

NOTICE TO BIDDERS ADDENDUM NO. 1

This Addendum changes the terms of the Bid Proposal and/or plans associated with the Monroe County Road Commission project indicated below. By submitting a bid, any and all changes included in this Addendum are made a part of the contract.

MCRC Project No.: N/A
Project Description: 2017 HMA Paving Program
Bid Date: Thursday, April 13, 2017 at 10:00 a.m.
Addendum Date: 03/29/2107

DESCRIPTION OF CHANGES:

Proposal 1) **Revise** the Bid Date from Friday, March 31, 2017 to Thursday, April 13, 2017 on page 2

OPENING OF BIDS

Bids will be received by the Board at 840 S. Telegraph Road, Monroe, Michigan 48161 until **10:00 a.m.** local time on **Thursday, April 13, 2017** at which time they will be publicly opened and read aloud.

Proposal 2) **Add** the Aggregate Base (Ton) description to the Items of Work section on page 7

Aggregate Base (Ton) – The Aggregate Base item of work shall be in accordance with section 302 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for the placement of 4 foot wide by 8 inch dep 21AA aggregate base widening on North County Line Road as noted in the Log of Work attached to the proposal.

Proposal 3) **Revise** the Trenching (Sta) description to add a description of the proposed work on North County Line Road in the Items of Work section on page 7

Trenching (Sta) – The Trenching item of work shall be in accordance with section 307 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used to excavate, shape and compact the 2 foot wide by 4 inch deep trenches for the hot mix asphalt base widening on Smith Road between Lewis Avenue and US-24. The trenches on Smith Road shall be filled with hot mix asphalt flush to the existing pavement surface prior to reopening the lane to traffic. The hot mix asphalt used to fill the trenches on Smith Road will be paid for as HMA, Zone Patching, LVSP, 3% Air Voids. This item of work will also be used to excavate, shape and compact the 4 foot wide by 8 inch deep trenches for the aggregate base widening on North County Line Road between Brewer Road and M-50. The trenches on North County Line Road shall be filled with 21AA aggregate base to the existing pavement surface prior to reopening the lane to traffic. The 21AA aggregate used to fill the trenches on North County Line Road will be paid for as Aggregate Base.

**NOTICE TO BIDDERS
ADDENDUM NO. 1**

Proposal 4) **Add** the Aggregate Base item to the Measurement and Payment section on page 8

The Engineer will measure and pay for **Aggregate Base** in accordance with the section 302 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit price for **Shoulder, CI II** includes the cost of providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

Proposal 5) **Revise** the Schedule of Items on page 10

Proposal 6) **Add** the Additional Log of Work

Proposal 7) **Delete** the original proposal and **Replace** with the attached revised proposal that incorporates the revisions described above.

COMMUNICATIONS

Any questions regarding this addendum shall be directed to the person listed below:

Name: Christine Herron
Phone: 734-240-5109
Email: CHerron@mcrc-mi.org

ACKNOWLEDGEMENT

Acknowledge receipt of this addendum by completing the information below and returning the addendum to the Monroe County Road Commission via email to CHerron@mcrc-mi.org or by fax to 734-240-5131.

Company: _____
By: _____
Date: _____

The Contractor shall also acknowledge any and all addendums in the space provided on page 10 of the proposal prior to submitting the bid.



MONROE COUNTY
R O A D
COMMISSION

840 S. Telegraph Road • Monroe, Michigan 48161 • Phone: (734) 240-5102 • Fax: (734) 240-5101

PROPOSAL

FOR

2017 HMA PAVING PROGRAM

(PROPOSAL INCLUDES REVISIONS PER ADDENDUM NO. 1)

BID OPENING:
Thursday, April 13, 2017 at 10:00 a.m.

**BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF MONROE**

Paul Iacoangeli, Chairman
Dan Minton, Vice Chairman
Stephen J. Pace, Member
Charles A. Londo, Member
Greg W. Stewart, Member

**MONROE COUNTY ROAD COMMISSION
INVITATION TO BID**

Sealed bids will be received by the Board of County Road Commissioners of the County of Monroe until **10:00 a.m.** local time on **Friday, March 31, 2017** at their office located at 840 South Telegraph Road, Monroe, Michigan, 48161 for the following:

- 2017 Asphalt Rejuvenating Surface Treatment Program
- 2017 Fog Seal Program
- 2017 Full Depth Reclamation Program
- 2017 HMA Paving Program (**Revised to 10:00 a.m. local time on Thursday, April 13, 2017**)
- 2017 Pavement Marking Program
- 2017-2018 Supplemental Grader Services

Bids will be publicly opened and read aloud by the Bid Committee at 10:00 a.m. Proposals may be downloaded from the Road Commission's website at www.mcrc-mi.org/bids.html.

BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF MONROE, MICHIGAN

**MONROE COUNTY ROAD COMMISSION
PROPOSAL
2017 HMA PAVING PROGRAM**

TO: The Board of County Road Commissioners of the County of Monroe, Michigan

FOR: 2017 HMA Paving Program

Ladies and Gentlemen:

The undersigned bidder hereby affirms that:

1. The proposal is in all respects fair and without any collusion or fraud.
2. The undersigned have examined the site of the proposed project and have made a personal investigation and estimate of quantities.
3. The undersigned will contract to furnish all labor, equipment, tools, material and traffic control devices necessary at the unit prices stated on the attached bid forms and to complete the work in the time specified to the satisfaction of the Board of County Road Commissioners of the County of Monroe, Michigan.

Company: _____

Address: _____

City, State, ZIP: _____

Telephone: _____

By: _____

Title: _____

Date: _____

Notes:

1. If the bidder is a partnership, each member must sign the proposal.
2. Corporations must execute the proposal by duly authorized officers in accordance with the Articles of Incorporation.

INSTRUCTIONS TO BIDDERS
and
GENERAL CONDITIONS

The Michigan Department of Transportation 2012 Standard Specifications for Construction are incorporated as part of these bidding documents and shall govern except as provided in the Invitation to Bid, Instructions to Bidders and General Conditions, and Proposal. Reference to the Department or Commission in the Michigan Department of Transportation 2012 Standard Specifications for Construction shall for this project mean the Board of County Road Commissioners of the County of Monroe, hereinafter referred to as "Board", unless otherwise specified.

OWNER

The owner of the project is the Board of County Road Commissioners of the County of Monroe, also referred to as the "Board."

ENGINEER

The Engineer is the Director of Operations or the individual assigned by the Director of Operations to be in charge of the Contract. The person assigned as the Engineer may be an employee of the Board, a consultant or an outside contractor hired by the Board.

BIDDER

The Bidder is one who submits a signed bid with the required documentation directly to the Board at the time and place specified.

BID FORMS

Sealed proposals must be submitted on the bid forms furnished by the Board. The proposal shall be submitted in its entirety (pages 1 through 13) with no modifications or changes except as authorized by an addendum and with no pages removed. All proposals must be filled out in ink or typewritten and shall be legibly signed, giving the complete name and address of the Bidder.

All bids must be in a sealed envelope and clearly marked "**Bid for 2017 HMA Paving Program.**"

BIDDER'S SURETY

The proposal must be accompanied by a cashier's check, certified check or a bid bond made payable to the Board of County Road Commissioners of Monroe County, Michigan in the sum of five percent (5%) of the amount of the bid. Upon awarding and signing of a contract, or in the event of bid rejection, such bid surety will be returned to the Bidder. Bids may be held for a period of forty (40) days.

INTERPRETATION AND ADDENDA

All questions about the meaning or intent of the Bidding Documents are to be directed to the Engineer. Interpretation or clarification considered necessary by the Engineer to such questions will be issued by Addenda delivered to all parties recorded by the Engineer as having received the Bidding Documents. Questions received less than seven days prior to the date for opening the bids may not be answered. Only questions answered by formal written Addenda are binding. Oral and other interpretations or clarifications will be without legal effect.

OPENING OF BIDS

Bids will be received by the Board at 840 S. Telegraph Road, Monroe, Michigan, 48161 until **10:00 a.m.** local time on **Thursday, April 13, 2017** at which time they will be publicly opened and read aloud.

REJECTION OF BIDS

The Board reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional bids and to reject the bid of any Bidder if the Board believes that it would not be in the best interest of the project to make an award to that Bidder, whether because the bid is not responsive or if the Bidder is unqualified or of doubtful financial ability or fails to meet any pertinent standards or criteria established by the Board. The Board also reserves the right to waive all informalities in any bid should it be deemed in the best interest of the Road Commission

to do so. Discrepancies between the multiplication of units of work and the unit prices will be resolved in favor of the unit price. Discrepancies between the indicated sum of any column of figures and the correct sum will be resolved in favor of the correct sum. Discrepancies between words and figure will be resolved in favor of words.

TITLE VI ASSURANCE

The Monroe County Road Commission, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC 2000d to 2000d-4) and Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, hereby notifies all bidders that it assures that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, gender, age, or disability in consideration for an award.

PROHIBITION OF DISCRIMINATION

In accordance with Act No. 453, Public Acts of 1976, the Contractor and subcontractors hereby agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, or marital status. Further, in accordance with Act No. 220, Public Acts of 1976 as amended by Act No. 478, Public Acts of 1980, the Contractor and subcontractors hereby agree not to discriminate against an employee or applicant for employment tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of a disability that is unrelated to the individual's ability to perform the duties of a particular job or position. A breach of the above covenants shall be regarded as a material breach of this contract.

CONTRACT EXECUTION

The Bidder to whom the Contract is awarded shall, within ten (10) calendar days after notice of award, enter into a written contract with the Board and furnish proof of insurance as hereinafter specified. Failure to execute the contract or furnish satisfactory proof of insurance will be considered cause for annulment of award.

PERFORMANCE AND LIEN BONDS

The successful Bidder to whom the contract is awarded shall furnish two (2) surety bonds as follows:

Performance Bond - To the Board of County Road Commissioners of the County of Monroe, Michigan for the faithful fulfillment of the terms of the contract in the amount of one-hundred (100) percent of the contract amount

Lien Bond - To the Board of County Road Commissioners of the County of Monroe, Michigan for the payment of all labor and materials used in the work in the amount of one-hundred (100) percent of the contract amount

INCREASED OR DECREASED QUANTITIES

The Board reserves the right to increase or decrease quantities from those originally estimated and such changes will be paid for at the unit price bid so long as the total contract amount is not changed more than twenty-five (25) percent. Changes in excess of that amount will be individually negotiated.

PROGRESS SCHEDULE

In no case shall any work be commenced prior to receipt of formal notice of award by the Board.

The low Bidder for the work covered by this proposal will be required to meet with the Board's representative to review the Contractor's proposed work schedule. The schedule for this meeting will be set within one (1) week after the low bidder is determined.

The Board's representative will arrange the time and place for the meeting.

TIME OF COMPLETION

Roads that will be prepared for a micro-surface or chip seal surface treatment shall be completed on or before **May 26, 2017**. The completion dates for the roads that are being prepared for a surface treatment are noted in the Log of Work attached to the proposal.

All roads shall be completed on or before **October 31, 2017**.

FAILURE TO COMPLETE ON TIME

Liquidated damages in the amount of **\$600** per day will be assessed for each calendar day that the work remains incomplete beyond the completion dates.

PAYMENTS TO CONTRACTOR

The Contractor shall invoice the Monroe County Road Commission for their work on the contract. Each invoice shall contain, at a minimum, the following information: road name and limits, date(s) the work was performed, pay items, quantities of work completed, and the contract unit prices

FINAL INSPECTION, ACCEPTANCE AND FINAL PAYMENT

The Engineer or their designated representative will make an inspection of all work included in the contract and notify the Contractor of defects to be remedied prior to acceptance and payment.

DISPUTES

The Engineer's written decision on any question arising under the contract between the Board and Contractor shall be final and binding upon both the Board and the Contractor in the absence of fraud, bad faith, or abuse of discretion.

ASSIGNMENT CLAUSE

The contract between the Board and the Contractor may not be assigned to a third party without the written consent of the Board.

TAXES

The Contractor shall include, and will be deemed to have included, in its base bid and contract price all applicable Michigan Sales and Use taxes which have been enacted into law as of the date the bid is submitted.

EXTENSION OF CONTRACT

Upon mutual agreement of both parties, the Board may extend the length of the Contract for up to three additional one-year terms. The pricing, terms, and conditions of the original contract will remain the same for any subsequent one-year extensions. Requests for a contract extension must be made in writing to the Director of Operations by February 1st.

BOARD RESPONSIBILITY

The Board shall not supervise, direct or have control or authority over, nor be responsible for, the Contractor's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with laws and regulations applicable to the furnishing or performance of the work unless otherwise specified in the Special Provisions. The Board will not be responsible for the Contractor's failure to perform or furnish the work in accordance with the Contract Documents.

INDEMNIFICATION, DAMAGE LIABILITY AND INSURANCE

- A. Indemnification. The Contractor must hold harmless, indemnify, defend and represent the Board and its officers, agents and employees against any and all claims for bodily injury or property damage, or any other claim arising out of performance of the work on this contract. The Contractor will not be responsible for claims that result from the sole negligence or willful acts of said indemnitee.

- B. Workers' Compensation Insurance. The Contractor must carry the necessary Workers' Compensation Insurance and submit a certification that it carries Workers' Compensation to the Board.
- C. Bodily Injury and Property Damage. The Contractor must carry adequate insurance, satisfactory to the Board, to afford protection against all claims for damage to public or private property and injuries to persons arising out of performance of the work. Copies of completed certificates must be submitted to the Board.
1. General Liability, Bodily Injury and Property Damage. The Contractor must provide the following minimum limits of property damage and bodily injury liability:

Bodily Injury and Property Damage Liability:	
Each Occurrence	\$1,000,000
Aggregate	\$2,000,000
 2. Automobile Liability, Bodily Injury and Property Damage. The Contractor must provide the following minimum limits of property damage and bodily injury liability:

Bodily Injury Liability:	
Each Person	\$500,000
Each Occurrence	\$1,000,000
Property Damage Liability:	
Each Occurrence	\$1,000,000
Combined Single Limit for Bodily Injury and Property Damage Liability:	
Each Occurrence	\$2,000,000
 3. Umbrella Policy. The Contractor may meet the requirements of above minimum limits of bodily injury and property damage liability through an umbrella policy.
- D. Additional Insured. The Bodily Injury and Property Damage Policy must include the following endorsements, verbatim:
- "Additional Insured: The Board of County Road Commissioners of the County of Monroe, the Monroe County Road Commission and its officers, agents and employees."
- "Provide written notice ten (10) days prior to cancellation, expiration, termination or reduction in coverage for nonpayment of the premium and written notice thirty (30) days prior to cancellation, expiration, termination or reduction in coverage for all other reasons."
- E. Per Project Aggregate. The Bodily Injury and Property Damage Policy must be endorsed with an endorsement that provides the General Aggregate Limit to each designated construction project.
- F. Notice. The Contractor must ensure that all insurance policies and binders include an endorsement by which the insurer agrees to notify the Department in writing at least 30 days before there is a cancellation or material change in coverage. The Contractor must stop operations if any insurance is canceled or reduced, and must not resume operations until new issuance is in force.
- G. Reports. The Contractor or insurance carrier shall report to the Board any claims received, inspections made and the disposition of claims. The Board will withhold final payment release until either the Contractor pays the claim or until final disposition of the claim by the Contractor's insurance company has been received by the Board.

MAINTENANCE OF TRAFFIC

Maintain traffic in accordance with sections 104.07, 104.11, 812 and 922 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Contractor shall be responsible for the protection of vehicular and pedestrian traffic, work in progress and construction workers in the work zone through the implementation of procedures as described in this proposal, the MMUTCD, the Standard Specifications for Construction, and other applicable state and federal requirements.

The Contractor shall coordinate this work with any other contractors or maintenance agencies performing work within the work zone or adjoining areas to avoid conflicts in the maintenance of traffic, construction signing and the orderly progress of contract work.

Two-way traffic, with a minimum of one lane of traffic, shall be maintained at all times utilizing lane closures and flag control.

Signing for lane closures shall be in accordance with Michigan Department of Transportation Maintaining Traffic Typical M0020a, M0140a, M0231a and M330a except that Speed Limit signs (R2-1), Work Zone Begins signs (R5-18c), Arrow symbol signs (W1-6), Center Left Turn Lane Closed signs (W20-5a) and End Road Work signs will not be required where shown.

Channelizing devices for lane closures shall be 28 inch traffic cones.

The Contractor shall notify the Engineer a minimum of 48 hours prior to the implementation of any lane closures.

All work shall be conducted during normal daytime hours unless otherwise approved by the Engineer. Normal daytime hours are considered to be Monday through Saturday from 7 a.m. to 7 p.m.

Traffic will not be allowed to drive on a milled surface for longer than 72 hours.

No work shall be performed during the Memorial Day, Independence Day or Labor Day holiday weekends as defined by the Engineer.

All labor, equipment, temporary signs and channelizing devices required for maintaining traffic will not be paid for separately and are included in the unit prices for other items of work.

SPECIFICATIONS

All work not otherwise specified shall be done in accordance with the Michigan Department of Transportation 2012 Standard Specifications for Construction. Within these specifications all references to the Michigan Department of Transportation shall mean the Board.

MATERIALS

All materials shall be in accordance with the Michigan Department of Transportation 2012 Standard Specifications for Construction except as modified herein.

The Contractor shall submit a job mix formula for each HMA mixture used. The Contractor may use mix designs approved by the Michigan Department of Transportation or Ohio Department of Transportation on other projects.

The air void content for all HMA mixtures shall be field regressed to 3.0 percent with liquid asphalt cement.

The virgin asphalt binder for all HMA mixtures shall be PG 58-28 unless otherwise specified.

QUALITY CONTROL

The Contractor shall prepare and implement a quality control (QC) plan for the production of HMA mixtures in accordance with the HMA Production Manual.

For each day's production greater than 500 tons, the Contractor must perform a minimum of one QC test per day for gradation, AC content and air voids. A copy of the QC test results shall be provided to the Engineer.

ITEMS OF WORK

Following is a description of the items of work on this contract:

Aggregate Base (Ton) – The Aggregate Base item of work shall be in accordance with section 302 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for the placement of 4 foot wide by 8 inch deep aggregate base widening on North County Line Road as noted in the Log of Work attached to the proposal. The aggregate base material shall be 21AA crushed limestone.

HMA Base Crushing and Shaping (Syd) – The HMA Base Crushing and Shaping item of work shall be in accordance with section 305 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The roads that are being crushed and shaped will be closed to through traffic during construction. The Monroe County Road Commission will provide the temporary construction signing and barricades for the road closures.

Shoulder, CI II (Ton) – The Shoulder, CI II item of work shall be in accordance with section 307 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for the placement of 23A aggregate shoulders as noted in the Log of Work attached to the proposal.

Trenching (Sta) – The Trenching item of work shall be in accordance with section 307 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used to excavate, shape and compact the 2 foot wide by 4 inch deep trenches for the hot mix asphalt base widening on Smith Road between Lewis Avenue and US-24. The trenches on Smith Road shall be filled with hot mix asphalt flush to the existing pavement surface prior to reopening the lane to traffic. The hot mix asphalt used to fill the trenches on Smith Road will be paid for as HMA, Zone Patching, LVSP, 3% Air Voids. This item of work will also be used to excavate, shape and compact the 4 foot wide by 8 inch deep trenches for the aggregate base widening on North County Line Road between Brewer Road and M-50. The trenches on North County Line Road shall be filled with 21AA aggregate base to the existing pavement surface prior to reopening the lane to traffic. The 21AA aggregate used to fill the trenches on North County Line Road will be paid for as Aggregate Base.

Cold Milling HMA Surface (Syd) – The Cold Milling HMA Surface item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for continuous cold milling operations at the specified depth as noted in the Log of Work attached to the proposal.

HMA Surface, Rem (Syd) – The HMA Surface, Rem item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for cold milling the HMA surface for spot pavement repairs at the specified depth as noted in the Log of Work attached to the proposal. This item will also be used to pay for the milling on any individual project less than 2,000 square yards.

Pavt for Butt Joints, Rem (Syd) – The Pavt for Butt Joints, Rem item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for cold milling butt joints as noted in the Log of Work attached to the proposal.

HMA Approach (Ton) – The HMA Approach item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work

will be used for placing and compacting HMA in side street approaches. Auxiliary lanes and lane tapers are not included in the HMA Approach item and will be paid for with the mainline item of work.

HMA, 5E1, 3% Air Voids (Ton) – The HMA, 5E1, 3% Air Voids item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except the air void content for this mixture shall be field regressed to 3.0 percent with liquid asphalt cement. The virgin asphalt binder for this mixture shall be PG 58-28. This item of work will be used for placement of an HMA wearing course as noted in the Log of Work attached to the proposal.

HMA, LVSP, 3% Air Voids (Ton) – The HMA, LVSP, 3% Air Voids item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except the air void content for this mixture shall be field regressed to 3.0 percent with liquid asphalt cement. The virgin asphalt binder for this mixture shall be PG 58-28. This item of work will be used for placement of HMA leveling and wearing courses as noted in the Log of Work attached to the proposal.

HMA, Zone Patching, LVSP, 3% Air Voids (Ton) – The HMA, Zone Patching, LVSP, 3% Air Voids item of work shall be in accordance with section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except the air void content for this mixture shall be field regressed to 3.0 percent with liquid asphalt cement. The virgin asphalt binder for this mixture shall be PG 58-28. This item of work will be used for placement of HMA zone patches and spot repairs as noted in the Log of Work attached to the proposal. This item will also be used for the placement of the hot mix asphalt base widening on Smith Road between Lewis Avenue and US-24.

Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp (Foot) - The Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp item of work shall be in accordance with section 812 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for the placement of temporary pavement markings on HMA leveling courses or milled surfaces as directed by the Engineer. The markings shall be a single 2 foot line spaced at 50 feet center-to-center of marking.

Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp (Foot) - The Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp item of work shall be in accordance with section 812 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except that removing and disposing of the temporary markings will not be required. This item of work will be used for the placement of temporary pavement markings on HMA wearing courses as directed by the Engineer. The markings shall be a single 4 foot line spaced at 100 feet center-to-center of marking.

Traf Loop (Each) - The Traf Loop item of work shall be in accordance with section 820 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. This item of work will be used for installing traffic loops at the following locations:

- Jackman Road at Dean Road – one 6 feet by 30 feet loop and one 6 feet by 20 feet loop
- Smith Road at Lewis Avenue – one 6 feet by 30 feet loop and one 6 feet by 20 feet loop
- Smith Road at US-24 – one 6 feet by 30 feet loop and two 6 feet by 20 feet loops
- Vivian Road at Nadeau Road - one 6 feet by 30 feet loop and one 6 feet by 20 feet loop
- Herr Road at M-50 – one 6 feet by 30 feet loop and two 6 feet by 20 feet loops

MEASUREMENT AND PAYMENT

The Engineer will measure and pay for **Aggregate Base** in accordance with the section 302 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit price for **Shoulder, CI II** includes the cost of providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

The Engineer will measure and pay for **HMA Base Crushing and Shaping** in accordance with the section 305 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The pay limits for **HMA Base Crushing and Shaping** shall be one (1) foot beyond the proposed edge of pavement. The unit price for **HMA Base Crushing and Shaping** includes the cost of moving barricades

into place prior to beginning work; maintaining local traffic within the work zone; and providing and removing temporary gravel ramps at the POB, POE and side streets within the project limits.

The Engineer will measure and pay for **Shoulder, CI II** in accordance with the section 307 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit price for **Shoulder, CI II** includes the cost of providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

The Engineer will measure and pay for **Trenching** in accordance with the section 307 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit price for **Trenching** includes the cost of providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

The Engineer will measure and pay for **Cold Milling HMA Surface, HMA Surface, Rem and Pavt for Butt Joints, Rem** in accordance with the section 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit prices for **Cold Milling HMA Surface, HMA Surface, Rem** and **Pavt for Butt Joints, Rem** include the cost of providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

The Engineer will measure **HMA, (type)** by the weight placed as supported by weigh tickets. The unit price for **HMA, (type)** includes the cost of:

1. Cleaning the existing pavement;
2. Applying a bond coat;
3. Placing and compacting the hot mix asphalt mixture;
4. Performing QC testing on the hot mix asphalt mixture and providing QC test results to the Engineer; and
5. Providing temporary signs, channelizing devices and traffic regulators for maintaining traffic.

The Engineer will measure and pay for **Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp** and **Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp** in accordance with the section 812 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The unit prices for **Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp** and **Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp** include the cost of providing and placing temporary pavement markings.

COMMUNICATIONS

Any questions regarding this bid shall be directed to the person listed below:

Name: Christine Herron
Phone: 734-240-5109
Email: CHerron@mcr-mi.org

**MONROE COUNTY ROAD COMMISSION
UNIT PRICE CONTRACT
2017 HMA PAVING PROGRAM**

TO: Board of County Road Commissioners of Monroe County, Michigan

The undersigned, having full knowledge of the proposal and specifications for the **2017 HMA Paving Program** including Bidders' Addenda 1 and the conditions of these Contract Documents, hereby agrees to furnish all labor, equipment, materials, transportation and incidentals necessary to perform the Work as specified in the Instructions to Bidders and General Provisions at the unit price named below:

Item Description	Estimated Quantity	Unit	Unit Price	Bid Amount
Aggregate Base	3,700	Ton	\$	\$
HMA Base Crushing and Shaping	21,040	Syd	\$	\$
Shoulder, CI II	12,380	Ton	\$	\$
Trenching	298	Sta	\$	\$
Cold Milling HMA Surface	180,385	Syd	\$	\$
HMA Surface, Rem	17,940	Syd	\$	\$
Pavt for Butt Joints, Rem	13,840	Syd	\$	\$
HMA Approach	1,775	Ton	\$	\$
HMA, 5E1, 3% Air Voids	13,050	Ton	\$	\$
HMA, LVSP, 3% Air Voids	63,405	Ton	\$	\$
HMA, Zone Patching, LVSP, 3% Air Voids	4,850	Ton	\$	\$
Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp	2,665	Ft	\$	\$
Pavt Mrkg, Type R, 4 inch, Yellow, Temp	5,055	Ft	\$	\$
Traf Loop	12	Ea	\$	\$
Total Bid				\$

Contractor Signature: _____

Printed Name and Title: _____

Quantities are not guaranteed. Final payment will be based on actual quantities.

Bidder agrees that the work will be completed and ready for final payment in accordance with the General Conditions. Work on the **2017 HMA Paving Program** is to be completed by either **May 26, 2017** or **October 31, 2017** as detailed in the Time of Completion section above.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the work on time.

The following documents are attached to and made a condition of this Bid:

Required Bid Security in the form of either:

Certified Check or a Bidder's Bond in the amount of:

_____ Dollars (\$ _____)

Communications concerning this Bid shall be addressed to the Bidder's representative.

Name of Representative: _____

Address: _____

City, State, ZIP: _____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

The terms used in this Bid, which are defined in subsection 101.03 of the Michigan Department of Transportation 2012 Standard Specifications of the Construction, have the meanings assigned to them in the Standard Specifications for Construction.

SUBMITTED on: _____, 2017

If Bidder is:

An Individual

By: _____ (SEAL)
Individual's Name

Doing Business As: _____

Business Address: _____

Phone No: _____

A Partnership

By: _____ (SEAL)
Firm Name

General Partner

Business Address: _____

Phone No.: _____

A Corporation

By: _____ (Corporate SEAL)
Corporate Seal

State of Incorporation

By: _____
Name of Person Authorized to Sign

Title

Business Address: _____

Phone No.: _____

A Joint Venture

By: _____
Name

Business Address: _____

Phone No.: _____

By: _____
Name

Business Address: _____

Phone No.: _____

(Each joint venture must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

2017 HMA PAVING PROGRAM PROPOSAL

ATTACHMENTS

1. Log of Work
2. Additional Log of Work per Addendum No. 1 & Revised Total Quantities
3. Maintaining Traffic Typical

**Monroe County Road Commission
2017 HMA Paving Program**

Log of Work

Township	Road Name	From	To	Primary/Local	Length (mile)	Typical Width (feet)	HMA Base Crushing and Shaping (Syd)	Shoulder, CI II (Ton)	Trenching (Sta)	Cold Milling HMA Surface (Syd)	HMA Surface, Rem (Syd)	Pavt for Butt Joints, Rem (Syd)	HMA Approach (Ton)	HMA, 5E1, 3% Air Voids (Ton)	HMA, LVSP, 3% Air Voids (Ton)	HMA, Zone Patching, LVSP, 3% Air Voids (Ton)	Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp (Ft)	Pavt Mrkg, Wet Refl, Type R, Tape, 4 inch, Yellow, Temp (Ft)	Traf Loop (Ea)	Early Completion Date?	School Within Project Limits?	Notes	
Ash	E. Newburg	Port Creek	US-24	Local	0.23	22		120			700				500			40				1.5" HMA leveling & 1.5" HMA wearing over stabilized base (by others). One butt joint (west of Bosch entrance) & 1.5" milling of existing HMA pavement at US-24.	
Ash	Earle	Dead End	Grafton	Local	0.24	17				2,510					250								1.75" milling & 1.75" HMA wearing
Ash/Exeter	Exeter	O'Hara	Nolan	Primary	0.73	21	9,460	350				185	50		1,600		75	75			Yes	Crush and shape, 1.5" HMA leveling, 1.5" HMA wearing, three butt joints (POB, POE & Sigler) & two street approaches (Sigler and Nolan). Preferably during school summer break.	
Bedford	Douglas	Temperance	Erie	Local	0.99	20		400				485	25	975	1,200		105	105					1.75" HMA leveling & 1.5" HMA wearing over stabilized base (by others), four butt joints (POB, POE, business approach & Wingate) & one street approaches (Wingate)
Bedford	Jackman	Sterns	Dean	Primary	1.00	24		340		15,950	695	430	60	1,950		80	105	105	2		Yes	1.25" average milling (2" at edge & 0.5" at centerline), 2.5" mill & fill zone patches (2 locations - 620' x 10'), 2" HMA wearing, one butt joint (Center) & one street approach (Center). Preferably completed during school summer break.	
Bedford	Smith	Lewis	US-24	Primary	1.00	26		160	63	3,135		2,200			2,500	710		105	5				HMA base widening (2' x 6,280' x 4" - Paid as Trenching & Zone Patching - 350 ton), 2.5" mill & fill zone patches (10 locations - 1,390' x 12' - 350 ton paved back the same day as milling), seven butt joints (POB, POE & 5 approaches) & 2" HMA overlay
Berlin	Brandon	Labo	Sigler	Primary	1.20	22		220			1,545	440			1,300	220		125					2.5" mill & fill zone patches (6 locations - 1,260' x 11'), three butt joints (POB, POE & Armstrong), 1.5" HMA overlay & one street approach (Armstrong)
Berlin/Frenchtown	Post	Berlin Twp Line	N. Dixie Hwy	Local	0.52	21		130		6,420	335				800	40		55					2" milling, 2.5" mill & fill zone patch (one location - 300' x 10') & 2" HMA wearing
Dundee	Dennison	M-50	Day	Primary	0.92	21		350				470	80		1,680			100					1" HMA scratch course, 1.5" HMA wearing, four butt joints (POB, POE & two bridge decks) & three street approaches (Kent, Day W & Day E). Paving length = 4,835' (Gap out section between Middle Branch Macon Drain #2 and Middle Branch Macon Drain)
Erie	Victory	Luna Pier	Cousino	Primary	1.15	20	11,580	415				700	45	1,200	1,100			120					Luna Pier to RR tracks - crush and shape, 1.5" leveling, 1.5" wearing & three business approaches. RR tracks to Cousino - 1.5" HMA overlay & seven butt joints (RR crossings & Cousino). MCRC will be responsible for Railroad Flagging costs.
Erie/LaSalle	Rauch	M-125	US-24	Primary	0.52	20		130				260			940			55					1" HMA scratch course, 1.75" HMA wearing & four butt joints (POB & POE). MCRC will be responsible for Railroad Flagging costs.
Frenchtown	Fix	Hurd	Mentel	Local	1.47	20						200								05/26/17			1.5" zone patches (ten locations - 3,280' x 10'). One butt joint (Mentel Road). Prep for single seal.
Frenchtown	Hurd	US-24	M-125	Local	0.52	22		110		6,925	1,420				800	160	55	55					2" milling, 2.5" mill & fill zone patches (nine locations - 1,215' x 10.5') & 2" HMA wearing
Frenchtown	Post	Newport South	Berlin Twp Line	Local	1.09	22					1,125									05/26/17			2" mill & fill zone patches (ten locations - 1,445' x 7' paved back the same day as milling). Prep for single seal.
Frenchtown	Post	War	I-75	Local	0.64	22					935									05/26/17			2" mill & fill zone patches (six locations - 840' x 10'). Prep for single seal.
Frenchtown	Stumpier	US-24	RR Tracks	Local	0.64	22		160				280			950			70					2" HMA overlay & two butt joints (POB & POE). MCRC will be responsible for Railroad Flagging costs.
Frenchtown	Toben	Exeter	Reinhardt	Primary	0.63	21		310			650	100			1,175		70	70					1.5" HMA leveling & 1.5" HMA wearing over stabilized base (by others). Two butt joints at Exeter & 1.5" milling of existing HMA pavement at Reinhardt (265' x 22').
Frenchtown	Vivian	Hurd	Nadeau	Primary	0.64	22		250		16,200	2,065				1,875		120	120	2		Yes		2" milling, 2.5" mill & fill zone patches (7 locations - 1,770' x 10.5') & 2" HMA wearing. Preferably completed during school summer break.
Ida	Ida Center	Minx	Geiger	Primary	1.06	21		315				200	50		1,800			110					1" HMA scratch course (720 ton), 1.5" HMA wearing (1,080 ton), two butt joints (POB & POE) & four street approaches (Minx S, Minx N, Geiger S & Geiger N)
LaSalle	LaPlaisance	4100' S. of Mortar Creek	RR Tracks	Primary	0.39	21		100		4,730					550			40					2" milling & 2" HMA wearing
LaSalle	Strasburg	Rauch	Stein	Primary	2.01	21									150					05/26/17			1.5" zone patches (4 locations - 1,685' x 10'). Prep for single seal.
LaSalle	Yargerville	Minx	Gayville	Primary	1.57	21		350		18,825			80		2,250		165	165					1.75" milling, 2" HMA wearing & three street approaches (Strasburg S, Strasburg N & Gayville)
Milan	Cone	Petersburg	Dennison	Primary	1.04	20		300		12,250					1,400		120	120					1.75" milling & 2" HMA wearing
Monroe	Herr	M-50	Dunbar	Primary	0.14	22					2,680							370	3	Early June	Yes		2.25" milling & 2.25" HMA zone patches (2 locations - one of the location is the Herr Road approach to M-50). Prep for single seal
Monroe	LaPlaisance	Albain	Willow View	Primary	0.29	24					5,440							40					2.25" milling & 2.25" HMA zone patches (2 locations near the I-75 bridge deck).
Monroe	Northfield Village Sub	N. of Albain	W. off M-125	Local	1.14	18				2,700										05/26/17			2" mill & fill zone patches (four locations - 1,095' x 18'). Prep for micro surface
Raisinville	Heiss	E. Of Finzel	Doedertline	Local	1.00	20		200				350	40		1,060	145		125			Yes		1.5" zone patches (eleven locations - 2,475' x 5'), 1.5" HMA overlay, four butt joints (POB, POE, Gruber S & Gruber N) & two street approaches (Gruber S & Gruber N). Preferably completed during school summer break.
Raisinville	Strasburg	Albain	Dunbar	Primary	1.28	20		340				340	50		1,500	60		150					1.5" zone patch (one location - 500' x 20'), 1.75" HMA wearing, two butt joints (POB & POE) & two street approaches (Saum W & Saum E)
Summerfield	Teal	Summerfield	City Limits	Primary	3.46	21		800				1,030	50	3,600	2,350		400	400					1" HMA scratch course (2,350 ton), 1.5" HMA wearing (3,600 ton), nine butt joints (POB, POE, Ida Center W, Ida Center E, Lulu, RR crossing -2, D&P & Forest), & six street approaches (Ida Center W, Ida Center E, Bacon, Lulu W, Lulu E & Forest)
Whiteford	Whiteford	Temperance	St. Anthony	Local	1.49	19		350				400			1,500			160					1.5" HMA overlay, five butt joints (POB, POE, Piehl, Erie W & Erie E) & three street approaches (Piehl, Erie W & Erie E)
Whiteford	Whiteford Center	Section	Sterns	Primary	0.61	21		110		7,300					950		75	75					1.75" mill & 2.25" HMA wearing
Totals					29.61		21,040	6,310	63	96,945	17,590	8,070	530	9,850	27,905	3,750	1,290	2,585	12				

**Monroe County Road Commission
2017 HMA Paving Program**

Additional Log of Work per Addendum No. 1 & Revised Total Quantities

Township	Road Name	From	To	Primary/Local	Length (mile)	Typical Width (feet)	Aggregate Base (Ton)	HMA Base Crushing and Shaping (Syd)	Shoulder, CI II (Ton)	Trenching (Sta)	Cold Milling HMA Surface (Syd)	HMA Surface, Rem (Syd)	Pavt for Butt Joints, Rem (Syd)	HMA Approach (Ton)	HMA, SE1, 3% Air Voids (Ton)	HMA, LVSP, 3% Air Voids (Ton)	HMA, Zone Patching, LVSP, 3% Air Voids (Ton)	Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp (Ft)	Pavt Mrkg, Wet Refl, Type R, Tape, 4 inch, Yellow, Temp (Ft)	Traf Loop (Ea)	Early Completion Date?	School Within Project Limits?	Notes
Ash	Sigler	Exeter	Calkins	Primary	3.06	22			1,100				1,100	225		6,150		320	320				1" HMA scratch course (2,250 ton), 1 3/4" HMA wearing (3,900 ton), eleven butt joints (POB, POE, bridge decks - 4, Maxwell N, railroad crossing - 2, Grafton - 2, Indian Trail & Calkins - 2) & nine street approaches (Burns - 2, Maxwell - 2, Jones, Indian Trail, Otter & Calkins - 2)
Dundee	N. County Line	Brewer	M-50	Primary	2.21	20	3,700		800	235			250			4,500							Aggregate base widening both sides (4' wide x 8" deep paid as Trenching & Aggregate Base), 1" HMA scratch course (1,500 ton), 2" HMA wearing (3,000 ton), two butt joints (POB & POE) & four street approaches (Sutton, Libstaff, Rankin & Pocklington)
Erie	Summit	Ohio line	I-75	Primary	1.36	48					32,680	350		45		3,900		500	500				2" milling, 2" HMA wearing (mill & fill 38' wide from Halfway Creek bridge deck to I-75 connector - reducing to 3 lanes. Outside 8.5' of outside lanes is not being resurfaced.), 2" milling of Sterns W approach (HMA Surface, Rem) & one street approach (Sterns W)
Lasalle	Strasburg	Stein	Albain	Primary	3.03	21			1,100				700	150		5,500			320				Wedge outside 6' of each lane (1,200 ton), 2" HMA wearing (4,300 ton), seven butt joints (POB, POE, Stein - 2, S Otter - 2 & two culvert crossings) & six street approaches (Stein - 2, S Otter - 2 & Hubbard - 2)
Lasalle	Yargerville	Gayville	Dunlap	Primary	1.02	21			220		12,210			75		1,450		110	110				1.75" milling, 2" HMA wearing & three street approaches (Gayville & Suder - 2)
London	Ostrander	Ann Arbor	Plank	Primary	3.13	21			600		38,550			200		4,400	1,100	330	330				1.75" milling, 2" mill & fill zone patches (3 locations - 4,370' x 21'), 2" HMA wearing & eight street approaches (Dundee Azalia - 2, Wells - 2, Bunce - 2 & Townsend - 2). The resurfacing of Ostrander might be pushed to 2018 if the work is delayed by the 2017 federal aid bridge project.
Summerfield	Ida Center	Summerfield	Wells	Primary	1.06	22			400				500			2,000		115	115				1" scratch course (800 ton), 1.75" HMA wearing (1,200 ton), five butt joints (POB, POE, US-23 bridge deck - 2 & Ida Center extension at Wells)
Summerfield	Ida West	City Of Petersburg	Road Comm. Drive	Primary	2.12	24			600				1,020	150	3,200				225				1.75" HMA overlay, twelve butt joints (POB, POE, school entrances - 2, Dixon, Herkimer Sand, Summerfield - 3, Advanta & railroad crossing - 2) & five street approaches (Dixon, Herkimer Sand, Summerfield - 2 & Road Commission Drive).
Whiteford	Summerfield	St. Anthony	Rauch	Primary	1.69	22			400				800	150		2,500			180				2" HMA overlay, eight butt joints (POB, POE, Samaria - 2, School - 2 & Rauch - 2) & six street approaches (Samaria - 2, School - 2 & Rauch - 2)
Whiteford	Whiteford Center	Sterns	Consear	Primary	1.82	22			450				800	150		2,700			195				2" HMA overlay, eight butt joints (POB, POE, Greenhouse entrance, Corey, Clegg, Whiteford - 2 & Jeffs Doty) & six street approaches (Corey, Clegg, Whiteford - 2, Jeffs Doty & Fisher)
Whiteford	Sylvania Petersburg	US-223	0.1 mile S. of Rauch	Primary	1.63	22			400				600	100		2,400			175				2" HMA overlay, six butt joints (POB, POE, Samaria - 2 & School - 2) & four street approaches (Samaria - 2 & School - 2)
Additional Quantity					22.13		3,700	0	6,070	235	83,440	350	5,770	1,245	3,200	35,500	1,100	1,375	2,470	0			
Original Quantity					29.61		0	21,040	6,310	63	96,945	17,590	8,070	530	9,850	27,905	3,750	1,290	2,585	12			
Revised Totals					51.74		3,700	21,040	12,380	298	180,385	17,940	13,840	1,775	13,050	63,405	4,850	2,665	5,055	12			

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET FEET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
1	10	15	20	27	45	50	55	60	65	70
2	21	30	41	53	90	100	110	120	130	140
3	31	45	61	80	135	150	165	180	195	210
4	42	60	82	107	180	200	220	240	260	280
5	52	75	102	133	225	250	275	300	325	350
6	63	90	123	160	270	300	330	360	390	420
7	73	105	143	187	315	350	385	420	455	490
8	83	120	163	213	360	400	440	480	520	560
9	94	135	184	240	405	450	495	540	585	630
10	104	150	204	267	450	500	550	600	650	700
11	115	165	225	293	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840
13	135	195	266	347	585	650	715	780	845	910
14	146	210	286	374	630	700	770	840	910	980
15	157	225	307	400	675	750	825	900	975	1050

TAPER LENGTH "L" IN FEET

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = S x W WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

- L = MINIMUM LENGTH OF MERGING TAPER
- S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA
- W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS


- MERGING TAPER
- SHIFTING TAPER
- SHOULDER TAPER
- TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS

(USE IS OPTIONAL)

TAPER LENGTH

- L - MINIMUM
- 1/2 L - MINIMUM
- 1/3 L - MINIMUM
- 100' - MAXIMUM
- 100' - MINIMUM (PER LANE)

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L", "D" AND "B" VALUES		
	DRAWN BY: CON:AE:djf CHECKED BY: BMM	JUNE 2006 PLAN DATE:	M0020a
FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn REV. 08/21/2006			

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON
"WHERE WORKERS PRESENT" SEQUENCES


"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L", "D" AND "B" VALUES		
	DRAWN BY: CON:AE:djf CHECKED BY: BMM	JUNE 2006 PLAN DATE:	M0020a
FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn REV. 08/21/2006			






PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

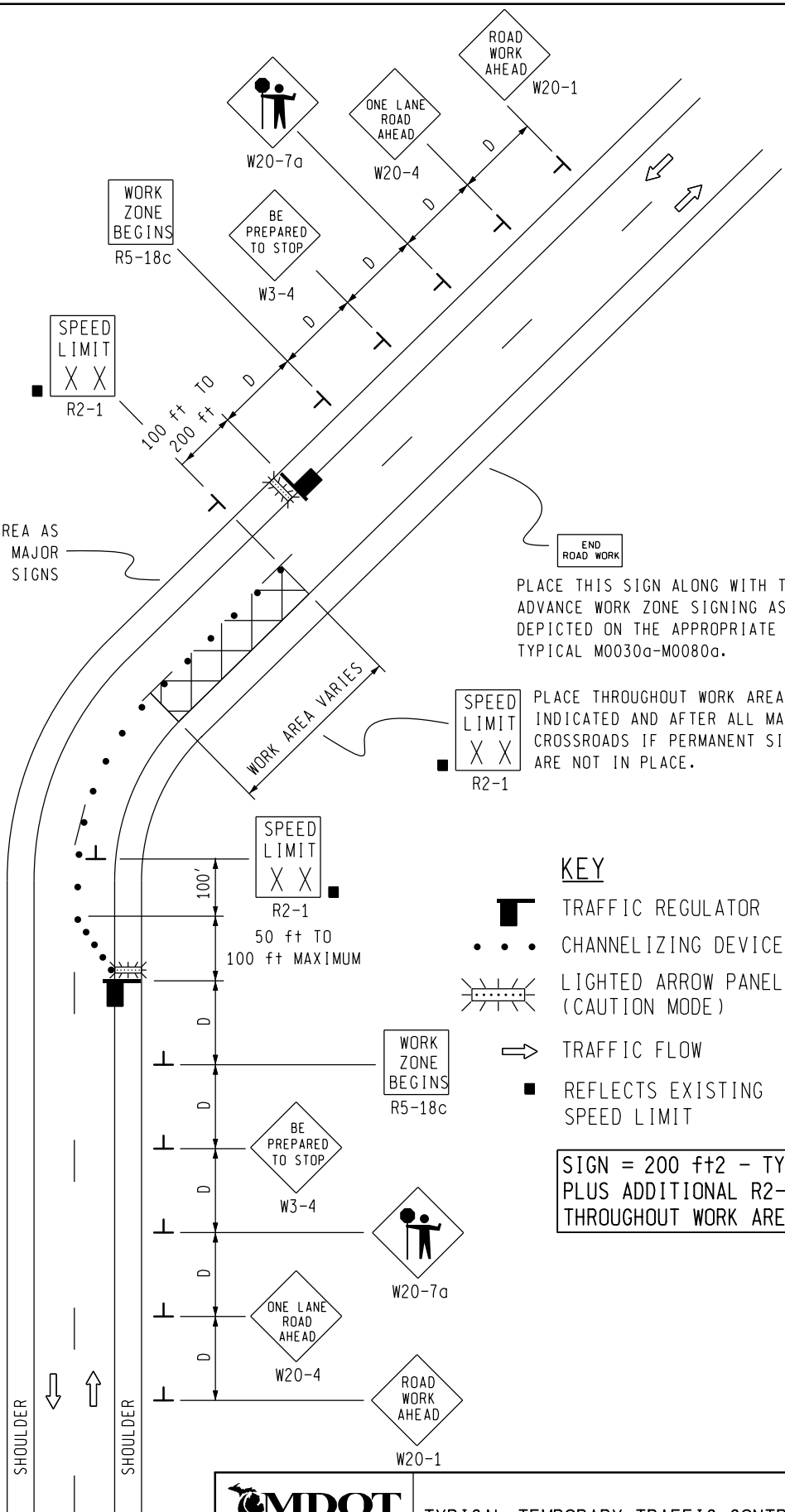
PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

KEY

-  TRAFFIC REGULATOR
-  CHANNELIZING DEVICES
-  LIGHTED ARROW PANEL (CAUTION MODE)
-  TRAFFIC FLOW
-  REFLECTS EXISTING SPEED LIMIT

SIGN = 200 ft± - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA



MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION

OCTOBER 2011
PLAN DATE:

M0140a

SHEET
1 OF 2

NOT TO SCALE


NOTES

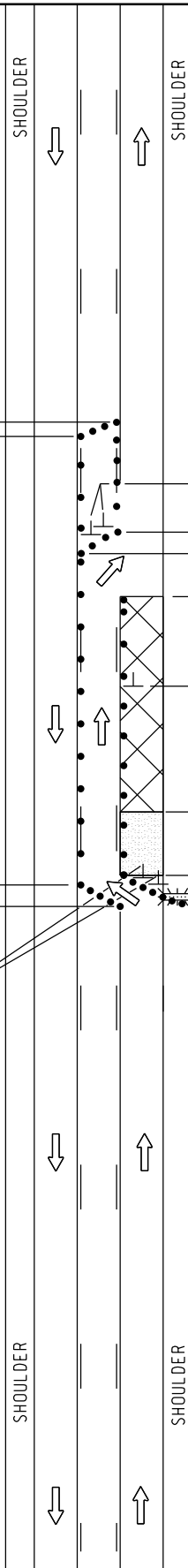
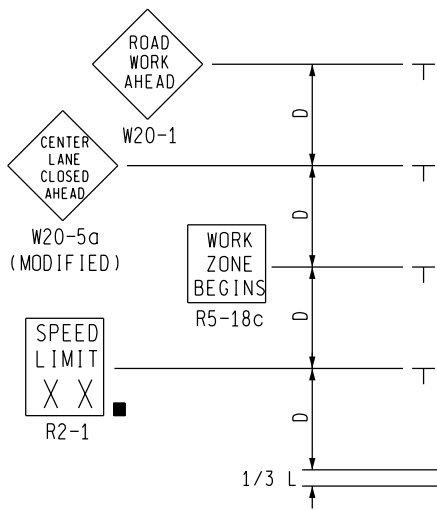
- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS
SEE **M0020a** FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.
14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0140a	SHEET
CHECKED BY: BMM:CRB	PLAN DATE:		2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0140a.dgn REV. 10/04/2011			

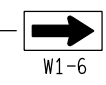


END ROAD WORK

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0050a.

SPEED LIMIT XX R2-1

PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.



1/2 L
1/2 D

D

1/2 L
1/3 L

D

D

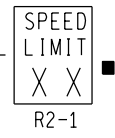
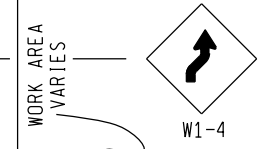
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D

D

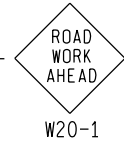
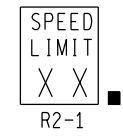
D

D



R2-1

PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.



KEY

- • • CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ➡ TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 184 ft± - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA

NOT TO SCALE

MDOT
Michigan Department of Transportation

TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:DJF
CHECKED BY: BMM:CRB

TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A THREE LANE ROADWAY WITH CLFLT0 AND SHIFTING ONE THROUGH LANE INTO THE CLFLT0 NO SPEED REDUCTION

OCTOBER 2011	M0231a	SHEET 1 OF 2
PLAN DATE:		
FILE: PW: RD/T&S/Typicals/Signs/MT/MT nonFwy/M0231a REV. 10/18/2011		


NOTES

- 1F. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/2 L$, AND $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE M0020a FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN SIZES

DIAMOND WARNING	- 48" x 48"
W1-6 WARNING	- 48" x 24"
R2-1 REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"

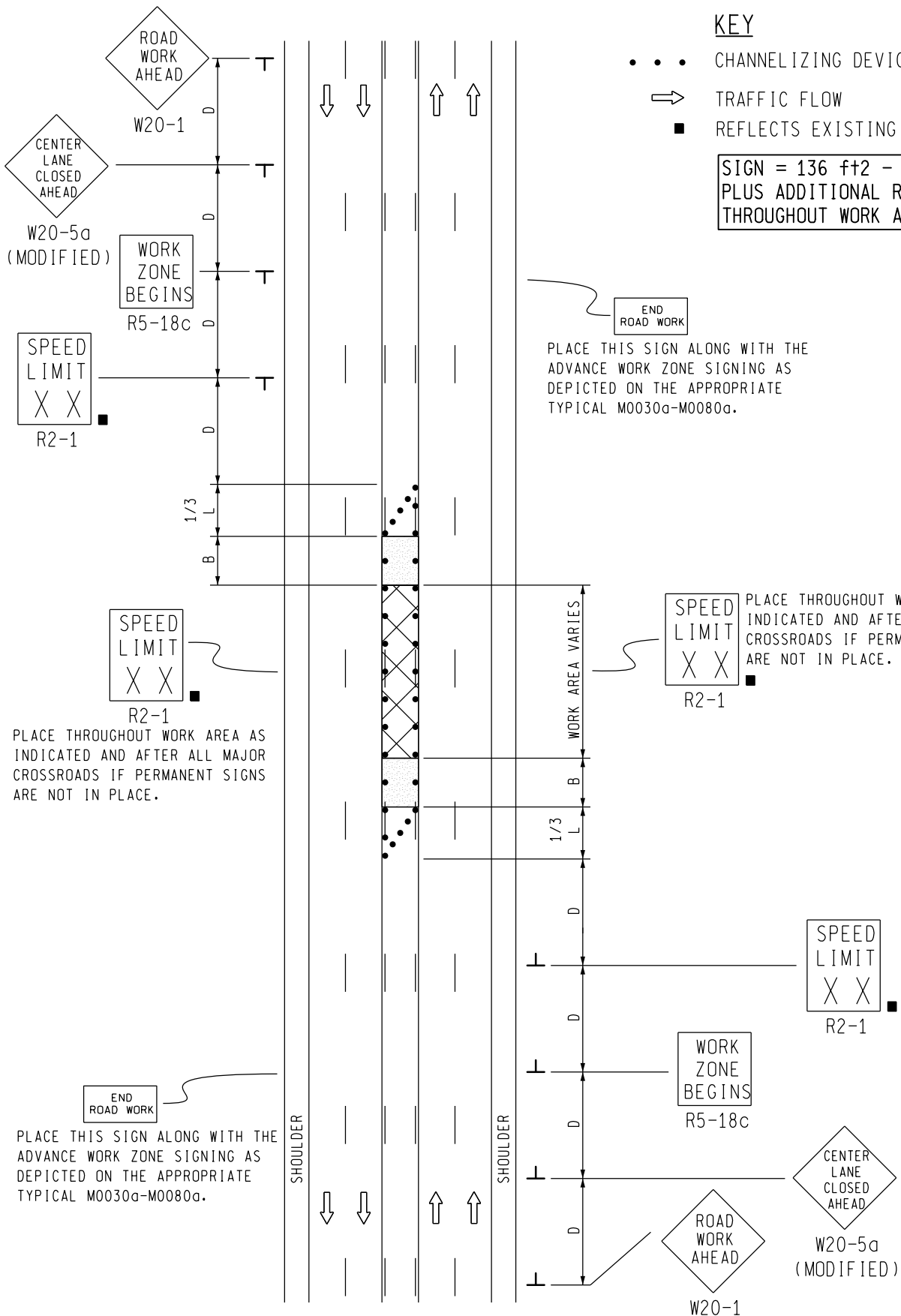
NOT TO SCALE

 MDOT Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A THREE LANE ROADWAY WITH CLFLTO AND SHIFTING ONE THROUGH LANE INTO THE CLFLTO NO SPEED REDUCTION		
	DRAWN BY: CON:AE:DJF	OCTOBER 2011	M0231a
CHECKED BY: BMM:CRB	PLAN DATE:	2 OF 2	
FILE: PW: RD/T&S/Typicals/Signs/MT/MT nonFwy/M0231a REV. 10/18/2011			

KEY

- • • CHANNELIZING DEVICES
- ⇒ TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 136 f+2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA



END ROAD WORK
PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

SPEED LIMIT XX R2-1
PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

END ROAD WORK
PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

<p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>		<p>TYPICAL TEMPORARY TRAFFIC CONTROL FOR A CENTER-LANE FOR LEFT TURN ONLY CLOSURE ON A MULTI-LANE UNDIVIDED ROADWAY, WORKERS NOT PRESENT NO SPEED REDUCTION</p>	
<p>DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB</p>	<p>OCTOBER 2011 PLAN DATE:</p>	<p>M0330a</p>	<p>SHEET 1 OF 2</p>
<p>FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0330a.dgn REV. 10/18/2011</p>			

NOT TO SCALE


NOTES

1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 25A. THIS SEQUENCE SHOULD ONLY BE USED WHEN WORKERS ARE NOT PRESENT, E.G., FOR CURING CONCRETE OVERNIGHT, ETC. WHEN WORK IS BEING CONDUCTED IN THE CENTER LANE, AN ADJACENT LANE (IN ONE OR BOTH DIRECTIONS) SHOULD ALSO BE CLOSED UTILIZING THE APPROPRIATE TYPICAL SIGNING SEQUENCE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A CENTER-LANE FOR LEFT TURN ONLY CLOSURE ON A MULTI-LANE UNDIVIDED ROADWAY, WORKERS NOT PRESENT NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB	OCTOBER 2011 PLAN DATE:	M0330a	SHEET 2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0330a.dgn REV. 10/18/2011			