November 7, 2017

### ADDENDUM 2 – JOB 28

TO: All prospective bidders on project NHU-4-002(116)149, Job No. 28 scheduled for the November 17, 2017 bid opening.

The following plan and request for proposal revisions shall be made:

### Plan Revisions:

See attached summary from Jonathan P. Morgenroth, PE, SRF Consulting Group, Inc. dated November 6, 2017 for an explanation.

# Request for Proposal Revisions:

Remove and replace pages 7, 12, 13, 14, and 15 of 17 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed pages revised 11/7/2017.

The following changes were made to the Bid Items:

Spec	Code	Description	Description of Change
No.	No.	-	
704	1080	STACKABLE VERTICAL PANELS	Added Bid Item at 228 EA
704	1081	VERTICAL PANELS-BACK TO BACK	Removed Bid Item
754	0214	GALV STEEL POSTS-W-SHAPE POSTS (TWO OR THREE)	Increased from 48.8 to 76.8 LF
754	1104	REMOVE SIGN FOUNDATION	Added Bid Item at 2 EA

This addendum is to be incorporated into the bidder's proposal for this project. AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express online bidding exchange at <a href="http://www.bidx.com/">http://www.bidx.com/</a> and load it into the AASHTOWare Project Bids program.

PHILLIP MURDOFF - CONSTRUCTION SERVICES ENGINEER

80:jwj Enclosure



November 6, 2017

SRF No. 9096

#### ADDENDUM 2 – JOB 28

TO: All prospective bidders on project NHU-4-002(116)149, Job No. 28 scheduled for the November 17, 2017 bid opening.

Addendum 2 is to address: Bid item, quantity changes, and signal standard types in medians.

The following plan and proposal revisions shall be made:

## **Plan Revisions:**

Remove and replace sheets 6-1, 8-1 to 2, 100-1 to 2, and 110-4 with the enclosed sheets revised 10/31/17.

Remove and replace sheets 6-6 to 8, 150-8, and 150-10 with the enclosed sheets revised 11/06/17.

#### Sheet 6-1:

Added plan note to include Traffic Control Supervisor.

### Sheet 6-6:

Revised plan note 772-P13 to include anchor bolt base text.

#### Sheet 6-7:

Notes moved down because of added text to Sheet 6-6.

#### Sheet 6-8:

Notes moved down because of added text to Sheet 6-6.

### Sheet 8-1:

Changed item 704-1081 "Vertical Panels-Back to Back" to 704-1080 "Stackable Vertical Panels" Item 754 0214 Glav Steel Posts-W-Shape Post (Two or More) increased from 48.8 LF to 76.8 LF

#### Sheet 8-2:

Added item 754 1104 Remove Sign Foundation 2 EA

### Sheet 100-1:

Changed item 704-1081 "Vertical Panels-Back to Back" to 704-1080 "Stackable Vertical Panels"

#### Sheet 100-2:

Changed item 704-1081 "Vertical Panels-Back to Back" to 704-1080 "Stackable Vertical Panels"

#### Sheet 110-4:

Added item 754 1104 Remove Sign Foundation 2 EA

Addendum 2 Job 28 November 17, 2017 Bid Opening

## Sheet 150-8:

Revised legend to include Anchor Bolt Base and changed Signal S3 base to be Anchor Bolt Base.

## Sheet 150-10:

Revised legend to include Anchor Bolt Base and changed Signal S8 base to be Anchor Bolt Base.

This addendum is to be incorporated into the bidder's proposal for this project.

Jonathan P. Morgenroth, PE SRF Consulting Group, Inc.

Enclosure

BID ITEMS

Job 028

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Project: NHU-4-002(116)149 (PCN-21174)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

tem	Spec	Code			Approx.	Unit Price \$\$\$\$\$ 000		Amount	Amount	
lo.	No.		Description	Unit	Quantity	\$\$\$\$\$			00	
)33	430	0045	SUPERPAVE FAA 45	TON	13,456.					
34	430	1000	CORED SAMPLE	EA	49.					
)35	430	5828	PG 58-28 ASPHALT CEMENT	TON	498.					
)36	430	6428	PG 64-28 ASPHALT CEMENT	TON	291.					
037	702	0100	MOBILIZATION	L SUM	1.					
038	704	0100	FLAGGING	MHR	1,200.				L	
039	704	1000	TRAFFIC CONTROL SIGNS	UNIT	4,489.				L	
040	704	1052	TYPE III BARRICADE	EA	70.					
041	704	1060	DELINEATOR DRUMS	EA	161.					
042	704	1080	STACKABLE VERTICAL PANELS	EA	228.				L	
043	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2.					
044	704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	5.					
045	706	0400	FIELD OFFICE	EA	1.					
046	706	0500	AGGREGATE LABORATORY	EA	1.					
047	706	0550	BITUMINOUS LABORATORY	EA	1.					
048	706	0600	CONTRACTOR'S LABORATORY	EA	1.					

**BID ITEMS** 

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Rev: 11/7/2017

Project: NHU-4-002(116)149 (PCN-21174)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

		total	. Do not carry unit prices further than three (3) de	ecimal	places.			_	
Item	Spec	Code			Approx.	Unit Price	<b>;</b>	Amount	
No.	No.	No.	Description	Unit	Quantity	\$\$\$\$\$	000	\$\$\$\$\$	00
113	754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	76.800				
114	754	0563	REFERENCE MARKER-TYPE C	EA	2.				
115	754	0592	RESET SIGN PANEL	EA	3.				
116	754	0805	OBJECT MARKERS - CULVERTS	EA	22.				
117	754	1104	REMOVE SIGN FOUNDATION	EA	2.				
118	762	0110	EPOXY PVMT MK 4IN LINE-GROOVED	LF	4,512.				
119	762	0113	EPOXY PVMT MK 4IN LINE	LF	8,452.				
120	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	448.				
121	762	0132	EPOXY PVMT MK 8IN LINE-GROOVED	LF	6,989.				
122	762	0134	EPOXY PVMT MK 12IN LINE-GROOVED	LF	1,013.				
123	762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	9,958.				
124	762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	187.				
125	762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	390.				
126	764	9011	ATTENUATING CRASH CUSHION TL-3	EA	2.				
127	766	0100	MAILBOX-ALL TYPES	EA	1.				
128	770	0020	CONCRETE FOUNDATION-HIGHWAY LIGHTING	EA	22.				

BID ITEMS

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Job 028

Project: NHU-4-002(116)149 (PCN-21174)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and
total. Do not carry unit prices further than three (3) decimal places.

		tota	. Do not carry unit prices further than three (3) de	ecimai	piaces.				
Item	Spec	Code			Approx. Quantity	Unit Price		Amount	
No.	No.	No.	Description	Unit	Quantity	\$\$\$\$\$	000	\$\$\$\$\$	00
129	770	0220	CABLE TRENCH-TYPE II	LF	4,225.				
130	770	0330	2IN DIAMETER RIGID CONDUIT	LF	1,736.				
131	770	0504	UNDERGROUND CONDUCTOR NO4-TYPE RHW	LF	9,308.				
132	770	0604	UNDERGROUND CONDUCTOR NO4-TYPE THW	LF	4,654.				
133	770	1676	LT STD 6FT MA 40FT MT HT BREAKAWAY	EA	8.				
134	770	1778	LT STD 10FT MA 42FT MT HT BREAKAWAY	EA	14.				
135	770	4210	LED LUMINAIRE	EA	15.				
136	770	4220	LED LUMINAIRE - 150 WATT	EA	11.				
137	770	4567	REMOVE LIGHTING SYSTEM	EA	1.				
138	772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	1.				
139	990	0230	TEMPORARY ACCESS	L SUM	1.				
			SUBTOTAL						
			OPTION 1						
140	714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	653.				
141	714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	367.				

Project: NHU-4-002(116)149 (PCN-21174)

# BID OPENING: November 17, 2017

**BID ITEMS** 

Job 028

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Bidder must type or neatly print unit prices in numerals, make extensions for each item, and

		tota	Do not carry unit prices further than three	(3) decimal	places.	•	_	
Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price	Amount	
			SUBTOTAL OPTION 1	- Orm		\$\$\$\$\$ 000	\$\$\$\$\$	00
			OPTION 2					
142	714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	653.			
143	714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	367.			
			SUBTOTAL OPTION 2					
			OPTION 3					
144	714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	268.			
145	714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	94.			
146	714	4107	PIPE CONDUIT 24IN-STORM DRAIN	LF	75.			
			SUBTOTAL OPTION 3					
			OPTION 4					
147	714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	268.			
148	714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	94.			

Job 028

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orth Dakota Department of Transportation		
	DID ITEMS	

Pro	ject:	NHU-	4-002(116)149 (PCN-21174)					
		Bido tota	der must type or neatly print unit prices in nu I. Do not carry unit prices further than three	merals, mak (3) decimal	te extensions f	for each item, ar	nd	
Item No.	Spec No.	Code	Description	l limit	Approx. Quantity	Unit Price	Amount	
INO.	NO.	NO.	Description	Unit	Quantity	\$\$\$\$\$ 000	\$\$\$\$\$	00
149	714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	75.			
			SUBTOTAL OPTION 4					
			SUBTOTAL + ALL OPTIONS					

	Revised Revised	10/11/17 10/31/17	01711	PROJECT NO.	SECTION NO.	SHEET NO.
<u>NOTES</u>	Revised	10/31/17	ND	NHU-4-002(116)149	6	1

- 100-P01 NOISE RESTRICTION: No construction activities or moving of equipment between the hours of 11:00 pm and 7:00 am.
- 105-110 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Use a vacuum or pick-up type sweeper to perform this work

- 105-200 UTILITY COORDINATION: A utility coordination meeting is required.
- 108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.
- 202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removal of bituminous pavement and the underlying aggregate base. The tonnage is based on the existing typical sections shown in section 30.
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 260-P01 SILT FENCE: 200 LF of Silt Fence is included in the estimate to be used at the Engineers discretion.
- 302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."
- 704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.
- 704-255 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-9a-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52-54 to identify the distance.

### Locations:

- In advance of the drop off;
- Spaced at each mile from the advance sign; and
- At major intersections (CMC routes, state and US highways, and Interstate Ramps).

If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "Temporary Traffic Control".

704-P01 PORTABLE CHANGEABLE MESSAGE SIGN: Install Portable Changeable Message Signs (PCMS) before work begins on the project. The Engineer will determine the locations for PCMS installation. Relocate the PCMS as directed by the Engineer.

Provide an operator trained in the use of the PCMS.

The Engineer will determine the message to be displayed. The operator shall program the message within one hour of the Engineer's request to change the message.

- 704-P02 TRAFFIC CONTROL: The traffic control devices shall comply with the following Standard Drawings:
  - 1. Standard D-704-12
  - 2. Standard D-704-19, Type E & F
  - 3. Standard D-704-20, Type G
  - 4. Standard D-704-21, Type I
  - 5. Standard D-704-24, Type R
  - 6. Standard D-704-26, Type BB, CC, Z, GG, EE, & FF
  - 7. Standard D-704-27
  - 8. Standard D-704-32
  - 9. Standard D-704-34
  - 10. Standard D-704-35A
- 704-P03 TRAFFIC CONTROL PHASING: Phase 1 must be completed prior to starting any work on any remaining phases. The traffic control phases are as follows:

## Phase 1

- Build temporary access on US Highway 2 for industrial traffic
- Build temporary access to Gooseneck property on west Frontage Road
- Build temporary access to Gooseneck property on east Frontage Road

### Phase 2

- Close existing intersection and frontage roads and provide local roads detour
- Close inside lanes on US Highway 2
- Build median subgrade and bottom 8" of aggregate base
- Start work on 14th Avenue SE
- Start work on southeast portion of 42nd Street SE
- Start work on all Frontage Roads

This document was originally issued and sealed by Jonathan P. Morgenroth, Registration Number PE-6872, on 10/31/17 and the original document is stored at the North Dakota Department of Transportation

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- 772-P01 TRAFFIC SIGNAL SYSTEM: Include in the price bid for "Traffic Signal System Site 1" all labor and equipment necessary for the signal system to be fully operational as shown in the plans upon construction completion. This includes but is not limited to, the installation of the following features: traffic signal standards and foundations, mast arms, vehicular heads, video detection system, street light extensions, traffic signal controller and all ancillary hardware (conflict monitor, load switch, flasher, etc.), controller battery back-up, Wi-Fi based interconnect system, cabinet, foundations, feed point installation, removal or revisions, emergency vehicle pre-emption system, and all cable, conduit, junctions boxes and appurtenances to install the traffic signal system completely.
- 772-P02 PADLOCKS: Provide padlocks to be used to secure feed point until project acceptance. After project acceptance, the City of Minot will provide padlocks to secure the feed points.
- 772-P03 FIELD VERIFICATION: Verify the location of all proposed signal and lighting features including all proposed conduit to avoid conflict with any utilities or any other features potentially encountered in the field.
- 772-P04 TRAFFIC SIGNAL CONTROLLER: Provide an Econolite Cobalt controller with graphics display. The controller will be a TS2 Type 1. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all labor, materials and equipment required to install the new controller, Wi-Fi based interconnect system, including but not limited to the emergency vehicle pre-emption unit, Super P44 NEMA TS2 cabinet with Alpha Technologies battery backup system, new detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, malfunction management unit, etc.) and controller cabinet components connected as required to make the new controller equipment operational with the proposed signal equipment.
- 772-P05 MALFUNCTION MANAGEMENT UNIT (MMU) TESTING: Complete an MMU test within one week after traffic signal system is operational.
- 772-P06 BATTERY BACKUP SYSTEM: Provide a battery backup system for the traffic signal system. The price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the battery backup system. See Special Provision 483(14).
- 772-P07 EMERGENCY VEHICLE PRE-EMPTION: Provide Opticom EVP equipment that is fully compatible with the current City of Minot system. Notify the City of Minot Fire Chief Kelli Flermoen (701-857-4740) when the proposed signalized intersection EVP system is tested and operable. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the EVP system.
- 772-P08 WORK DRAWINGS: Furnish work drawings and a complete listing of materials proposed for installation. Provide two copies to the City of Minot Traffic Engineer, plus any additional sets that need approval and that are to be returned for the Contractor's use. Provide the Engineer with proof of purchase, and delivery and

- manufacturing schedules for traffic signal materials indicating that acquisition of these materials is consistent with progress and completion requirements of this contract.
- 772-P09 VEHICULAR TRAFFIC SIGNAL HEADS: Use 12 inch vehicular signal heads with aluminum housings for each section. Equip all sections with LED illuminating elements conforming to the Institute of Transportation Engineers Equipment and Materials Standards and Specifications. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the vehicular traffic signal heads.

Revised

- 772-P10 TRAFFIC SIGNAL HEAD MOUNTINGS: Furnish piping to mount the vehicle and pedestrian signal heads to the side of the poles. Do not mount heads directly to the pole or on the face of the pole directly adjacent to the street. No banding permitted. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for installing traffic signal heads.
- 772-P11 TRAFFIC SIGNAL HEAD BACK PLATES: Furnish traffic signal head back plates with a yellow retroreflective border. Install the one inch wide yellow border around the perimeter of the face of the back plate. Furnish the back plate with sheeting consisting of prismatic lenses formed in a transparent synthetic resin, sealed, and backed with and aggressive pressures sensitive adhesive protected by a removable liner. Use sheeting with a smooth surface, a distinctive interlocking diamond seal pattern and orientation marks visible on the face. Use Type XI reflective sheeting.

Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the traffic signal head back plates.

- 772-P12 COMBINATION LIGHT AND SIGNAL STANDARD: Use luminaire extensions of the Davit type with 10' mast arm.
- 772-P13 TRAFFIC SIGNAL STANDARDS: Use "T" transformer base type standards for Signals S1, S2, S4, S5, S6, S7, S9, and S10. Use alternative signal standards (anchor bolt base) for Signals S3 and S8 which will be protected by a crash attenuator that meets MASH standards. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the "T" transformer and anchor bolt bases.

This document was originally issued and sealed by Nicholas J. Erpelding, Registration Number PE-5870, on 11/06/17 and the original document is stored at the North Dakota Department of Transportation

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- 772-P14 SIGNAL STANDARD PAINT COLOR: Paint all traffic signal system components, except for the luminaire extensions, in accordance with the following:
  - Transformer base yellow
  - Mast arm yellow
  - Signal head mounting hardware on pole yellow
  - Pole shaft yellow
  - Signal housing yellow
  - Visors/tunnels black

Use #13538 of Federal Standard No. 595 for the color yellow. Use #27038 of Federal Standard No. 595B for the color black.

- 772-P15 PULL BOXES: Follow the specification outlined in the NDDOT standard drawing D770-3 and be precast concrete. Clearly mark the cover as "Traffic Signal". Duct seal all conduits entering and exiting pull boxes. Provide dividers as per NEC for pull boxes that share power conductors for lighting and low voltage conductors for signals.
- 772-P16 CONDUIT: Install conduit at the locations shown on the plans. Bore conduit when crossing under existing pavement. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes furnishing and installing conduit, pushing and boring conduit, digging potholes and restoring the potholes with new material that ties into the existing surround material. Seal all conduits with duct seal at the controller cabinet and at the traffic signal standard foundations.
- 772-P17 ADDITIONAL CONDUIT: Install one additional 2-inch diameter conduit in each traffic signal standard foundation and the controller cabinet/feed point foundation. The direction of the conduit will be determined in the field by the Engineer and labeled in the cabinet by the Contractor. Plug each spare conduit with a 2" expandable pipe plug. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs to supply and install the additional conduit.
- 772-P18 EXCAVATION AND RESTORATION: Any excavation required to install conduit, connect conduit to existing conduit sweeps, install pull boxes, foundations or any other feature proposed in the plans is included in the prices bid "TRAFFIC SIGNAL SYSTEM SITE 1". This includes restoring the excavated area with the appropriate fill material. The fill material shall match the surrounding surface material. At locations where the surrounding material is earth, include earth fill with 6" of topsoil and seed. At locations where the surround material is concrete, tie into the existing concrete. All removed material whether concrete or earth is the property of the Contractor and be disposed of accordingly. Compaction and density controls are in accordance with Section 203.04 E.2 of the Standard Specifications AASHTO T-180.
- 772-P19 CONDUCTOR COLOR CONTINUITY: Maintain conductor color continuity where any 12AWG 12 conductor cables are connected to 12 AWG 5 and/or 12 AWG 3 conductor cables within the terminal block of a traffic signal standard.

772-P20 WIRE SPLICING: No splicing will be allowed in pull boxes. Splicing may only take place in the signal base.

Revised

772-P21 LABEL ALL FIELD CABLES: All labeling materials must be approved by the City. Labels must be readable without moving the cables. When installing cable bundles in conduit, bundles will not be taped. Label all field cables with the cable designations:

TYPE	LABEL	LABEL LOCATION
Communication Cable	Comm./Address of Other End	Within 12" of Conduit
Pedestrian Push Button	Phase/Location (i.e. NW, SW, etc.)	Within 6" of Terminals
Coaxial Cables	Cameras Detection Zone (i.e. D2-1, D2-2, etc.)	Within 6" of Terminals
Control Cable	Cable Number & Location (i.e. NW, SW, etc.)	Within 12" of Conduit
Opticom Cable	Pre-Empt Number/Location (i.e. NW, SW, etc.)	Within 6" of Terminal

Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for labeling field cables.

772-P22 FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT: Install a pad mounted Combination Lighting and Signal Feed Point Type IV according to the plans and per NDDOT standard detail. Coordinate with the Utility for the incoming electrical service. Connect the traffic signal controller to the feed point. Install a 50 amp breaker Type BR at the feed point for traffic control signal purposes.

Verendrye Electric will provide direct buried cable from the transformer near Gooseneck Implement; contact Brian Johnson (701-852-0406). Coordinate with the Utility to establish the service connection to ensure a fully operational traffic signal controller feed point at this location.

Pay for all utility company costs for the feed point. Furnish and install conduit from the controller cabinet to the feed point. Furnish and install #6 U.S.E. cable between the new controller and the new feed point. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment required for feed point connections.

This document was originally issued and sealed by Nicholas J. Erpelding, Registration Number PE-5870, on 11/06/17 and the original document is stored at the North Dakota Department of Transportation

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772-P23 WIRELESS INTERCONNECT, WI-FI PANEL AND ETHERNET SWITCH: Furnish and install an ethernet switch and a 5 GHz Wi-Fi panel as shown in the plans. Coordinate with the City of Minot to receive required configuration parameters. Input the parameters to connect the device to the City's network. Install Wi-Fi Panel on the outside of the traffic signal cabinet at the intersection of US Highway 2 and 42nd Street SE. Connect the 16 amp breaker on the inside of the traffic signal cabinet to the Wi-Fi Panel. Enclose the Wi-Fi Panel in a Nema-Type 3 NR weather enclosure. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing wireless interconnect, Wi-Fi Panel, and ethernet switch.

### 772-P24 SIGNAL EQUIPMENT:

- A. Provide steel signal and pedestal adapters/collars.
- B. Provide polycarbonate vehicle heads and ensure level installation on all sides. Provide stainless steel fasteners with anti-seize lubricant used.
- C. Provide two-point mounting system such as Astro Brackets, Sky Brackets or approved equal for all mast arm mounted signals. Indicate the type of mounting in the work drawings for signal heads.
- 772-P25 UTILITY COORDINATION: Coordinate with the electric utility for the incoming electrical service to the signal control cabinet. All conductors, conduit and connections from the transformer to the meter will be supplied by the electric utility. All cable, conduit, meter socket and service disconnect from the meter to the signal control cabinet will be provided by the Contractor.
- 772-P26 VIDEO DETECTION SYSTEM AND SPARE EQUIPMENT: Furnish and install a video detection system manufactured by Autoscope. The manufacturer's representative will provide all cable connections, camera aiming system setup, programming detection zones, and verification of reliable operation. Video detection camera locations in the plans are for guidance only; mount the cameras as needed to enable proper operation. Furnish and install a video monitor in the controller cabinet for video detection configuration. Meet LCDI-104-CCTV-LCD specifications for the video monitor. Provide the City of Minot Traffic Department with the following spare equipment (1 each) for future routine programming, maintenance, and operation: laptop equipped with programming software compatible with the cabinet equipment, camera, BIU, MMU, and EVP card. Price bid for "TRAFFIC SIGNAL SYSTEM SITE 1" includes all costs, labor, materials and equipment necessary for making the video detection system fully operational.
- 772-P27 FLASHING BEACON AND ADVANCE WARNING SIGN: Supply and install four W3-4-48 "Be Prepared To Stop" and a W16-13P24 "When Flashing" supplemental signs as shown in the plans. Include 12 inch yellow LED flashing beacons with 5 inch louvered back plated mounted on each side of the sign assembly. Signs, supports, anchors and bracing are paid for as part of section 110. Price bid for "Traffic Signals System- Site 1" includes all cost, materials, labor, and equipment necessary for furnishing and installing the flashers and advance warning sign assemblies.

772-P28 CONCRETE FOUNDATION – TRAFFIC SIGNALS: The Signal Standard Foundation Table in the plans show the requirements for traffic signal foundations dependent on the traffic signal mast arm length for both traffic signal and the combination signal and light standard. The manufacturer's bolt circle recommendation may require a larger foundation. Provide a minimum of 3" of concrete cover from the anchor bolts for the foundations. Increase the diameter at the top of the foundations to accommodate a larger bolt circle. Continue the depth of the increased diameter to 3" below the end of the anchor bolts. The signal manufacturer must provide the bolt circle requirements to the Contractor prior to the pouring of the foundations. Do not change the depth of the foundations. Price bid for "Traffic Signal System – Site 1" includes all costs, labor, materials, and equipment necessary for installing the foundations.

Revised

772-P29 FUTURE PEDESTRIAN PUSHBUTTON: Extend conduit 6 inches above ground level and cap for future pedestrian pushbutton number 1 located in the median (station 7914+91.28, offset 17.64 feet LT).

This document was originally issued and sealed by Nicholas J. Erpelding, Registration Number PE-5870, on 11/06/17 and the original document is stored at the North Dakota Department of Transportation

						Quantity		
Spec	Code	Item Description	Unit	US	Urban	Frontage	100%	T
- 1				Hwy 2	Roads	Roads	Local	Tota
103	0100	Contract Bond	L SUM	1				1
103		Escrow of Bid Documentation	L SUM	1				1
201		Clearing & Grubbing	L SUM	1				1
201		Removal of Trees 18 IN	EA	· ·	6	4		10
201		Removal of Trees 30 IN	EA			7		7
202		Removal of Curb & Gutter	LF		1943	232		217
202		Removal of Pavement	TON	12991	3737	2904		1963
202		Removal of Pipe All Types and Sizes	LF	901	30	58		989
202		Removal of Inlets	EA	301	00	2		2
203	0101	Common Excavation-Type A	CY	27948	8104	10535		4658
203	0109	Topsoil	CY	7010	3007	3568		1358
203	0121	Topsoil - Wetland	CY	790	0007	31		821
216		Water	MGAL	1392		31		1392
230		Subgrade Preparation-Type A	STA	36				36
251		Seeding Class II	ACRE	10.8	2.7	3.4		16.9
251		Wetland Seed	ACRE	1.1	2.1	3.4		1.1
251		Temporary Cover Crop	ACRE	11.3	2.7	3.4		17.4
253	0101	Straw Mulch	ACRE	11.3	2.7	3.4		17.4
253		Hydraulic Mulch	ACRE	10.8	2.7	3.4		16.9
255		ECB - Type 1	SY	1270	110	974		235
255		ECB - Type 4	SY	1270	108	655		763
260		21	LF	200	106	600		200
		Silt Fence Supported	LF	200				
260		Remove Silt Fence Supported	LF	200	222	246		200 743
261		Fiber Rolls 12 IN		94	333	316		404
261		Remove Fiber Rolls 12 IN	LF	74	117	213		
261		Fiber Rolls 20 IN	LF	5385	2087	2596		1006
261		Remove Fiber Rolls 20 IN	LF	2190	916	908		4014
302		Salvaged Base Course	TON	32277	8938	6298		4751
401		Tack Coat	GAL	2645	409	502		3556
401		Prime Coat	GAL	7039	1989	2456		1148
401		Blotter Material CL 44	TON	213	61	74		348
411		Milling Pavement Surface - 2 Inch	SY	0000	4000	14		14
430		Superpave FAA 45	TON	9363	1989	2104		1345
430		Cored Sample	EA	25	16	8		49
430		PG 58-28 Asphalt Cement	TON	371	64	63		498
430		PG 64-28 Asphalt Cement	TON	176	52	63		291
702		Mobilization	L SUM	1				1
704		Flagging	MHR	1200				1200
704		Traffic Control Signs	UNIT	4489				4489
704		Type III Barricades	EA	70				70
704	1060	Delineator Drums	EA	161				161
704	1080	Stackable Vertical Panels	EA	228				228
704	1087	Sequencing Arrow Panel - Type C	EA	2				2
704	4011	Portable Changeable Message Sign	EA	5				5
706	0400	Field Office	EA	1				1
706		Aggregate Laboratory	EA	1				1
706		Bituminous Laboratory	EA	1				1
706	0600	Contractor's Laboratory	EA	1				1
708		Inlet Protection-Special	EA	6	22	6		34
708	1541	Remove Inlet Protection-Special	EA	6	22	6		34
709	0151	Geosynthetic Material Type R1	SY	3366	1858	2343		756
714	0825	Pipe Conc Reinf 30IN CL III-Storm Drain	LF			8		8
714	4097	Pipe Conduit 15IN-Storm Drain	LF	45				45
714	4099	Pipe Conduit 18IN-Approach	LF		49	68		117
714	4101	Pipe Conduit 18IN-Storm Drain	LF	199				199
714	4106	Pipe Conduit 24IN-Approach	LF	396		85		48
714		Pipe Conduit 30IN-Storm Drain	LF	180				180
714		Pipe Conduit 36IN	LF	185				188
714		Pipe Conduit 36IN-Storm Drain	LF	68				68
714		Pipe Conduit 42IN-Storm Drain	LF	82				82
		Sanitary Sewer Service Connection	EA				1	1

Revised Revised	10/11/17 10/31/17	STATE	PROJECT NO.	SECTION NO.	SHEET NO.	
		ND	NHU-4-002(116)149	8	1	

						Quantity		
Spec	Code	Item Description	Unit	US	Urban	Frontage	100%	<b>.</b>
·		·		Hwy 2	Roads	Roads	Local	Total
714	7046	Pipe PVC 4" Sewer	LF	,			50	50
714	9660	Remove & Relay End Section-All Types and Sizes	EA			1		1
714		Plug Pipe-All Types and Sizes	EA			2		2
720	0110	Right of Way Markers	EA	2	18	15		35
720	+	Alignment Monuments	EA	2	10	19		31
720		Iron Pin R/W Monuments	EA		16	14		30
720		Iron Pin Reference Monuments	EA	2	2	2		6
722		Manhole 48IN	EA		1	1		2
722		Manhole Riser 48IN	LF		5.7	8.3		14
722		Inlet - Type 2	EA		6	4		10
722		Inlet-Type 2-Double	EA		1	2		3
722		Inlet Special -Type 2 48IN	EA		1			1
722		Inlet Special Mountable-Type B 48IN	EA	1	1			2
722		Inlet Special-Type 2 60IN	EA			1		1
722		Inlet Special-Type 2 72IN	EA	1				1
722		Inlet Mountable Curb-Type B	EA	3	1			4
722			EA	1				1
722		Adjust Gate Valve Box	EA	•			5	5
722		Adjust Manhole	EA		3	4		7
724		Remove Gate Valve & Box	EA				3	3
724	0300	Gate Valve & Box 6IN	EA				3	3
724		Gate Valve & Box 8IN	EA				1	1
724		Gate Valve & Box 12IN	EA				<u>·</u> 1	1
724		6IN Hydrant	EA				<u>·</u> 1	1
724		Adjust Hydrant	EA				<u>'</u> 1	1
724		Remove Hydrant	EA				2	2
724		Water Service Line 1IN Copper	LF				29	29
724		Watermain 6IN PVC	LF				43	43
724		Watermain 8IN PVC	LF				794	794
724	0850	Watermain 12IN PVC	LF				684	684
724	0905	Curb Stop & Box 1IN	EA				1	1
724		Connection to Existing Main	EA				5	5
724		SS Wrap-Around 6IN With 1IN Tap	EA				1	1
724		8IN 11.25Deg Bend	EA				2	2
724	6840	12IN 11.25Deg Bend	EA				2	2
724	6842	12IN 22.5Deg Bend	EA				2	2
724	6844	12IN 45Deg Bend	EA				1	1
724	7010	8IN x 6IN Reducer	EA				2	2
724	8097	12IN X 8IN Reducer	EA				1	1
744		Polystyrene Insulation Board	BD FT				12800	12800
744		Curb & Gutter Mountable-Type I	LF	502			12000	502
748		Curb & Gutter-Type I	LF	502 715	2723	2343		502
750	0140	Sidewalk Concrete	SY	110	860	2343		860
750	0200	Concrete Median Paving	SY	166				
		-	SY	466 40	164			630
750 750	1000	Concrete Median Nose Paving	SY	40	10 78			50 78
	1000	Driveway Concrete			ļ	112		
750		Driveway Concrete 8IN	SY	40	175	112		287
750		Detectable Warning Panels	SF	40	25.8	60		65.8
754		Flat Sheet For Signs-Type XI Refl Sheeting	SF	238	48	66		352
754	0112	Flat Sheet For Signs-Type IV Refl Sheeting	SF	202	37	040.0		239
754	0206	Steel Glav Posts-Telescoping Perforated Tube	LF	582.6	175.8	243.3		1001.7
754	0214	Glav Steel Posts-W-Shape Posts(Two or More)	LF	76.8				76.8

# Quantities

US Hwy 2 & 42nd St SE Intersection Improvements

Revised	10/16/17		SECTION	SHEET	
Revised	10/31/17 STATE PROJECT NO.		NO.	NO.	
		ND	NHU-4-002(116)149	8	2

						Quantity		
Spec	Code	Item Description	Unit	US	Urban	Frontage	100%	Tatal
				Hwy 2	Roads	Roads	Local	Total
754	0563	Reference Marker-Type C	EA	2				2
754	0592	Reset Sign Panel	EA	1	1	1		3
754	0805	Object Marker - Culvert	EA	8	5	9		22
754	1104	Remove Sign Foundation	EA	2				2
762	0110	Epoxy Pvmt Mk 4IN Line-Grooved	LF	1376	3136			4512
762	0113	Epoxy Pvmt Mk 4IN Line	LF	7070		1382		8452
762	0122	Preformed Patterned Pvmt Mk-Messaged-Grooved	SF	320	128			448
762	0132	Epoxy Pvmt Mk 8IN Line-Grooved	LF	5706	1283			6989
762	0134	Epoxy Pvmt Mk 12IN Line-Grooved	LF	1013				1013
762	0430	Short Term 4IN Line - Type NR	LF	9958				9958
762	1307	Preformed Patterned Pvmt Mk 6IN Line-Grooved	LF		187			187
762	1325	Preformed Patterned Pvmt Mk 24IN Line-Grooved	LF	289		101		390
764	9011	Attenuating Crash Cushion TL-3	EA	2				2
766	0100	Mailbox-All Types	EA		1			1
770	0020	Concrete Foundation-Highway Lighting	EA	13	9			22
770	0220	Cable Trench-Type II	LF	2650	1575			4225
770	0330	2IN Diameter Rigid Conduit	LF	995	741			1736
770	0504	Underground Conductor NO4-Type RHW	LF	5890	3418			9308
770	0604	Underground Conductor NO4-Type THW	Lf	2945	1709			4654
770	1676	LT Std 6FT MA 40FT MT HT Breakaway	EA		8			8
770	1778	LT Std 10FT MA 42FT MT HT Breakaway	EA	13	1			14
770	4210	LED Luminaire	EA	10	5			15
770	4220	LED Luminaire - 150 Watt	EA	7	4			11
770	4567	Remove Lighting System	EA		1			1
772	9811	Traffic Signal System - Site 1	EA	1				1
990	0230	Temporary Access	LSUM	1				1

# Option 1: Pipe Conduit Storm Sewer (See Section 51 for Allowable Materials)

						Quantity		
Spec	Code	Item Description	Unit	US	Urban	Frontage	100%	Total
				Hwy 2	Roads	Roads	Local	Total
714	4097	Pipe Conduit 15IN-Storm Drain	LF		653	268		921
714	4101	Pipe Conduit 18IN-Storm Drain	LF		367	94		461
714	4107	Pipe Conduit 24IN-Storm Drain	LF			75		75

## Option 2: Reinforced Concrete Pipe Storm Sewer

						Quantity		
Spec	Code	Item Description	Unit	US	Urban	Frontage	100%	Total
				Hwy 2	Roads	Roads	Local	Total
714	0210	Pipe Conc Reinf 15IN CL III - Storm Drain	LF		653	268		921
714	0315	Pipe Conc Reinf 18IN CL III - Storm Drain	LF		367	94		461
714	0620	Pipe Conc Reinf 24IN CL III - Storm Drain	LF			75		75

Quantities

US Hwy 2 & 42nd St SE Intersection Improvements

	ND	NHU-4-002(116)149	100	1
	SIAIL	FROSECT NO.	NO.	NO.
ed 10/31/17	STATE	PROJECT NO.	SECTION	SHEET

1	SIGN NUMBER	SIGN SIZE	DESCRIPTION	I	RE	MOU QUIF HAS		TOTAL AMOUNT	UNITS PER	UNITS SUB TOTAL
2021-160   667926   POAD WORK NEXT   MILES   34   2021-160   6702-24   47-26   PORT NOTA WORK NET CONTRICTORS (Sign and installation only)   4   4   4   4   4   4   4   4   4				1	2	3	4	REQUIRED		TOTAL
620-14-90   697-22"   WORK IN PROSESS NO WORK IN PROCESS Sign and installation only)   4										
2009-1-96   2019-1-97   PICOT CARE POLICY ME (Mounted to back of pilot care)   2   2   2   2   2   2   2   2   2										
				4	4	4	4	4		7
2029-59-72   72-96   ROAD WORK NEXT   MILES RT 6 LT ARROWS   37   2029-59-72   72-96   ROAD WORK NEXT   MILES RT 6 LT ARROWS   4	G20-4-36	36"x18"							18	
2009-259-72   729-26   ROAD WORK NEXT   MILES RT or LT ARROW	G20-10-108	108"x48"	CONTRACTOR SIGN	2	2	2	2	2		12
202-95-96   Served										
MI-1-56   397-36"   NIERSTATE ROUTE MARKER (Potal and installation only)   10   10   11   10   11   10   11   10   11   10   11   10   10   11   10   10   10   11   10   1										
MI-5-24   22-92* U.S. ROUTE MARKER (Poets and installation only)   10   MI-5-24   22-92*   INTER FOUR LAWRER (Poets and installation only)   10   MI-5-24   22-92*   STATE ROUTE MARKER (Poets and installation only)   7   MI-5-24   22-92*   EAST (Mounted on route marker post)   7   7   7   7   MI-5-24   22-92*   EAST (Mounted on route marker post)   7   7   7   7   7   7   7   7   7			·	4	4	4	4	4		23
MI-5-24   22-124   STATE ROUTE MARKER (Post and installation only)   10   10   10   10   10   10   10   1				+						
M3-1-24   24*12"   NORTH (Mounted on route marker post)   7   7   7   7   7   7   7   7   7				-						
M3-2-24   Zexis										
M34-24   24"x12"   MEST   Mounted on note marker post)   2   2   2   2   2   5   7	M3-2-24		, , ,							
MA-9-20   2014   2014   2014   2015   2016	M3-3-24	24"x12"	SOUTH (Mounted on route marker post)						7	
MB-9-30   307%2"   DEFOUR ARROW RIGHT OF LETTAHD AND RT OF LT	M3-4-24	24"x12"	WEST (Mounted on route marker post)							
Ma-10-48   49*18" DETOUR ARROW RIGHT or LEFT   23   23   M5-22   21*15"   ARROW ARD NRT for LT (Mounted on route marker post)   7   7   7   7   7   7   7   7   7				26	26	26	26	26		18
MS-1-21 21"-15" ARROW AHD AND RT or LT(Mounted on route marker post) 7 7 7 7 7 7 7 7 7 7 MS-1-21 21"-15" ARROW ARD PART or LT (Mounted on route marker post) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7										
MS-2-21 21*\(15^{15}\) ARROW AFID UP & RT or LT (Mounted on route marker post) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7				+_	_	_	_			
M6-1-21 21"-15" ARROW RT or LT (Mounted on route marker post)				7	7	7	7	7		4
M8-2-21 21"x15" ARROW UP & RT or LT (Mounted on route marker post)				7	7	7	7	7		4
MS-3-21 21"x15" ARROW AHD (Mounted on route marker post) 6 6 6 6 6 7 RH-1-48 48"x48" STOP and SLOW PADDLE Back to Back 2 2 2 2 2 2 5 5 RH-1-48 18"x18" STOP and SLOW PADDLE Back to Back 2 2 2 2 2 2 5 5 RH-1-48 18"x18" STOP and SLOW PADDLE Back to Back 2 2 2 2 2 2 5 5 RH-1-48 48"x69" SPEED LIMIT 2 3 3 3 3 3 2 9 RZ-1-48 48"x69" SPEED LIMIT 2 1 MINIMUM FEE \$30 (Mounted on Speed Limit post) 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT LANE MUST TURN LEFT or RIGHT 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT LANE MUST TURN LEFT or RIGHT 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 5 5 10 10 R3-7-48 48"x49" LEFT or RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 10 LEFT OR RIGHT SYMBOL 5 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5										4
RH-1-48   48"-48" STOP   2   2   2   32   RH-1-518   35" OP and SLOW PADDLE Back to Back   2   2   2   2   2   2   2   2   2			, ,							4
Rt-1-18   18"x18" STOP and SLOW PADDLE Back to Back   2   2   2   2   5   Rt-2-60   6"yelp   Yielp   3   3   3   3   29   Rt-2-61   48"x60" SPEED LIMIT   9   9   9   9   9   9   9   9   9			, , ,	Ť						6
RR1-2-0   60°-60°   YIELD   3   3   3   29   R2-1-12   48°-60°   SPEED IMIT   9   9   9   9   9   9   9   9   9				2						1
R2-1-48				T						8
R3-7-48				9						35
R4-148	R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	5	5	5	5	5	10	5
R4-748										
RS-1-48										
RS-1s-42										
R8-1-38 38"*12" ONE WAY RIGHT OR LEFT # 4 4 4 4 13 RR5-1-12 IZ*18" NO PARKING # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				-						7
RR-1-12 12"x16" NO PARKING R8-9-24 24"12" SIDEWALK CLOSED										5
R9-924 22"-12" SIDEWALK CLOSED R10-6-24 22"-36" STOP HERE ON PED R10-6-24 24"-36" STOP HERE ON PED R11-2-48 48"-30" ROAD CLOSED R11-2-48 48"-30" STREET CLOSED TO STREET CLOSED TO THE VIBRICAN STREET CLOSED STREET CLOSED STREET CLOSED TO THE VIBRICAN STREET CLOSED STREET CLO				-	4	4	4	4		5
RIO-62-42 24"36" STOP HERE ON RED					1	1	1	1		1
R11-2-48 48"-30" TREET CLOSED				-	•	-	•	<u> </u>		
RI1-2-48 48"-49"   STREET CLOSED     1   2   2   2   2   2   2   2   2				1	13	13	13	13		36
RI1-3a-60 60"x30" ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY   31   RR1-3a-60 60"x30" STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY   31   RR1-4a-60 60"x30" STREET CLOSED TO THRU TRAFFIC   2 2 2 2 2 31   31   RR1-4a-60 60"x30" STREET CLOSED TO THRU TRAFFIC   2 2 2 2 2 2 31   32   33   33   35   34   34   34   34   34				_						5
RI1-14-60 60"x30" STREET CLOSED TO THRU TRAFFIC  W1-3-48 48"x48" RIGHT or LEFT SHARP REVERSE CURVE ARROW  W1-3-48 48"x48" RIGHT or LEFT REVERSE CURVE ARROW  W1-4-48 48"x48" DOUBLE RIGHT or LEFT REVERSE CURVE ARROW  W3-4-48 48"x48" DOUBLE RIGHT or LEFT REVERSE CURVE ARROW  W3-4-48 48"x48" STOP AHEAD SYMBOL  W3-1-48 48"x48" STOP AHEAD SYMBOL  W3-4-48 48"x48" STOP AHEAD SYMBOL  W3-4-48 48"x48" SIOP AHEAD SYMBOL  W3-4-48 48"x48" SIOP AHEAD SYMBOL  W3-4-48 48"x48" SIOP AHEAD SYMBOL  W3-4-48 48"x48" SIOR SYMBOL  W3-4-48 5X-48" SIOR									31	_
W1-1-4-8	R11-3c-60	60"x30"	STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY						31	
W1-4-48	R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC	2	2	2	2	2	31	6
W1-6-48										
W15-48										
W3-1-48         48"x48"         STOP AHEAD SYMBOL         1         35         W32-448         48"x48"         BEPREPARED TO STOP         35         W35-448         48"x48"         SPED REDUCTION AHEAD         4         4         4         4         4         35         W42-48         ROAD NARROWS         35         W5-148         W5-48"         ROAD NARROWS         35         W5-148         W5-48"         ROAD WORK TRAFFIC GNT LANE         35         W5-9-48         48"x48"         ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW         35         W8-148         W5-48"         TWO WAY TRAFFIC SYMBOL         35         W8-148         W8"x48"         TWO WAY TRAFFIC SYMBOL         4         4         4         4         4         4         4         4         4         4										_
W3-2-48         48"48"         YIELD AHEAD SYMBOL         1         1         1         1         1         1         35           W3-3-48         48"x48"         SIGNAL AHEAD SYMBOL         35         35           W3-4-48         48"x48"         SPEED RED TO STOP         35         35           W3-5-48         48"x48"         SPEED REDUCTION AHEAD         4					3	3	3	3		7
W3-3-48					1	1	1	1		3
W3-4-48       48"x48"       BE PREPARED TO STOP       35         W3-5-48       48"x48"       SPEED REDUCTION AHEAD       4       35				-	•	-	•	<u> </u>		,
W3-5-48         48"x48"         SPEED REDUCTION AHEAD         4										
W5-1-48       48"x48"       ROAD NARROWS       35         W5-8-48       48"x48"       THRU TRAFFIC RIGHT LANE       35         W6-3-48       48"x48"       ROAD WORK TRAFFIC ONLY DOWN & LT ORT ARROW       35         W6-3-48       48"x48"       TWO WAY TRAFFIC SYMBOL       35         W8-1-48       48"x48"       BUMP       4       35       W8-54-48       48"x48"       WINCENTRAFIC SYMBOL       35       W8-54-48       48"x48"       WINCENTRAFIC S				4	4	4	4	4		14
W5-8-48       48"x48"       THRU TRAFFIC RIGHT LANE       35         W5-9-48       48"x48"       ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW       35         W6-3-48       48"x48"       TWO WAY TRAFFIC SYMBOL       35         W8-1-48       48"x48"       BUMP       4       35       W8-748       8       48"x48"       W8-748       W	W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		4	4	4	4	35	14
W5-9-48	W5-1-48	48"x48"	ROAD NARROWS							
W6-3-48       48"x48"       TWO WAY TRAFFIC SYMBOL       35         W8-148       48"x48"       BUMP       4										
W8-1-48       48"x48"       BUMP       4										
W8-3-48         48"x48"         PAVEMENT ENDS         4 <td></td> <td></td> <td></td> <td>1.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				1.						
W8-7-48       48"x48"       LOOSE GRAVEL       35         W8-9a-48       48"x48"       SHOULDER DROP-OFF       35         W8-11-48       48"x48"       UNEVEN LANES       35         W8-12-48       48"x48"       NO CENTER STRIPE       35         W8-53-48       48"x48"       TRUCKS ENTERING HIGHWAY       35         W8-55-48       48"x48"       TRUCKS ENTERING AHEAD or _FT.       35         W8-55-48       48"x48"       TRUCKS CROSSING AHEAD or _FT.       35         W8-55-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-4-48       48"x60"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-8       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5       5       5       5       35         W20-3-48       48"x48"       BOTOUR AHEAD or _FT       33       3       3       3       3       3         W20-4-48       48"x48"       ROAD OR STREET CLOSED AHEAD or _FT       35       3       3										14
W8-9a-48       48"x48"       SHOULDER DROP-OFF       35         W8-11-48       48"x48"       UNEVEN LANES       35         W8-12-48       48"x48"       NO CENTER STRIPE       35         W8-53-48       48"x48"       TRUCKS ENTERING HIGHWAY       35         W8-54-48       48"x48"       TRUCKS ENTERING AHEAD or _FT.       35         W8-55-48       48"x48"       TRUCKS CROSSING AHEAD or _FT.       35         W8-56-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       LOW CLEARANCE SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-34       48"x60"       RAMP ARROW       39         W14-3-48       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5       5       5         W20-3-48       48"x48"       DETOUR AHEAD or _FT       33       3 3 3 3       3       35         W20-3-48       48"x48"       ROAD or STREET CLOSED AHEAD or _FT.       35       35       35         W20-5-48       48"				4	4	4	4	4		14
W8-11-48       48"x48"       UNEVEN LANES       35         W8-12-48       48"x48"       NO CENTER STRIPE       35         W8-53-48       48"x48"       TRUCKS ENTERING HIGHWAY       35         W8-54-48       48"x48"       TRUCKS ENTERING AHEAD orFT.       35         W8-56-48       48"x48"       TRUCKS CROSSING AHEAD orFT.       35         W8-56-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x60"       RAMP ARROW       39         W14-3-48       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD orFT or _MILE       5				+						
W8-12-48       48"x48"       NO CENTER STRIPE       35         W8-53-48       48"x48"       TRUCKS ENTERING HIGHWAY       35         W8-54-48       48"x48"       TRUCKS ENTERING AHEAD orFT.       35         W8-55-48       48"x48"       TRUCKS CROSSING AHEAD orFT.       35         W8-56-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x36"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD orFT or _MILE       5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5				1						
W8-53-48       48"x48"       TRUCKS ENTERING HIGHWAY       35         W8-54-48       48"x48"       TRUCKS ENTERING AHEAD orFT.       35         W8-55-48       48"x48"       TRUCKS CROSSING AHEAD orFT.       35         W8-56-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x60"       RAMP ARROW       39         W14-3-48       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       DETOUR AHEAD orFT or _MILE       5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5				+						
W8-54-48       48"x48"       TRUCKS ENTERING AHEAD orFT.       35         W8-55-48       48"x48"       TRUCKS CROSSING AHEAD orFT.       35         W9-36-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-38-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x60"       RAMP ARROW       39         W14-3-48       48"x36"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5       5 5 5 5         W20-3-48       48"x48"       DETOUR AHEAD or _FT       3 3 3 3 3 3 3       35         W20-3-48       48"x48"       ROAD or STREET CLOSED AHEAD or _FT.       35       35         W20-5-48       48"x48"       RIGHT or LEFT LANE CLOSED AHEAD or _FT.       4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				1						
W8-55-48       48"x48"       TRUCKS CROSSING AHEAD orFT.       35         W8-56-48       48"x48"       TRUCKS EXITING HIGHWAY       35         W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x60"       RAMP ARROW       39         W13-4-348       48"x36"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5										
W9-3a-48       48"x48"       CENTER LANE CLOSED SYMBOL       35         W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-48       48"x60"       RAMP ARROW       39         W14-3-48       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	W8-55-48		TRUCKS CROSSING AHEAD or FT.							
W12-2-48       48"x48"       LOW CLEARANCE SYMBOL       35         W13-1-24       24"x24"       MPH ADVISORY SPEED PLATE (Mounted on warning sign post)       11         W13-4-84       48"x60"       RAMP ARROW       39         W14-3-48       48"x48"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5									35	
W13-1-24   24"x24"										
W13-4-48										
W14-3-48       48"x36"       NO PASSING ZONE       23         W20-1-48       48"x48"       ROAD WORK AHEAD or _FT or _MILE       5 5 5 5 5 5 5 35         W20-2-48       48"x48"       DETOUR AHEAD or _FT       3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3				1_						
W20-1-48     48"x48"     ROAD WORK AHEAD or _FT or _MILE     5     5     5     5     5     5       W20-2-48     48"x48"     DETOUR AHEAD or _ FT     3     3     3     3     3     3       W20-3-48     48"x48"     ROAD or STREET CLOSED AHEAD or _ FT.     3     3     3     3     3     3     3       W20-4-48     48"x48"     ONE LANE ROAD AHEAD or _ FT.     35     35       W20-5-48     48"x48"     RIGHT or LEFT LANE CLOSED AHEAD or _ FT.     4     4     4     4     4     35       W20-7a-48     48"x48"     FLAGGING SYMBOL     2     2     2     2     2     2     2     35       W20-7k-24     24"x18"     FEET (Mounted on warning sign post)     10       W20-8-48     48"x48"     STREET CLOSED     35				+						
W20-2-48     48"x48"     DETOUR AHEAD orFT     3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3				-	-	-	F	-		
W20-3-48     48"x48"     ROAD or STREET CLOSED AHEAD orFT.     3										17
W20-4-48     48"x48"     ONE LANE ROAD AHEAD orFT.     35       W20-5-48     48"x48"     RIGHT or LEFT LANE CLOSED AHEAD orFT.     4 4 4 4 4 35       W20-7a-48     48"x48"     FLAGGING SYMBOL     2 2 2 2 2 2 35       W20-7k-24     24"x18"     FEET (Mounted on warning sign post)     10       W20-8-48     48"x48"     STREET CLOSED     35										10
W20-5-48         48"x48"         RIGHT or LEFT LANE CLOSED AHEAD orFT.         4         2         2         2         2         2         2         2         2         2         2         35         35           W20-7k-24         24"x18"         FEET (Mounted on warning sign post)         10				1	,	,	J	,		10
W20-7a-48     48"x48"     FLAGGING SYMBOL     2     2     2     2     2     2     2     35       W20-7k-24     24"x18"     FEET (Mounted on warning sign post)     10       W20-8-48     48"x48"     STREET CLOSED     35				1	4	4	4	4		14
W20-7k-24         24"x18"         _FEET (Mounted on warning sign post)         10           W20-8-48         48"x48"         STREET CLOSED         35				2						7
W20-8-48 48"x48" STREET CLOSED 35				1						
W20-51-48 48"x48" FOLUPMENT WORKING	W20-8-48		STREET CLOSED							
W20-52-54 54*x12** NEXT MILES (Mounted on warning sign post)	W20-51-48	48"x48"	EQUIPMENT WORKING						35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	_	ı	AMO	UIR		_	TOTAL AMOUNT	UNITS PER	UNITS SUB TOTAL
NOMBER	OIZL		<del>-</del>		2	_		J.	REQUIRED	AMOUNT	TOTAL
W21-1a-48	48"x48"	WORKERS SYMBOL		•	-	•	_			35	
W21-2-48	48"x48"	FRESH OIL		T						35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or FT		T						35	
W21-5-48	48"x48"	SHOULDER WORK	4	1					4	35	140
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		1						35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or FT.	4	1					4	35	140
W21-6a-48	48"x48"	SURVEY CREW AHEAD								35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or FT.		T						35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		T						35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK								35	
				1							
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				+							
				+	_						
SPECIAL SI	GNS										
		BUSINESS SIGN		1	1	1	1		1	39	39
CONST SN	2 78"x36"	BUSINESS SIGN			-	1	1		1	39	39
CONST SN		42ND ST SE	1	-	-	15			15	24	360
CONST SN		14TH AVE SE			21 :		21		21	24	504
/				+					<del>-</del>		004

SPEC & CODE

704-1000 TRAFFIC CONTROL SIGNS TOTAL UNITS 4489

QUANTITY BY PHASE NO. SPEC & TOTAL DESCRIPTION UNIT QUANTITY CODE 1 2 3 4 
 704-0100
 FLAGGING

 704-1041
 ATTENUATION DEVICE-TYPE B-55

 704-1043
 ATTENUATION DEVICE-TYPE B-65
 800 MHR 200 200 200 200 EACH EACH 704-1044 ATTENUATION DEVICE-TYPE B-70 EACH 704-1050 TYPE I BARRICADES
704-1051 TYPE II BARRICADES
704-1052 TYPE III BARRICADES EACH EACH EACH 24 70 52 70 EACH 16 143 161 143 704-1060 DELINEATOR DRUMS 161 704-1065 TRAFFIC CONES FACH 704-1067 TUBULAR MARKERS EACH 704-1070 DELINEATOR
704-1072 FLEXIBLE DELINEATORS EACH EACH 60 228 217 228 704-1080 STACKABLE VERTICAL PANELS 228 EACH 704-1081 VERTICAL PANELS - BACK TO BACK EACH 704-1085 SEQUENCING ARROW PANEL - TYPE A EACH 704-1086 SEQUENCING ARROW PANEL - TYPE B EACH 704-1087 SEQUENCING ARROW PANEL - TYPE C EACH 704-1088 SEQUENCING ARROW PANEL - TYPE C - CROSSOVER EACH 704-1095 TYPE B FLASHERS EACH 704-1500 OBLITERATION OF PVMT MK 
 704-3501
 PORTABLE PRECAST CONCRETE MED BARRIER

 704-3510
 PRECAST CONCRETE MED BARRIER - STATE FURNISHED
 EACH 704-4011 PORTABLE CHANGEABLE MESSAGE SIGN EACH 762-0200 RAISED PAVEMENT MARKERS EACH 762-0420 SHORT TERM 4IN LINE - TYPE R 762-0430 SHORT TERM 4IN LINE - TYPE NR 772-2110 FLASHING BEACON - POST MOUNTED EACH

NOTE: If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual. http://www.dot.nd.gov/

This document was originally issued and sealed by Jonathan P. Morgenroth, Registration Number PE-6872, on 10/31/17 and the original document is stored at the North Dakota Department of Transportation

Traffic Control Devices List

 PROJECT NO.
 SECTION NO.
 SHEET NO.

 ND
 NHU-4-002(116)149
 100
 2

SIGN NUMBER	SIGN SIZE	DESCRIPTION		RE(	MOUNT QUIRED HASE NO.	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAI
20.00	001.01	OTDEET NAME OF ONLY OF THE PROPERTY OF THE PRO	5	6				
D3-36 G20-1-60	36"x6" 60"x24"	STREET NAME SIGN (Sign and installation only)  ROAD WORK NEXT MILES					6 34	
	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)					26	
G20-2-48	48"x24"	END ROAD WORK	4	4		4	19	7
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		-			18	
G20-10-108	108"x48"	CONTRACTOR SIGN	2	2		2	64	12
G20-50a-72	72"x36"	ROAD WORK NEXT MILES RT & LT ARROWS					37	
G20-52a-72	72"x24"	ROAD WORK NEXT MILES RT or LT ARROW					30	
	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT	4	4		4	59	23
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)					10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)					10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)					10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)				-	7	
M3-2-24 M3-3-24	24"x12" 24"x12"	EAST (Mounted on route marker post)  SOUTH (Mounted on route marker post)					7	
M3-3-24 M3-4-24	24"x12"	WEST (Mounted on route marker post)					7	
M4-8-24	24 X 12 24"x12"	DETOUR (Mounted on route marker post)	26	26		26	7	18
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT	20	20		20	15	10
M4-10-48	48"x18"	DETOUR ARROW RIGHT of LEFT					23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)	7	7		7	7	4
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		Ė		<b>'</b>	7	
	21"x15"	ARROW RT or LT (Mounted on route marker post)	7	7		7	7	4
	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)	1	1		1	7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)	6	6		6	7	-
R1-1-48	48"x48"	STOP	2			2	32	6
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back	2	2		2	5	1
R1-2-60	60"x60"	YIELD	3	Ė		3	29	8
R2-1-48	48"x60"	SPEED LIMIT	9	9		9	39	35
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	5	5		5	10	5
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT					35	
R4-1-48	48"x60"	DO NOT PASS					39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL					39	
R5-1-48	48"x48"	DO NOT ENTER	2			2	35	7
R5-1a-42	42"x30"	WRONG WAY	2			2	26	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT	4			4	13	5
R7-1-12	12"x18"	NO PARKING					11	
R9-9-24	24"x12"	SIDEWALK CLOSED	1			1	12	1
R10-6-24	24"x36"	STOP HERE ON RED					16	
R11-2-48	48"x30"	ROAD CLOSED	_	12		13	28	36
R11-2a-48	48"x30"	STREET CLOSED	2	2		2	28	5
R11-3a-60	60"x30"	ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY					31	
	60"x30"	STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY	_	_		_	31	
<b>R11-4a-60</b> W1-3-48	<b>60"x30"</b> 48"x48"	STREET CLOSED TO THRU TRAFFIC RIGHT or LEFT SHARP REVERSE CURVE ARROW	2	2		2	<b>31</b> 35	Е
W1-3-46 W1-4-48	46 x46 48"x48"	RIGHT OF LEFT SHARP REVERSE CURVE ARROW					35	
W1-4-46 W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW					35	
W1-40-46	48"x24"	LARGE ARROW	3			3	26	7
W3-1-48	48"x48"	STOP AHEAD SYMBOL	3			,	35	•
W3-1-48	48"48"	YIELD AHEAD SYMBOL	1			1	35	3
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL	•			· ·	35	,
W3-4-48	48"x48"	BE PREPARED TO STOP					35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	4	4		4	35	14
W4-2-48		RIGHT or LEFT LANE TRANSITION SYMBOL	4	Ė		4	35	14
W5-1-48	48"x48"	ROAD NARROWS	Ť			· ·	35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE					35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW					35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL					35	
W8-1-48	48"x48"	BUMP	4	4		4	35	14
W8-3-48	48"x48"	PAVEMENT ENDS	4	4		4	35	14
W8-7-48	48"x48"	LOOSE GRAVEL					35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		$ldsymbol{ldsymbol{ldsymbol{eta}}}$			35	
W8-11-48	48"x48"	UNEVEN LANES					35	
W8-12-48	48"x48"	NO CENTER STRIPE		$ldsymbol{ldsymbol{ldsymbol{eta}}}$			35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY					35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or FT.	1				35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or FT.					35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY					35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL	1				35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		-			35	
	24"x24"	MPH ADVISORY SPEED PLATE (Mounted on warning sign post)	-			-	11	
W13-1-24	48"x60"	RAMP ARROW	-			-	39	
W13-1-24 W13-4-48	4011-001	NO PASSING ZONE	+-	-		-	23	,-
W13-1-24 W13-4-48 W14-3-48	48"x36"		5	5		5	35	17
W13-1-24 W13-4-48 W14-3-48 W20-1-48	48"x48"	ROAD WORK AHEAD or _FT or _ MILE	_	٥		9	25	
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48	48"x48" 48"x48"	DETOUR AHEAD or FT	3	3		3	35 35	
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48 W20-3-48	48"x48" 48"x48" 48"x48"	DETOUR AHEAD or FT ROAD or STREET CLOSED AHEAD or FT.	_	3		3	35	10 10
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48 W20-3-48 W20-4-48	48"x48" 48"x48" 48"x48" 48"x48"	DETOUR AHEAD or FT  ROAD or STREET CLOSED AHEAD or FT.  ONE LANE ROAD AHEAD or FT.	3			3	<b>35</b> 35	10
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48 W20-3-48 W20-4-48 W20-5-48	48"x48" 48"x48" 48"x48" 48"x48" 48"x48"	DETOUR AHEAD or FT  ROAD or STREET CLOSED AHEAD or FT.  ONE LANE ROAD AHEAD or FT.  RIGHT or LEFT LANE CLOSED AHEAD or FT.	3 3 4	3		3	35 35 35	10
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48 W20-3-48 W20-4-48 W20-5-48 W20-7a-48	48"x48" 48"x48" 48"x48" 48"x48" 48"x48" 48"x48"	DETOUR AHEAD or FT  ROAD or STREET CLOSED AHEAD or FT.  ONE LANE ROAD AHEAD or FT.  RIGHT or LEFT LANE CLOSED AHEAD or FT.  FLAGGING SYMBOL	3			3	35 35 35 35	10
W13-1-24 W13-4-48 W14-3-48 W20-1-48 W20-2-48 W20-3-48 W20-4-48 W20-5-48	48"x48" 48"x48" 48"x48" 48"x48" 48"x48"	DETOUR AHEAD or FT  ROAD or STREET CLOSED AHEAD or FT.  ONE LANE ROAD AHEAD or FT.  RIGHT or LEFT LANE CLOSED AHEAD or FT.	3 3 4	3		3	35 35 35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION		RE	MOUNT QUIRED HASE NO.	ED AMOUNT PER	UNITS PER	UNITS
			5			REQUIRED	AMOUNI	TOTAL
W21-1a-48	48"x48"	WORKERS SYMBOL		Ť			35	
W21-2-48	48"x48"	FRESH OIL					35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or FT					35	
W21-5-48	48"x48"	SHOULDER WORK		4		4	35	140
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED					35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or FT.		4		4	35	140
W21-6a-48	48"x48"	SURVEY CREW AHEAD					35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or FT.					35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY					35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK					35	

SPECIAL SIG	INS						
CONST SN 1	78"x36"	BUSINESS SIGN	1	1	1	39	39
CONST SN 2	78"x36"	BUSINESS SIGN	1	1	1	39	39
CONST SN 3	78"x24"	42ND ST SE	15	15	15	24	360
CONST SN 4	78"x24"	14TH AVE SE	21	21	21	24	504

SPEC & CODE 704-1000

704-1000 TRAFFIC CONTROL SIGNS TOTAL UNITS 4489

SPEC &			QUANTITY TOTAL							
CODE	DESCRIPTION	UNIT		BY	PHASE NO.	QUANTITY				
CODE			5	6						
704-0100	FLAGGING	MHR	200	200		400				
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH								
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH								
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH								
704-1050	TYPE I BARRICADES	EACH								
704-1051	TYPE II BARRICADES	EACH								
704-1052	TYPE III BARRICADES	EACH	70	39		70				
704-1060	DELINEATOR DRUMS	EACH	161	16		161				
704-1065	TRAFFIC CONES	EACH								
704-1067	TUBULAR MARKERS	EACH								
704-1070	DELINEATOR	EACH								
704-1072	FLEXIBLE DELINEATORS	EACH								
704-1080	STACKABLE VERTICAL PANELS	EACH	228	60		228				
704-1081	VERTICAL PANELS - BACK TO BACK	EACH								
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH								
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH								
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	2			2				
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH								
704-1095	TYPE B FLASHERS	EACH								
704-1500	OBLITERATION OF PVMT MK	SF								
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF								
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH								
704-4011	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	5	5		5				
762-0200	RAISED PAVEMENT MARKERS	EACH								
762-0420	SHORT TERM 4IN LINE - TYPE R	LF								
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	9958			9958				
772-2110	FLASHING BEACON - POST MOUNTED	EACH								

NOTE:
If additional signs are
required, units will be
calculated using the formula
from Section III-19.06 of the
Design Manual.
http://www.dot.nd.gov/

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Traffic Control Devices List

Revised 10/31/17	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	110	4

Sta/RP	Sign/ Assembly No.	Flat S For S IV SF		Pan For Si IV SF			erlay nel XI SF		d Pipe 2nd	Size		/ Steel   hape P 2nd LF		Max Post Len LF	Post Space FT	Revise Fuse Joint EA	St Dia FT	d Pipe Dep FT		W-Shape Pile LF		Sign Fdns W-Shape Pile EA	Sign	Reset Sign Suppor EA	Post	Multi Dir Base EA Comments
<b>US Hwy 2</b> 7909+54 Lt	2			0.0					W8	8x31	23.8	25.0		27.4	7.3					28	2		1			
Sub Total		0.0	0.0	0.0	0.0	0.0	0.0	Total	0.0		Tot	al 48.8	3						0.0	28	2	0	1	0	0	0
Grand Total	l	0.0	0.0	0.0	0.0	0.0	0.0	Total	0.0		Tot	al 48.8	3						0.0	28	2	0	1	0	0	0

Basis of Estimate Sign Support Lengths

The sign support lengths have been calculated using the following vertical clearances:

Areas where parking and/or pedestrian movement will occur - 84" Urban/rural expressway and freeway - 84" (Offset - 60") Rural Roadway - 60"

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Signing Summary

US Hwy 2 & 42nd St SE Intersection Improvements

Round Steel Pipe and W-Shape



