1. Traffic monitoring site cabinet includes:
   A. One adjustable shelf (equipped as shown)
   B. One backplane assembly (equipped as shown)
   C. One J1 receptacle with mounting bracket (See Note #3)
   D. One J1 equipment cable 5 ft. long (Reference Sheet No. 4)
   E. All associated wiring and wiring harnesses

2. Basic backplane assembly consists of:
   A. Two inductive loop terminal strips
   B. One piece sensor terminal strip
   C. One battery terminal strip
   D. One solar panel terminal strip

3. The contractor is responsible for contacting the TMS Manager at the Transportation Statics Office for lane number information and verification.

4. Speed/Classification Unit and Modem furnished separately.

5. Cable ends must be fabricated to fit the vehicle speed/classification unit (Reference Sheet No. 4)

NOTE:
Fabricate bracket out of ⅜” - ¼” inch thick aluminum. Dimensions may vary depending on the manufacturer of the J1 receptacle being furnished. The cabinet manufacturer will construct the mounting bracket to fit the receptacle.
1. Traffic monitoring site cabinet includes:
   A. One adjustable shelf (equipped as shown)
   B. Two backplane assemblies (equipped as shown)
   C. Two J1 receptacle with mounting brackets
   D. One J1 equipment cable 5 ft. long (Reference Sheet No. 4)
   E. All associated wiring and wiring harnesses

2. Basic backplane assembly consists of:
   A. Two inductive loop terminal strips
   B. One piezo sensor terminal strip
   C. One battery terminal strip
   D. One solar panel terminal strip

3. The contractor is responsible for contacting the TMS manager in the Transportation Statics Office for lane number information and verification.

4. Speed/Classification Unit and modem furnished separately.

5. Cable ends must be fabricated to fit the vehicle speed/classification unit (Reference Sheet No. 4) for pinout charts, receptacle, and plug details.

NOTES:

TRAFFIC MONITORING SITE

CABINET LAYOUT DETAILS (Five to Eight Lanes)
NOTES:
1. Reference Sheet No. 1 or 2, Note #2 for items to be included with backplane.
2. All terminal strip contacts are on 1/4" centers (Clinch 142 Series or equal)
   Use insulated fork wire terminations.
3. The contractor is responsible for contacting the TMS Manager in the Transportation
   Statics Office for lane number information and verification.

CABINET BACKPLANE DETAIL

8 in. x 24 in. x 3/8 in.
Thick Aluminum Backplane

Battery Terminal

Solar Power Voltage Regulator

Ground to Backplane

Solar Terminal

Inductive Loop Lead-In And
Piezo Sensor Leads From Roadway

To J1 Receptacle

Surge Suppressor (Typ.)

8 in. x 24 in. x 3/8 in.
**NOTES:**

1. The contractor is responsible for contacting the EMS Manager in the Transportation Statics Office for lane number information and verification.

2. The equipment cable can accommodate up to four lanes of inductive loop and piezo sensor inputs. (Reference Sheet No. 1 for cabinet layout)

3. For more than four lanes and up to eight lanes of inputs, the following options are available:
   - **OPTION A:** Second Vehicle Speed/Class. Unit and separate equipment cable connecting to a second J1 receptacle, or
   - **OPTION B:** Single Vehicle Speed/Class. Unit capable of up to eight lanes of inputs and a single equipment cable with split ends to fit two J1 receptacles. (Reference Sheet No. 2 detail)

4. Numbers in parenthesis in the pinout chart identify lane numbers when a second backplane for lanes 5 through 8 is required.

5. Cable ends must be fabricated to fit the vehicle speed/classification unit.
### ROADWAYS WITH PAVED SHOULDERS

1. Install axle sensors and loops associated with axle sensors after placement of the friction course.

2. Cut a 3" deep slot for the Inductive loops. Loop slots will be cut wide enough to allow unforced placement of the wires through the bottom of the slot. Each turn of #14 AWG, place the ICS 5-2 copper wire in the slot. Place a piece of backer rod (2" to 3" in length) every 18" to 24" to hold the loop wire in the bottom of the slot.

3. Twist loop leads at the rate of 8 to 16 twists per foot. Leads that are within 150 of the cabinet, extend the twisted pair loop wire directly to the cabinet. For distances over 150', #14 IMCA 50-2 shielded lead-in cable must be spliced to the loop wire twisted pair at the first pull box to which the loop wire is pulled.

4. Marking will consist of two rounds of contrasting colored tape, one color for the lane number and the second color for the lead loop location in the lane. The first round closest to the cabinet will represent the lane number, one round of tape will be for the lane 1 and two rounds will be lane 2, etc. The lead loop in lane one would have one round of tape and a second round of a contrasting colored tape for the lead loop in the lane. The trailing loop would not have a second contrasting colored band of tape.

5. See Index 17700 for pull box and apron details.

6. Splice kits will include screw on wire connectors and a housing with sufficient sealant to fully encapsulate the spliced connections. Taped splices are not permitted.

7. Use a chalk line or string and paint to layout the position of the sensor and lead-in cable slots. Ensure saw cuts do not deviate more than 0.5 inches from the chalk line. Use a single blade or ganged blade saw wide enough to cut the axle sensor slot at full width in a single pass. Cutting two slots and chipping out roadway material between them is not allowed.

8. All sensor slots and any cuts in the roadway will be thoroughly blown out to ensure there is no dust or debris prior to installation of sensors or leads.

9. Install Exit Windows at least 2' apart.

### NOTES:

- Inductive Loops Are 3" 6 X Centered In Lane (Typ.)
- Loops, Installed To Below Final Roadway Surface (See Detail 'C')
- Pull Box w/ Concrete Apron
- Pull Box w/ Concrete Apron
- Loops And Axle Sensor Leads Are 3" Deep, Slots Are Wide Enough To Allow Unforced Placement Of Leads In The Bottom Of The Slot
- Edge/Lane Stripe Extends Into The End Of Sensor Slot
- Loops Are 3" Deep. Slots Are Wide Enough To Allow Unforced Placement Of Leads In The Bottom Of The Slot
- Pull Box w/ Concrete Apron
- Exit Windows
- Sensor Lead
- End Of Sensor Slot (See Detail 'C')
- Pull Box w/ Concrete Apron

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**TRAFFIC LAYOUT FOR TMS INDUCTIVE LOOP AND AXLE SENSOR**

**LANE LAYOUT FOR TMS INDUCTIVE LOOP AND AXLE SENSOR**

**TRAFFIC MONITORING SITE**

**INDEX NO. 17900**

**DESIGN STANDARDS**

**LAST REVISION**

**07/01/15**

**DESCRIPTION:**

**2016**

**REVIEWED:**

**07/01/15**

**SHEET NO. 5 of 7**
NOTES:
1. The unit must be capable of detecting up to eight lanes of traffic (in either or both directions) when mounted perpendicular to the roadway.
2. Coverage area of the unit is affected by the roadway geometry: distance from the travel lanes, median type and width, barrier walls, etc.
3. Mounting height of the unit and offset from the roadway must be determined on a site-by-site basis, in accordance with the manufacturer's recommended guidelines. Offset of pole must be greater than or equal to minimum clear zone requirements.
NOTE:

1. Cabinet installed per Index 17841 except cabinet center will be 4 feet above grade.

2. Place pole in accordance with the Standard Specification 125.4 and 125.8.2.

3. Use #10 AWG stranded copper wire for Solar Panel Array installations. Red insulation is THHN or THWN for positive 12 volts wiring; black insulation is THHN or THWN for negative 12 volts wiring; green insulation is THHN or THWN for ground bonding of the solar panel frame to the pole and earth.

4. Solar panel should be installed facing due south with angle of tilt equal to the sum of the following equation. The Latitude of the panel's location, multiplied by 0.76, plus 3.1 degrees. Equation expressed as \((\text{LAT}) \times (0.76) + 3.1°\)

5. Encase all wiring from the weather head to the solar panel in outdoor flexible conduit.

6. Concrete Base Requirements:
   a. 4 poles: 2'-0" x 2'-0" wide, a depth of 2'-0"
   b. 12', 15' or 20' poles: 3'-0" X 3'-0" wide, a depth of 3'-0"
   c. 30' or 35' poles: 3'-0" X 3'-0" wide, a depth of 4'-0"

Solar Panel(s)

PEDESTAL MOUNTED CABINET

PORTABLE TRAFFIC MONITORING SITES

SOLAR POWER POLE

WITH POLE MOUNTED CABINET

(TELEMETER SITES)