

MICHIGAN  
DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION  
FOR  
**CONNECTED LIGHTED ARROW, TYPE C**

COS:SAH

1 of 2

APPR:LLR:KJK:03-09-26

FHWA:APPR:03-24-26

**a. Description.** This work consists of furnishing, operating, maintaining, relocating, and the removal of Connected Arrow Board (CAB) at locations shown in the contract.

The Contractor is responsible for coordinating with any work in adjacent work zone projects.

**b. Materials.** Furnish a Type C Lighted Arrow Board meeting the requirements of subsection 922.07 of the Standard Specifications for Construction, the *MMUTCD section 6L.06* and the requirements below:

1. Ensure all hardware components of this system are crashworthy in accordance with the *NCHRP 350* or *MASH*.
2. Ensure arrow board or associated system can produce real-time status for remote monitoring using the required elements of Version 4.0 or greater of the USDOT Workzone Data Exchange smart work zone (Swz) Device Feed (WZDx Device Feed).

**c. Construction.** Install the CAB in accordance with the manufacturer's recommendations, subsection 812.03.D.8 of the Standard Specifications for Construction, the plans, and the following requirements:

1. Ensure boards are connected at all times during operation.
2. Traditional arrow boards may be upgraded to a CAB.
3. If requested at any time during the project, furnish reports that indicate the location and display history of each CAB, including a log of all power and communication errors and/or failures. Ensure the report data is in a common spreadsheet format (comma-separated values (CSV), Excel, etc.) or as directed by the Engineer.
4. Upon project completion furnish a single complete report which includes a full summary for all CABs utilized on the project. At a minimum the report must include the complete location and display history of each CAB, including a log of all power and communication errors and/or failures. Ensure the report data is in a common spreadsheet format (CSV, Excel, etc.) or as directed by the Engineer. Furnish additional reports, if requested throughout the project duration.
5. Furnish secure access to real-time WZDx Device Feed for the connected arrow board.
6. Ensure the status of the arrow board is communicated at the following rates and intervals as described below:

- A. Display changes within 1 minute.
- B. Movement greater than 250 feet, within 1 minute.
- C. Status check every 30 minutes.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Connected Arrow Board, Type C, Furn.....	Each
Connected Arrow Board, Type C, Oper .....	Each

1. **Connected Arrow Board, Type C, Furn** includes furnishing and installing one connected arrow board. The Department will pay for the maximum number of connected arrow boards in use at one time on the project.

2. **Connected Arrow Board, Type C, Oper** includes operating, furnishing valid real-time device feed and removing one connected arrow board. No additional payment will be made for relocating the device on the project. All communication costs and reporting requirements are considered included in the unit price.