless of the number of "points" or directions.

4. Lump Sum, as specified in 710-4.1.1 (final surface).

5. The area, in square feet, for removal of existing markings acceptably removed.

Payment for removal of conflicting markings will be in accordance with 102-5.8. Payment for removal of non-conflicting markings will be paid separately.

The gross mile measurement will be taken as the distance from the beginning of the painted line to the end of the painted line and will include the unmarked gaps for skip and dotted lines. The gross mile measurement will not include designated unmarked lengths at intersections, turn lanes, etc. Final measurement will be determined by plan dimensions or stations, subject to 9-1.3.1.

710-11 Basis of Payment.

710-11.1 General: Price and payment will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

710-11.2 Painted Pavement Markings (Final Surface): Price and payment for painted pavement markings (final surface) will be full compensation for all applications of painted

pavement markings, and all applications and removal of retroreflective pavement markers in accordance with 710-4.1.1.

Payment will be made under:

- | | |
|------------------|---|
| Item No. 710 | Painted Pavement Markings.
Solid - per gross mile.
Solid - per linear foot.
Skip - per gross mile.
Dotted - per gross mile.
Message or Symbol -each.
Arrows - each.
Yield Line - per linear foot.
Island Nose – per square foot |
| Item No. 710- 90 | Painted Pavement Markings (Final Surface) - lump sum. |

**SECTION 711
THERMOPLASTIC PAVEMENT MARKINGS**

711-1 Description.

Apply new thermoplastic pavement markings, or refurbish existing thermoplastic pavement markings, in accordance with the Contract Documents.

711-2 Materials.

Use only materials listed on the Department's Approved Product List (APL) meeting the following requirements.

Standard and Refurbishment Thermoplastic.....	
.....	971-1 and 971-5
Preformed Thermoplastic.....	971-1 and 971-6
High Friction Thermoplastic.....	971-1 and 971-10
Glass Spheres.....	971-1 and 971-2

Use sand materials meeting the requirements of 971-5.4.

The Engineer will take random samples of all material in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

711-3 Equipment.

Use equipment capable of providing continuous, uniform heating of the pavement marking material to temperatures exceeding 390°F, mixing and agitation of the material in the reservoir to provide a homogeneous mixture without segregation. Use equipment that will maintain the pavement marking material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which can produce varying width lines and which meets the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, to produce a uniform application of pavement marking material and capable of following straight lines and making normal curves in a true arc.
2. Capable of applying glass spheres to the surface of the completed pavement marking by a double drop application for standard thermoplastic pavement markings and a single drop application for recapping and refurbishment thermoplastic pavement markings. The bead dispenser for the first bead drop shall be attached to the pavement marking machine in such a manner that the beads are dispensed closely behind the installed line. The second bead dispenser bead shall be attached to the pavement marking machine in such a manner that the beads are dispensed immediately after the first bead drop application. Use glass spheres dispensers equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the glass spheres uniformly on the entire pavement markings surface with 50 to 60% embedment.
3. Equipped with a special kettle for uniformly heating and melting the pavement marking material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.
4. Meet the requirements of the National Fire Protection Association, state, and local authorities.

711-4 Application.

711-4.1 General: Remove existing pavement markings such that scars or traces of removed markings will not conflict with new pavement markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Before applying pavement markings to any portland cement concrete surface, apply a primer, sealer, or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of portland cement concrete pavement.

Apply pavement markings to dry surfaces only, and when the ambient air and surface temperature is at least 50°F and rising for asphalt surfaces and 60°F and rising for concrete surfaces.

Apply pavement markings to the same tolerances in dimensions and in alignment specified in 710-5. When applying pavement markings over existing markings, ensure that no more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

Apply thermoplastic material to the pavement by extrusion or other means approved by the Engineer.

Conduct field tests in accordance with FM 5-541. Take test readings representative of the pavement marking performance. Remove and replace pavement markings not meeting the requirements of this Section at no additional cost to the Department.

Wait at least 14 days after constructing the final asphalt surface course to place thermoplastic pavement markings. Installation of thermoplastic on concrete requires a clean, dry surface. Follow the manufacturer's recommendations for surface preparation for thermoplastic on concrete. Provide temporary pavement markings during the interim period prior to opening the road to traffic.

711-4.1.1 Preformed Thermoplastic: Apply markings to dry surfaces only and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.

711-4.1.2 High Friction Thermoplastic: High friction thermoplastic may be used as an alternative to preformed thermoplastic for special emphasis crosswalk markings. Apply markings only by gravity or air pressure thermoplastic hand liners set-up with double drop bead attachments. Install markings in accordance with the manufacturer's recommendations.

711-4.2 Thickness:

711-4.2.1 Standard Thermoplastic Markings: Apply or recap standard thermoplastic pavement markings for longitudinal lines to attain a minimum thickness of 0.10 inch or 100 mils and a maximum thickness 0.15 inch or 150 mils when measured above the pavement surface.

All chevrons, diagonal and transverse lines, messages, symbols, and arrows, wherever located, will have a thickness of 0.09 inch or 90 mils to 0.12 inch or 120 mils when measured above the pavement surface.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.2 Refurbishment Thermoplastic Markings: Apply a minimum of 0.06 inch or 60 mils of thermoplastic material. Ensure that the combination of the existing marking and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch or 150 mils for all lines.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.3 Preformed Thermoplastic: Apply 0.125 inch or 125 mils of preformed thermoplastic material.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.2.4 High Friction Thermoplastic: Apply lines to attain a minimum thickness of 0.09 inch or 90 mils and a maximum thickness of 0.12 inch or 120 mils, when measured above the pavement surface.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m² and not less than 350 mcd/lx·m², respectively for all longitudinal lines. All chevrons, diagonal lines, stop lines, messages, symbols, and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx·m² and 250 mcd/lx·m² for white and yellow respectively. All crosswalks and bicycle markings shall attain an initial retroreflectivity of not less than 275 mcd/lx·m². Black pavement markings must have a retroreflectance of less than 5 mcd/lx m².

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

711-4.4 Glass Spheres:

711-4.4.1 Longitudinal Lines: For standard thermoplastic markings, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishment thermoplastic markings, apply a single drop of Type 3 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

711-4.4.2 Chevrons, Diagonal and Transverse Lines, Messages, Symbols, and Arrows: For standard or refurbishment thermoplastic markings, apply a single drop of Type 1 glass spheres. Apply retroreflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all standard thermoplastic crosswalk lines at the rates determined by the manufacturer's recommendations.

711-4.4.3 Preformed Markings: These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.

711-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the materials. At the time of notification, submit a certification to the Engineer with the APL number and the batch or Lot numbers of the thermoplastic and glass spheres to be used.

711-6 Protection of Newly Applied Thermoplastic Pavement Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

711-7 Observation Period.

Longitudinal pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of retroreflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of 711-4.3. The Department reserves the right to check the retroreflectivity any time prior to the end of the observation period.

Replace, at no additional expense to the Department, any longitudinal pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

711-8 Corrections for Deficiencies.

Recapping applies to conditions where additional pavement marking material is applied to new or refurbished pavement markings to correct a thickness deficiency. Correct deficiencies by recapping or removal and reapplication of a 1 mile section centered around the deficiency, as determined by the Engineer, at no additional cost to the Department.

711-9 Submittals.

711-9.1 Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

711-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.
2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

711-10 Method of Measurement.

The quantities, authorized and acceptably applied, under this Section will be paid as follows:

1. The length, in gross miles, of solid, 10'-30' skip, 3'-9' dotted, 6'-10' dotted, and 2'-4' dotted lines.

2. The length, in linear feet, of transverse lines, diagonal lines, chevrons, and parking spaces.

3. The number of pavement messages, symbols, and arrows. Each arrow is paid as a complete marking, regardless of the number of "points" or directions.

4. The area, in square feet, for removal of existing markings acceptably removed. Payment for removal of conflicting markings will be in accordance with 102-5.8. Payment for removal of non-conflicting markings will be paid separately.

The gross mile measurement will be taken as the distance from the beginning of the thermoplastic line to the end of the thermoplastic line and will include the unmarked gaps for skip and dotted lines. The gross mile measurement will not include designated unmarked lengths at intersections, turn lanes, etc. Final measurement will be determined by plan dimensions or stations, subject to 9-1.3.1.

711-11 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

Item No. 711	Thermoplastic Pavement Markings
	Solid - per gross mile.
	Solid - per linear foot.
	Skip - per gross mile.
	Dotted - per gross mile.
	Message or Symbol - each.
	Arrows - each.
	Yield Line - per linear foot.
	Remove - per square foot.

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PREFACE

All projects and works on highways, roads and streets shall have a traffic control plan. All work shall be executed under the established plan and Department-approved procedures. This index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets on the State Highway System. Certain requirements in this Index are based on the high volume nature of State Highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.

Index No. 600 provides Department policy and standards. Changes are only to be made thru Department-approved procedures. Index Nos. 601 thru 670 provide typical applications for various situations. Modification can be made to these Indexes as long as the changes comply with the MUTCD and Department Design Standards.

The sign spacing shown on the Indexes are typical (recommended) distances. These distances may be increased or decreased based on field conditions, in order to avoid conflicts or to improve site specific traffic controls.

Except for emergencies, any road closure on State Highway System shall comply with Section 335.15, F.S.

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

The Florida Department of Transportation has adopted the "Manual On Uniform Traffic Control Devices For Streets And Highways" (MUTCD) and subsequent revisions and addendums, as published by the U.S. Department of Transportation, Federal Highway Administration, for mandatory use on the State Maintained Highway System whenever there exists the need for construction, maintenance operations or utility work.

SYMBOLS

The symbols shown are found in the FDOT site menu under Traffic Control cell library on the CADD system. Symbols assigned to the 600 series Design Standards and applicable to traffic control plans, unless otherwise identified in the plans, are as follows:

-  Work Area, Hazard Or Work Phase (Any pattern within a boundary)
-  Channelizing Device
-  Pedestrian Longitudinal Channelizing Device (LCD)
-  Type III Barricade
-  Work Zone Sign
-  Flagger
-  Automated Flagger Assistance Device (AFAD)
-  Traffic Signal
-  Advance Warning Arrow Board
-  Portable Signal
-  Crash Cushion
-  Stop Bar
-  Work Vehicle With Flashing Beacon
-  Shadow (S) Or Advance Warning (AW) Vehicle With Advance Warning Arrow Board And Warning Sign
-  Truck/Trailer Mounted Attenuator (TMA)
-  Law Enforcement Officer
-  Portable Regulatory Sign
-  Radar Speed Display Unit
-  Portable Changeable (Variable) Message Sign
-  Lane Identification + Direction Of Traffic
-  Traffic Control Officer

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DEFINITIONS

Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

Advisory Speed

The maximum recommended travel speed through a curve or a hazardous area.

Travel Way

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

- a. **Travel Lane:** The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.
- b. **Auxiliary Lane:** The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

Detour, Lane Shift, and Diversion

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a temporary traffic control device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

PEDESTRIAN AND BICYCLIST

When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height.
 - Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Standard Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

SIGHT DISTANCE

Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.

Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

ABOVEGROUND HAZARD

Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

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CLEAR ZONE WIDTHS FOR WORK ZONES

The term 'clear zone' describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals; where roadside canals are present, clear zone widths are to conform with the distances to canals as described in the PPM, Volume I, Chapter 4.

CLEAR ZONE WIDTHS FOR WORK ZONES		
WORK ZONE SPEED (MPH)	TRAVEL LANES & MULTILANE RAMPS (feet)	AUXILIARY LANES & SINGLE LANE RAMPS (feet)
60-70	30	18
55	24	14
45-50	18	10
30-40	14	10
ALL SPEEDS CURB & GUTTER	4' BEHIND FACE OF CURB	4' BEHIND FACE OF CURB

SUPERELEVATION

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal crown controls curvature, the minimum radii that can be applied are listed in the table below.

MINIMUM RADII FOR NORMAL CROWN	
WORK ZONE POSTED SPEED	MINIMUM RADIUS
MPH	feet
65	3130
60	2400
55	1840
50	1390
45	1080
40	820
35	610
30	430
Superelevate When Smaller Radii is Used	

LENGTH OF LANE CLOSURES

Lane closures shall not exceed 2 miles in total length (taper, buffer space and work space) in any given direction on the Interstate or on state highways with a posted speed of 55 MPH or greater.

OVERWEIGHT/OVERSIZE VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

LANE WIDTHS

Lane widths of through roadways should be maintained through work zone travel ways wherever practical. The minimum widths for work zone travel lanes shall be as follows: 11' for Interstate with at least one 12' lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for freeways; and 10' for all other facilities.

HIGH-VISIBILITY SAFETY APPAREL

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or 107-2010. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

WORKERS: All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear fitted high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

UTILITIES: When other industry apparel safety standards require utility workers to wear apparel that is inconsistent with FDOT requirements such as NFPA, OSHA, ANSI, etc., the other standards for apparel may prevail.

FLAGGERS: For daytime activities, Flaggers shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, Flaggers shall wear ANSI/ISEA Class 3 apparel.

REGULATORY SPEEDS IN WORK ZONES

Traffic Control Plans (TCP's) for all projects must include specific regulatory speeds for each phase of work. This can either be the posted speed or a reduced speed. The speed shall be noted in the TCPs; this includes indicating the existing speed if no reduction is to be made. Regulatory speeds are to be uniformly established through each phase.

In general, the regulatory speed should be established to route vehicles safely through the work zone as close as to normal highway speed as possible. The regulatory speed should not be reduced more than 10 mph below the posted speed and never below the minimum statutory speed for the class of facility. When a speed reduction greater than 10 mph is imposed, the reduction is to be done in 10 mph per 500' increments.

Temporary regulatory speed signs shall be removed as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect unless new speed limit signing is provided for in the plans.

On projects with interspaced work activities, speed reductions should be located in proximity to those activities which merit a reduced speed, and not "blanketed" for the entire project. At the departure of such activities, the normal highway speed should be posted to give the motorist notice that normal speed can be resumed.

If the existing regulatory speed is to be used, consideration should be given to supplementing the existing signs when the construction work zone is between existing regulatory speed signs. For projects where the reduced speed conditions exist for greater than 1 mile in rural areas (non-interstate) and on rural or urban interstate, additional regulatory speed signs are to be placed at no more than 1 mile intervals. Engineering judgement should be used in placement of the additional signs. Locating these signs beyond ramp entrances and beyond major intersections are examples of proper placement. For urban situations (non-interstate), additional speed signs are to be placed at a maximum of 1000' apart.

When field conditions warrant speed reductions different from those shown in the TCP the contractor may submit to the project engineer for approval by the Department, a signed and sealed study to justify the need for further reducing the posted speed, or, the engineer may request the District Traffic Operations Engineer (DTOE) to investigate the need. It will not be necessary for the DTOE to issue regulations for regulatory speeds in work zones due to the revised provisions of F.S. 316.07451(2) (b). Advisory Speed plates will be used at the option of the field engineer for temporary use while processing a request to change the regulatory speed specified in the plans when deemed necessary. Advisory speed plates cannot be used alone but must be placed below the construction warning sign for which the advisory speed is required.

For additional information, refer to the Plans Preparation Manual, Volume I, Chapter 10.

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FLAGGER CONTROL

Where flaggers are used, a FLAGGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color contrast between the flagger's high-visibility safety apparel and equipment and the work area background.

Hand-Signaling Devices

STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, must not be less than 6 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflectorized.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

Flagger Stations

Flagger stations shall be located far enough in advance of the work space so that approaching road users will have sufficient distance to stop before entering the work space. When used at nighttime, the flagger station shall be illuminated.

SURVEY WORK ZONES

The SURVEY CREW AHEAD symbol or legend sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur, at the discretion of the Party Chief.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign as called for on certain 600 Series Indexes should be omitted.

Survey Between Active Traffic Lanes or Shared Left Turn Lanes

The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

- (A) A STAY IN YOUR LANE (MOT-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.
- (B) Elevation Surveys-Cones may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50' intervals along the break line throughout the work zone.
- (C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' towards the flow of traffic.
- (D) Horizontal Control-With traffic flow in opposite directions, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' in both directions towards the flow of traffic.

SIGNS

SIGN MATERIALS

Mesh signs may be used only for Daylight Operations.

Vinyl signs may be used for Day or Night Operations not to exceed 1 day except as noted in the standards.

Rigid or Lightweight sign panels may be used in accordance with the vendor APL drawing for the sign stand to which they are attached.

INTERSECTING ROAD SIGNING

Signing for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. When Work operations exceed 60 minutes, place the ROAD WORK AHEAD sign on the side street entering the work zone.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases other areas within their traffic control zones. Where such restraints or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedure applied:

- (A) For scheduled projects the engineer in responsible charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.
- (B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.
- (C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.
- (D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance works; between routine maintenance work, unscheduled work and/or permitted work; and, between unit controlled maintenance works and highway construction projects.

SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING

Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS

Detours should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

EXTENDED DISTANCE ADVANCE WARNING SIGN

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

UTILITY WORK AHEAD SIGN

The UTILITY WORK AHEAD (W21-7) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN

The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT _____ MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at begin construction points.

SPEEDING FINES DOUBLED WHEN WORKERS PRESENT SIGN

The SPEEDING FINES DOUBLED WHEN WORKERS PRESENT sign should be installed on all projects, but may be omitted if the work operation is less than 1 day. The placement should be 500 feet beyond the ROAD WORK AHEAD sign or midway to the next sign whichever is less.

GROOVED PAVEMENT AHEAD SIGN

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

END ROAD WORK SIGN

The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted where the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless other distance is called for in the plans. When other Construction or Maintenance Operations occur within 1 mile this sign should be omitted and signing coordinated in accordance with Index No. 600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

PROJECT INFORMATION SIGN

The Project information sign shall be installed when called for in the plans.

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GENERAL NOTES:

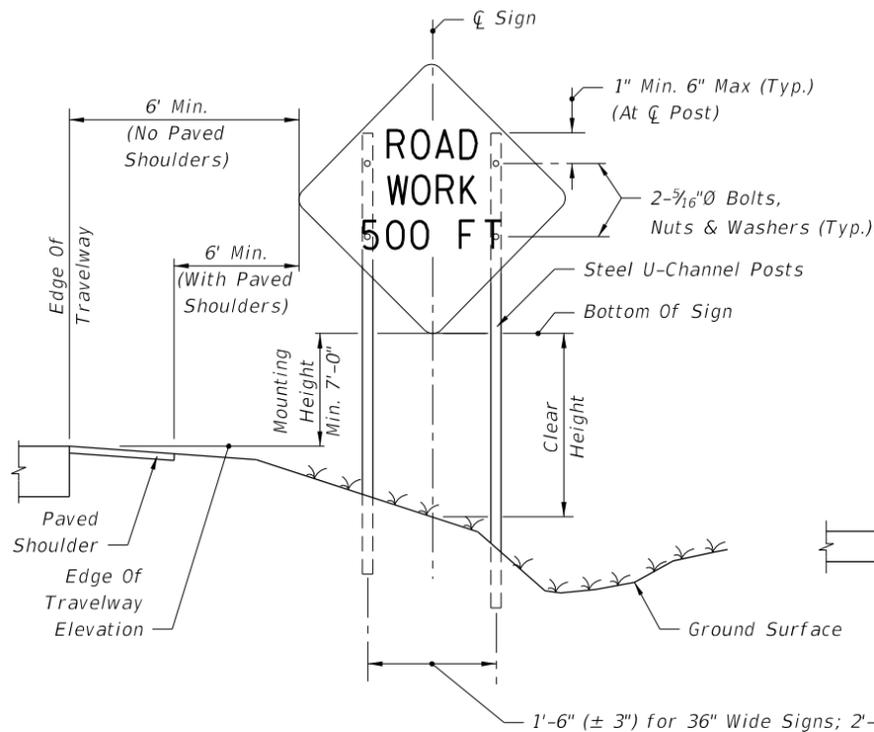
- All signs shall be post mounted when work operations exceed one day except for:
 - Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the APL.
 - Pedestrian advanced warning or regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.
 - Median barrier mounted signs per Index 11871.

TEMPORARY SIGN SUPPORT NOTE:

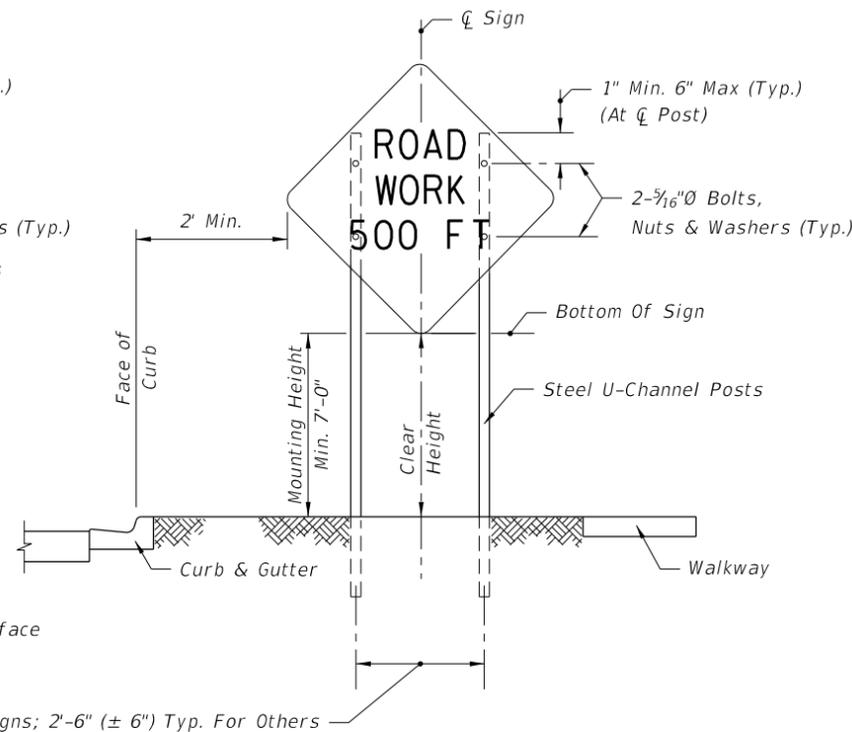
- Unless shielded with 5'-0" deflection space or outside of the Clear Zone, signs mounted on temporary supports or barricades, and barricade/sign combination must be crashworthy in accordance with NCHRP 350 requirements and included on the Approved Products List (APL).

POST MOUNTED SIGN NOTES:

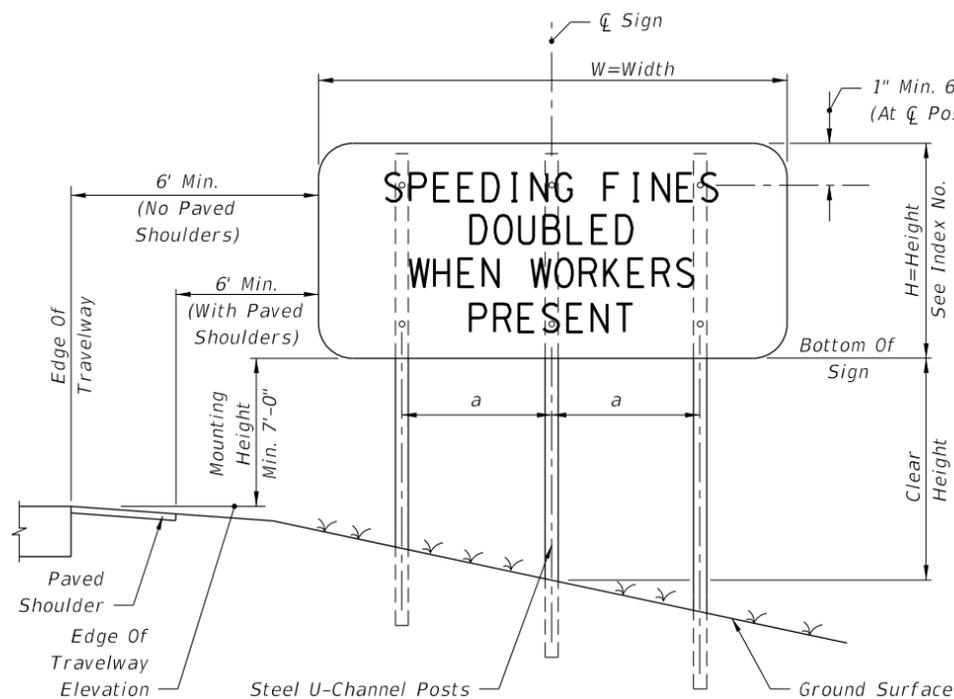
- Use only approved systems listed on the Department's Approved Products List (APL).
- Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.
- Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in³ for 60 ksi steel, a minimum section modulus of 0.37 in³ for 70 ksi steel, or a minimum section modulus of 0.34 in³ for 80 ksi steel.
- Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.56 in³ for 60 ksi steel, or a minimum section modulus of 0.47 in³ for 70 ksi or 80 ksi steel.
- U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.
- Sign attachment bolts, washers, nuts, and spacers shall conform with ASTM A307 or A 36.
- For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).
- Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- Install all posts plumb.
- The contractor may set posts in preformed holes to the specified depth with suitable backfill tamped securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer's detail shown on the APL.



**2 POST SIGN SUPPORT MOUNTING DETAILS
(SINGLE POST SIMILAR)
RURAL**

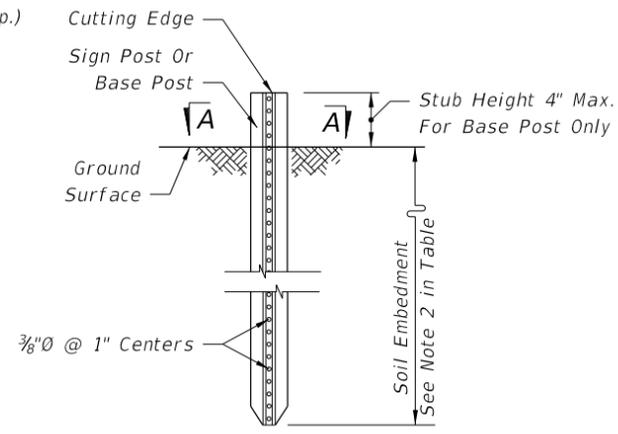


**2 POST SIGN SUPPORT MOUNTING DETAILS
(SINGLE POST SIMILAR)
URBAN**



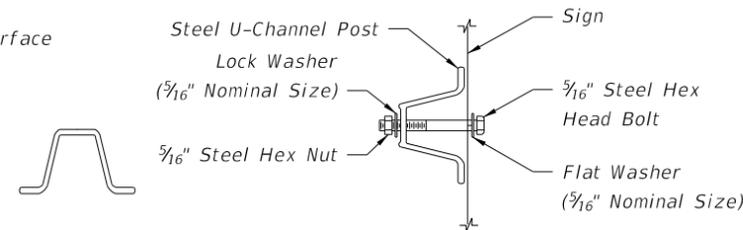
3 POST SIGN SUPPORT MOUNTING DETAILS

Where $W = 48": a = 1' - 4\frac{1}{2}" (\pm 1")$
 $W = 60": a = 1' - 9" (\pm 1")$
 $W = 72": a = 2' - 1" (\pm 1")$



TYPICAL FOUNDATION DETAIL

See APL for post, splice and connection details.
No bolts installed closer than 1" to cutting edge.



**SECTION A-A
(SCHEMATIC)**

**SIGN ATTACHMENT DETAIL
(WITHOUT Z-BRACKET)**

POST AND FOUNDATION TABLE FOR WORK ZONE SIGNS		
SIGN SHAPE	SIGN SIZE (inches)	NUMBER OF STEEL U CHANNEL POSTS
Octagon	30x30	1
	36x36x36	1
	48x48x48	1
Triangle	48x48x48	1
	60x60x60	2
	24x18	1
Rectangle (W x H)	24x30	1
	30x24	1
	36x18	1
	36x24	1
	48x18	1
	48x24	1
	36x48	2
	48x30	2
	48x36	2
	54x36	2
	48x60	3
	60x54	3
	72x48	3
120x60*	4*	
Square	30x30	1
	36x36	2
	48x48	2
Diamond (See Note 7)	48x48	2
Circle	360	2

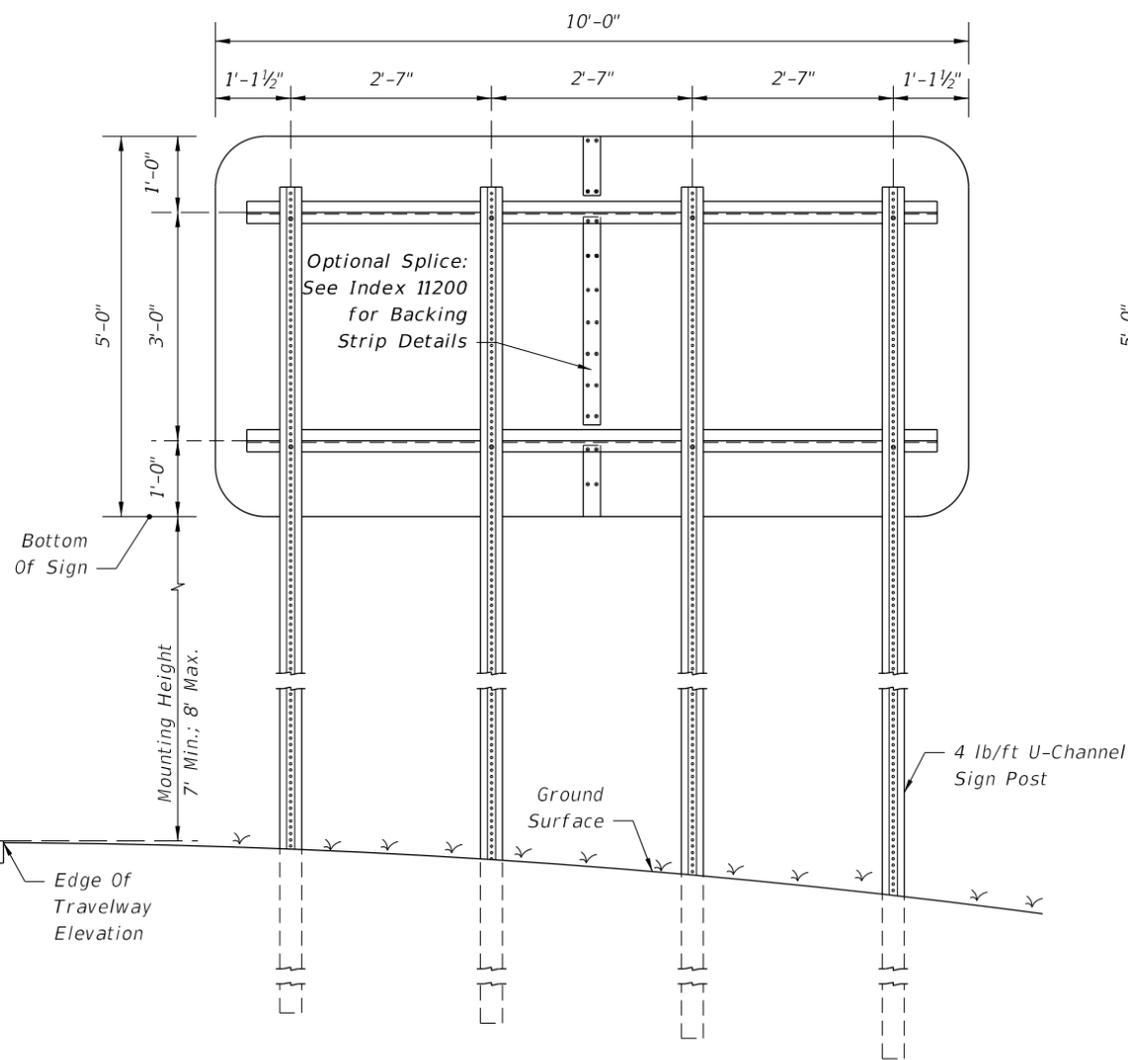
Notes For Table:

- Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
- * Use 4 lb/ft U-channel sign post with a mounting height of 7' min. and 8' max. Attach sign panel using Z-bracket detail on Sheet 6.
- Minimum foundation depth is 4.0' for 3 lb/ft posts and 4.5' for 4 lb/ft posts.
- For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
- The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in Note 3), asphalt roadway, shoulder pavement or soil under sidewalk.

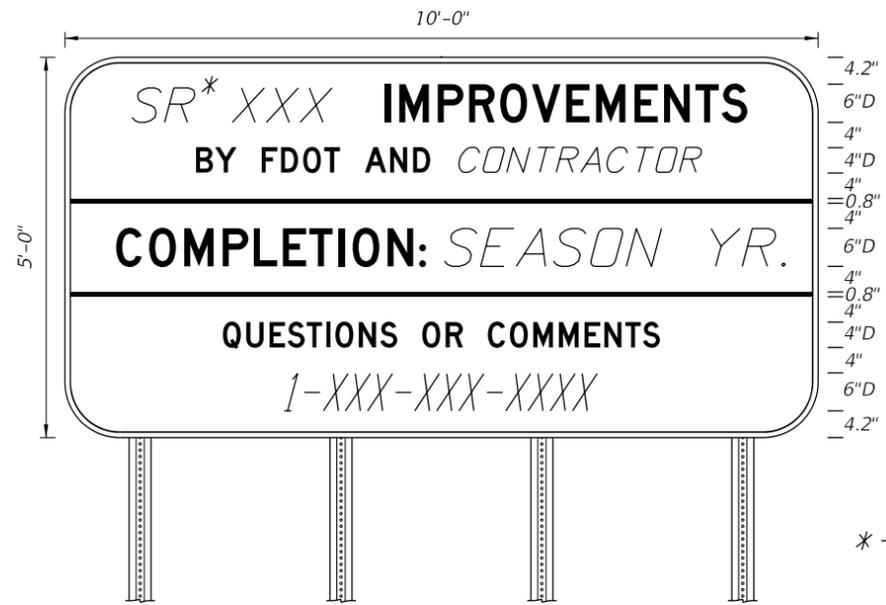
WORK ZONE SIGN SUPPORTS

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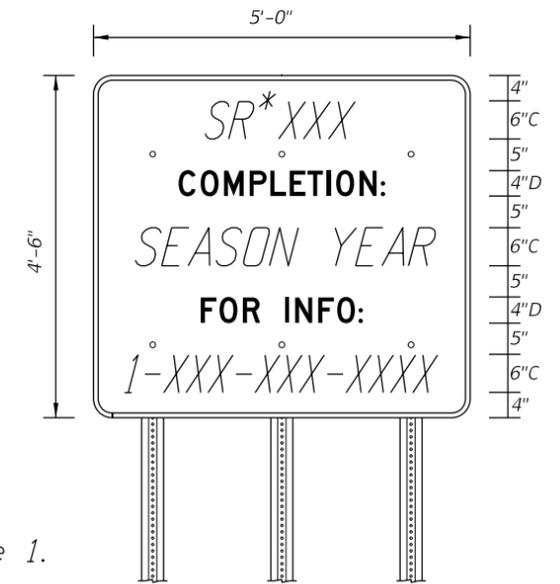


4 POST SIGN SUPPORT MOUNTING DETAIL



BORDER 10'-0" x 5'-0"
 R=8" 8" Radii
 TH=0.25" 4" and 6" series D Legend
 IN=0.75" Blue Background
 White Legend and Border

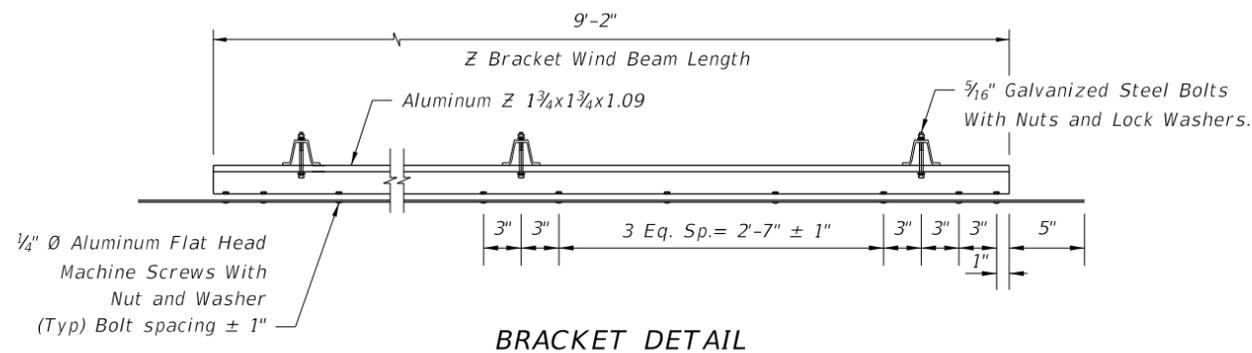
PROJECT INFORMATION SIGN DETAIL
 50 MPH OR GREATER
 Use SIGN ATTACHMENT DETAIL
 (WITH Z-BRACKET).



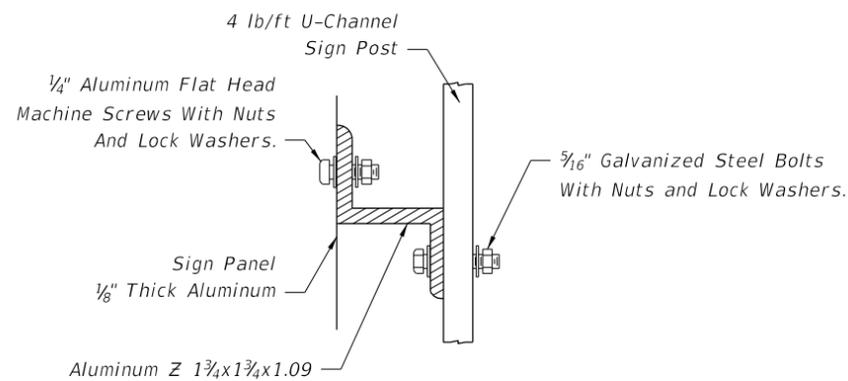
BORDER 5'-0" x 4'-6"
 R=3" 3" Radii
 TH=0.25" 4" series D Legend and
 6" series C Legend
 IN=0.75" Blue Background
 White Legend and Border

PROJECT INFORMATION SIGN DETAIL
 45 MPH OR LESS
 Use SIGN ATTACHMENT DETAIL
 (WITHOUT Z-BRACKET)
 On Sheet 6.

*-See Note 1.



BRACKET DETAIL



SIGN ATTACHMENT DETAIL
 (WITH Z-BRACKET)

PROJECT INFORMATION SIGN NOTES:

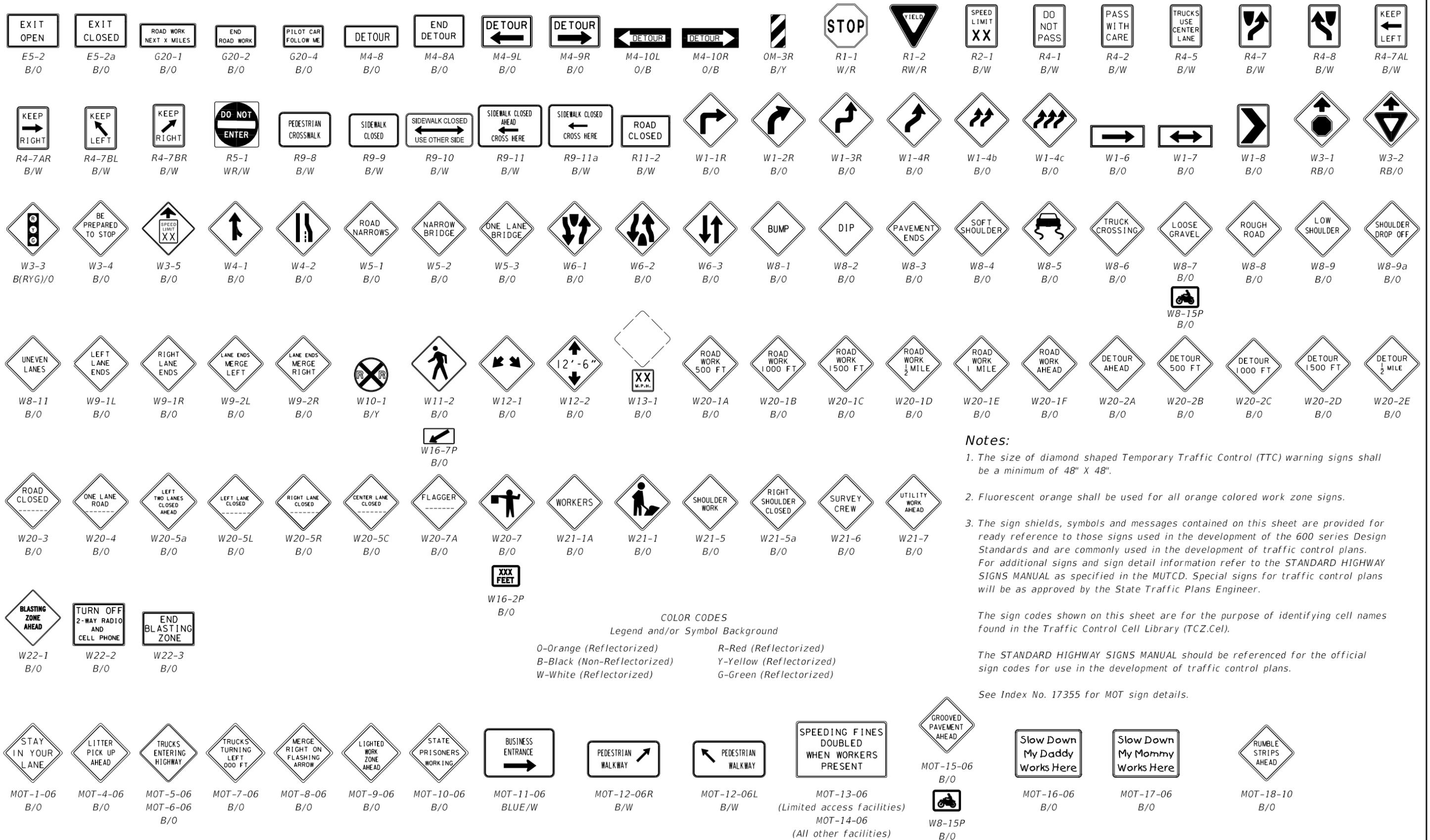
1. Road designation should be the most common designation (ie. I-Interstate, SR-State Road or US.)
2. Italic text on signs indicate variable information specific to the project.
3. See Sheet 5 for POST AND FOUNDATIONS TABLE FOR WORK ZONE SIGNS.
4. See Sheet 5 for TYPICAL FOUNDATION DETAIL.

PROJECT INFORMATION SIGN

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- Notes:**
- The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" X 48".
 - Fluorescent orange shall be used for all orange colored work zone signs.
 - The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 600 series Design Standards and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer.

The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel).

The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans.

See Index No. 17355 for MOT sign details.

COLOR CODES
 Legend and/or Symbol Background

O-Orange (Reflectorized)	R-Red (Reflectorized)
B-Black (Non-Reflectorized)	Y-Yellow (Reflectorized)
W-White (Reflectorized)	G-Green (Reflectorized)

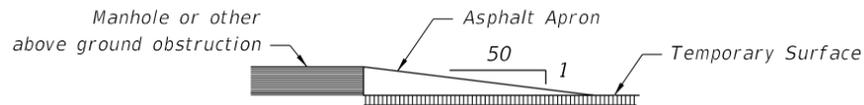
COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES

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MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4" shall have a temporary asphalt apron constructed as shown in the diagram below.

All transverse joints that have a difference in elevation of 1" or more shall have a temporary asphalt apron constructed as shown in the diagram below.



The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

REMOVING PAVEMENT MARKINGS

Existing pavement markings that conflict with temporary work zone delineation shall be removed by any method approved by the Engineer, where operations exceed one daylight period. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as a substitute for removal or obliteration. Full pavement width overlays of either a structural or friction course are a positive means to achieve obliteration.

SIGNALS

Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the TCP and be approved by the District Traffic Operations Engineer.

Maintain all existing actuated or traffic responsive mode signal operations for main and side street movements for the duration of the Contract and require restoration of any loss of detection within 12 hours. The contractor shall select only detection technology listed on the Department's Approved Products List (APL) and approved by the Engineer to restore detection capabilities.

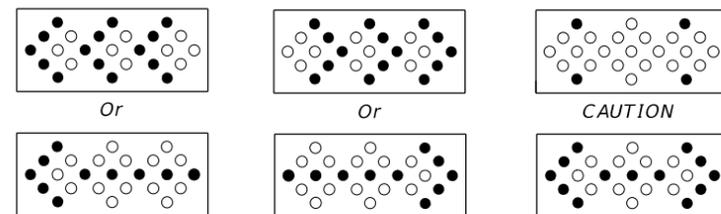
ADVANCE WARNING ARROW BOARDS

An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.

A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.

When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.



MODES

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

The PCMS can be used to:

1. Supplement standard signing in construction or maintenance work zones.
2. Reinforce static advance warning messages.
3. Provide motorists with updated guidance information.

PCMS should be placed approx. 500 to 800 feet in advance of the work zone conflicts or 0.5 to 2 miles in advance of complex traffic control schemes which require new and/or unusual traffic maneuvers.

If PCMS are to be used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

For additional information refer to the FDOT Plans Preparation Manual, Volume I, Chapter 10.

TRUCK/TRAILER-MOUNTED ATTENUATORS

Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index Nos. 607 and 619. For short-term, stationary operations, see Part VI of the MUTCD.

CHANNELIZING DEVICES

Channelizing devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and Index 600 requirements. Lighting Devices must not be used to supplement channelization.

CHANNELIZING DEVICE CONSISTENCY

Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

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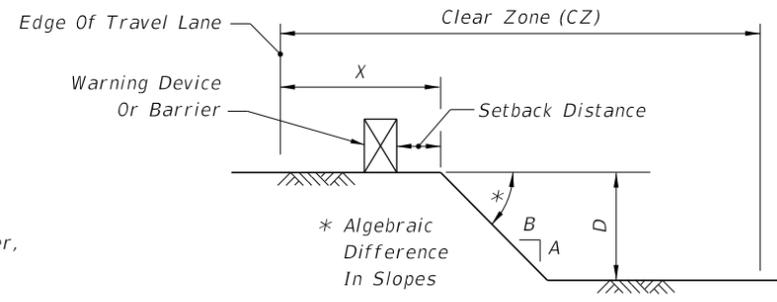
DROP-OFF CONDITION NOTES

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4 and an algebraic difference in slopes greater than 0.25 (See Drop-off Condition Detail). When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1).
3. Drop-offs may be mitigated by placement of slopes with optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LSD. Use of this treatment in lieu of a barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.
4. Distance X is to be the maximum practical under project conditions.
5. For Clear Zone widths, see Index No. 600, Sheet 3.
6. For Setback Distance, refer to the Standard Index drawing of the selected barrier for the required deflection space.
7. Distance from the travel lane to the barrier or warning device should be maximum practical for project conditions.
8. For Conditions 1 and 3 provided in Table 1, any drop-off condition that is created and restored within the same work period will not be subject to the use of barriers; however, warning devices will be required.
9. When permanent curb heights are $\geq 6"$, no warning device will be required. For curb heights $< 6"$, see Table 1.
10. Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

Index No.	Description
400	Guardrail
412	Low Profile Barrier
414	Type K Temporary Concrete Barrier System
415	Temporary Concrete Barrier

For other types of temporary barriers see the APL.
11. Drop-off condition and protection requirements apply to all speeds.

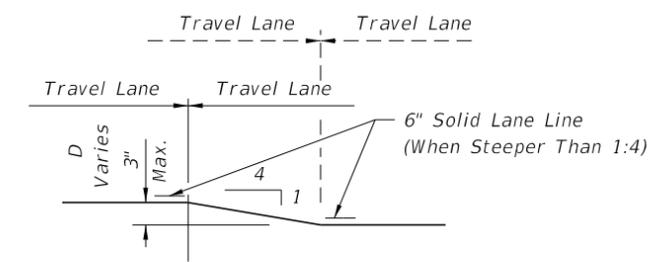
Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Barrier (See Note 8)
2	12-CZ	> 3 to ≤ 5	Warning Device
3	0-CZ	> 5	Barrier (See Note 8)
4	Removal of Bridge or Retaining Wall Barrier		Barrier
5	Removal of portions of Bridge Deck		Barrier



DROP-OFF CONDITION DETAIL

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 1/2 mile maximum.
3. If D is 1 1/2" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

PEDESTRIAN AND/OR BICYCLIST WAY DROP-OFF CONDITION NOTES

1. A pedestrian and/or bicyclist way drop-off is defined as:
 - a. a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian or bicyclist way
 - b. a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian or bicyclist way when the total drop-off is greater than 60"
2. Protect any drop-off adjacent to a pedestrian or bicyclist way with warning devices, temporary barrier wall, or approved handrail.

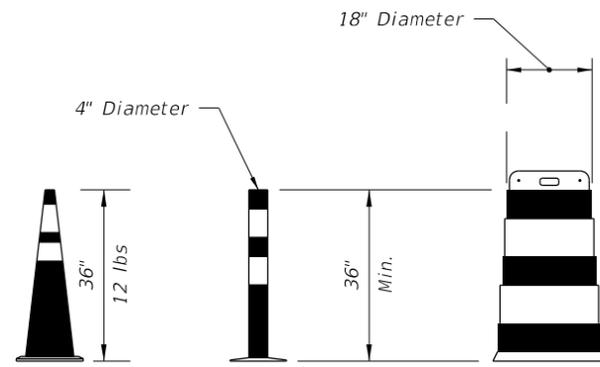
WARNING DEVICE NOTES

1. The following are defined as acceptable warning devices:
 - a. Vertical panel
 - b. Type I Or Type II barricades
 - c. Drum
 - d. Cone (where allowed)
 - e. Tubular marker (where allowed)
2. Use the warning device spacing shown in Table 2.

Speed (mph)	Max. Distance Between Devices (ft)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

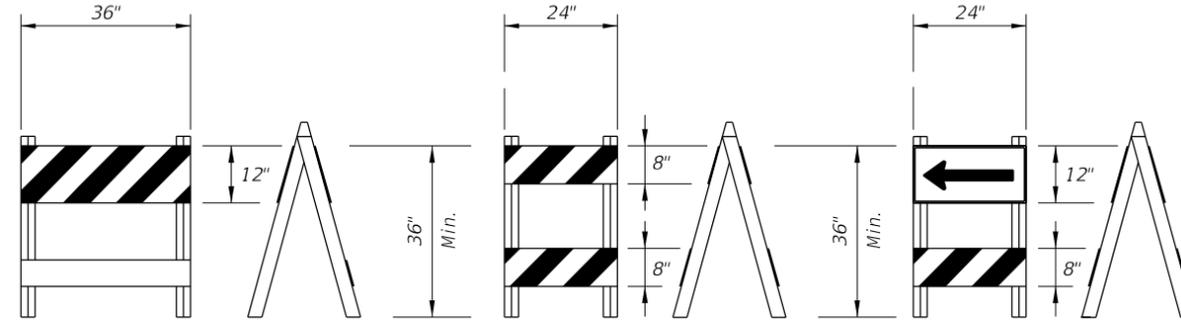
DROP-OFFS IN WORK ZONES

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CONES TUBULAR MARKER PLASTIC DRUMS

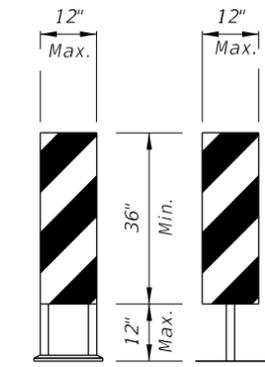
TUBULAR NON-FIXED MARKER TO BE USED DURING DAYLIGHT ONLY



TYPE I BARRICADE

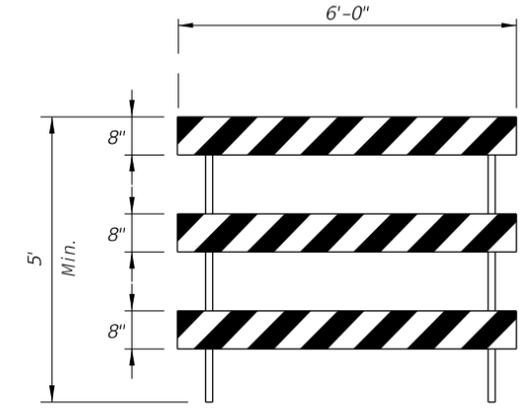
TYPE II BARRICADE

DIRECTION INDICATOR BARRICADE



A-FRAME POST MOUNT

VERTICAL PANEL

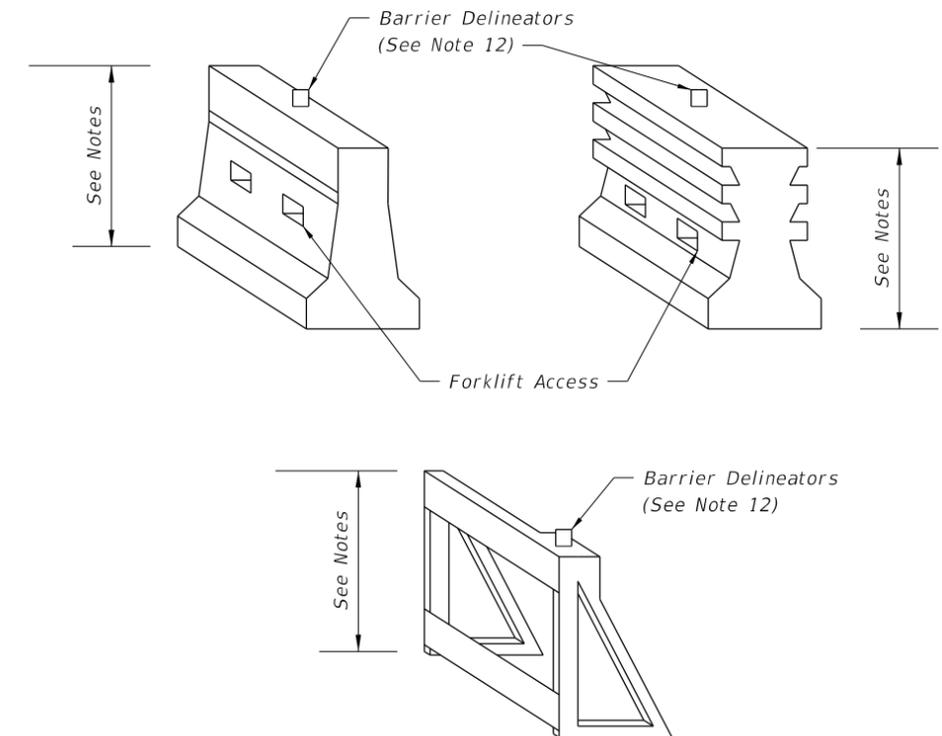


TYPE III BARRICADE

CHANNELIZING DEVICE NOTES

- The details shown on this sheet are for the following purposes:
 - For ease of identification and
 - To provide information that supplements or supersedes that provided by the MUTCD.
- The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.
- No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the APL.
- Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
- The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
- The splicing of sheeting is not permitted on either channelizing devices or MOT signs.
- For rails less than 3'-0" long, 4" stripes shall be used.
- Cones shall:
 - Be used only in active work zones where workers are present.
 - Not exceed 2 miles in length of use at any one time.
 - Be reflectorized as per the MUTCD with Department-approved reflective collars when used at night.

- Spacing for longitudinal channelizing devices when placed singly shall be the same as Type I or Type II barricades or drums.
- Vehicular longitudinal channelizing devices shall not exceed 36" in height. For vehicular longitudinal channelizing devices (LCDs) less than 32" in height, the LCD shall be supplemented with approved fixed (surface mounted) channelizing devices (tubular markers, vertical panels, etc.) along the run of the LCD, at the ends, at 50' centers on tangents, and 25' centers on radii. The cost of the fixed supplemented channelizing devices shall be included in the cost of the LCD. LCDs less than 32" in height shall not be used for speeds greater than 45 mph.
- For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have smooth connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.
- For vehicular longitudinal channelizing devices, use Barrier Delineators meeting Specifications Section 993. Place on top of unit so that retroreflective sheeting faces vehicular traffic. Spacing must be a maximum of 50' centers in transitions, 100' centers on curves and 200' centers on tangents. Color must match adjacent longitudinal pavement marking.

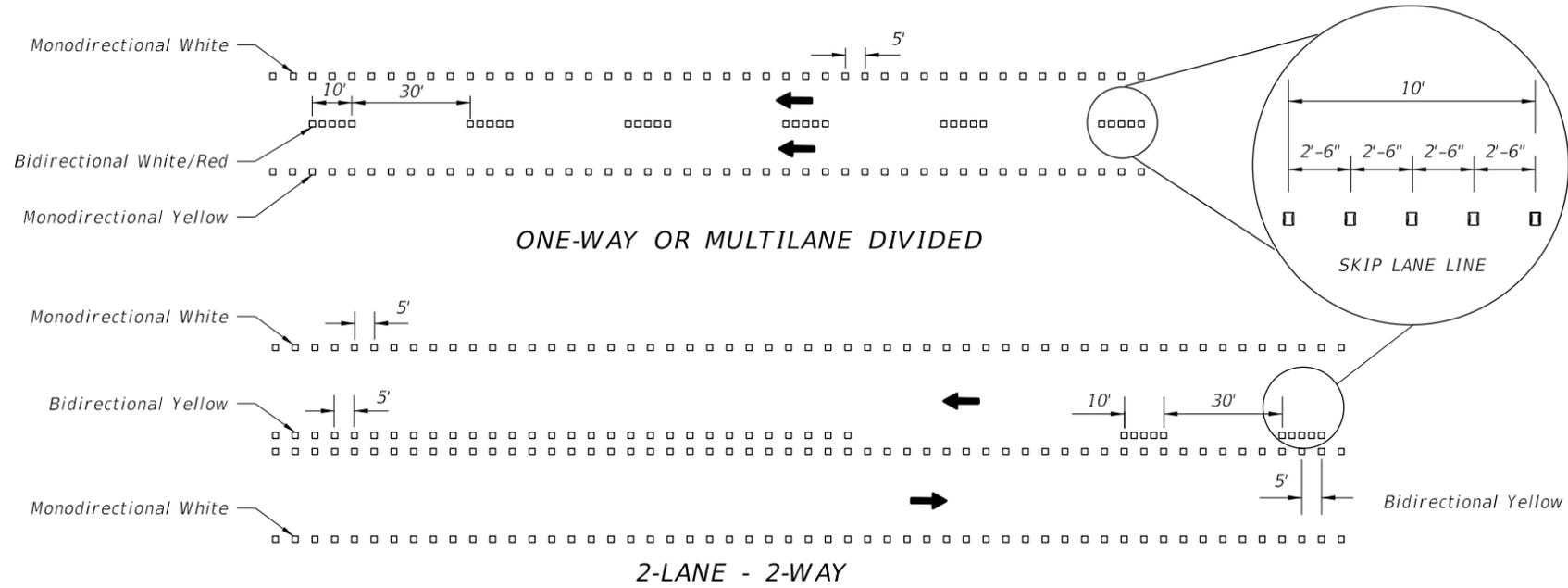


LONGITUDINAL CHANNELIZING DEVICE

IDENTIFICATIONS - CHANNELIZING DEVICES

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LAST REVISION 07/01/15	REVISION	DESCRIPTION:	<p>FY 2016-17 DESIGN STANDARDS</p>	<p>GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES</p>	<p>INDEX NO. 600</p>	<p>SHEET NO. 11 of 12</p>
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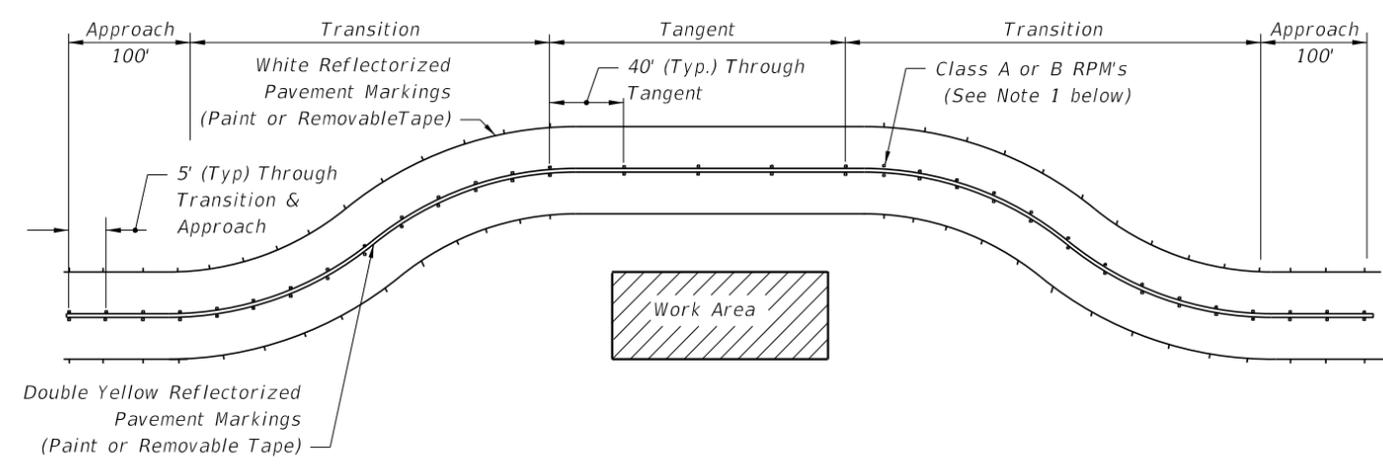


TEMPORARY SUBSTITUTION OF RPM'S FOR PAINT OR REMOVABLE TAPE

1. Paint or removable tape are the required work zone markings and shall be placed in accordance with the plans and specifications. If these work zone markings can not be placed due to weather restrictions identified in the appropriate specification, temporary substitution of RPM's for work zone markings will be allowed until the weather condition permits the placement of appropriate work zone marking. Temporary substitution of RPM's for work zone markings will be allowed for equipment malfunction, placement of the appropriate work zone marking shall be made within 3 days, or sooner if possible. When RPM's are used as a temporary substitution for work zone markings the following shall apply:
 - a. Lane widths identified in the plans must be maintained. Placement of RPM's should consider where work zone markings will be placed as soon as conditions allow. If the RPM's can not be placed so that the lane width is maintained after the placement of the work zone markings, the conflicting RPM's must be removed.
 - b. The color of the RPM body and the reflective face shall conform to the color of the marking for which they substitute.
 - c. In work zones, B RPM's must be used to form lane lines, edge lines and temporary gore areas as a temporary substitute for paint or removable tape at the spacing shown above.

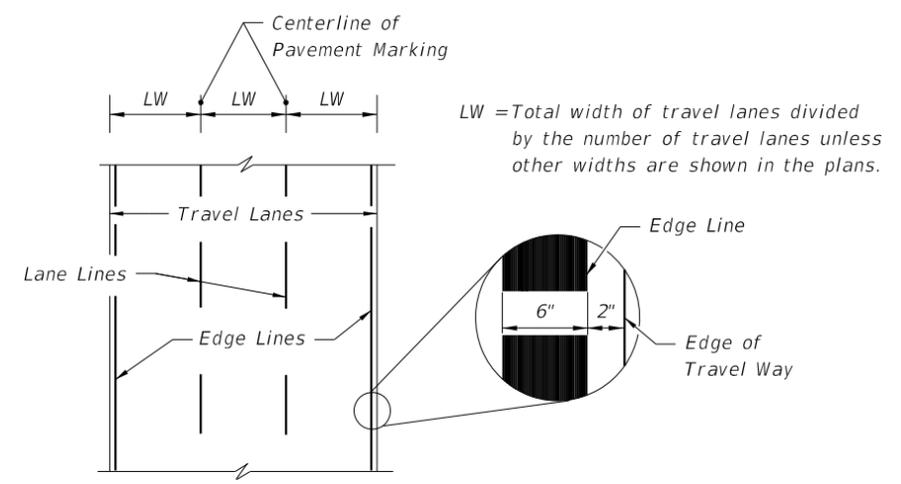
NOTES FOR REFLECTIVE PAVEMENT MARKERS

1. The color of the raised pavement marker under both day and night conditions shall conform to the color of the marking for which they serve as a positioning guide, or for which they supplement or substitute.
2. To provide contrast on concrete pavement, or light asphalt, the five (5) white RPM's shall be followed by five black RPM's. The spacing between RPM's shall be 2'-6". Black RPM's will not be required for contrast with yellow RPM's.
3. RPM's used to supplement lane lines are to be paid for as Reflective Pavement Marker (Temporary), EA. RPM's used as a temporary substitute for paint or removable tape due to weather restrictions are to be paid for as Reflective Pavement Marker (Temporary), EA. RPM's used as a temporary substitute for paint or removable tape due to equipment malfunction are to be placed at the Contractor's expense.



USE OF RPM'S TO SUPPLEMENT PAINT OR REMOVABLE TAPE IN WORK ZONES

1. RPM's shall be installed as a supplement to:
 - a. All lane lines.
 - b. Edge lines in transition & approach areas.
 - c. Edge lines of gore areas.
2. Placement of RPM's should be as shown in Index No. 17352 with the following exceptions:
 - RPM's shall be placed at 5 feet center to center in approach and transition areas.



PLACEMENT OF PAVEMENT MARKINGS

PAVEMENT MARKINGS

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LAST REVISION 01/01/16	REVISION	DESCRIPTION:	 FY 2016-17 DESIGN STANDARDS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX NO. 600	SHEET NO. 12 of 12
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