

SECTION 13551

GENERAL ATMS REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Follow the ATMS requirements defined herein.

1.2 RELATED SECTIONS

- A. Section 00725: Scope of Work.
- B. Section 01554: Traffic Control.

1.3 REFERENCES

- A. ASTM A 153: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A 307: Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength

1.4 DEFINITIONS

- A. ATMS - Advanced Traffic Management System
- B. CCTV – Closed Circuit Television
- C. RMS – Ramp Meter System
- D. RWIS – Road Weather Information System
- E. TOC - Traffic Operations Center
- F. TMS – Traffic Monitoring Station

- G. VMS - Variable message sign
- H. WIMS – Weight In Motion System

PART 2 PRODUCTS

2.1 FACTORY ISSUED MANUALS

- A. Furnish two copies of original, factory-issued manuals containing all technical information for each piece of equipment furnished.
- B. Acceptable factory manuals must contain technical, diagnostic, and maintenance (preventative and troubleshooting) information. Advertising brochures and catalog cuts will not be accepted.

2.2 AS-BUILT DRAWINGS

- A. Department:
 - 1. Provide project design files in MicroStation format.
- B. Contractor:
 - 1. Carefully documents all changes and updates all files to accurately represent the system asbuilt conditions.
 - 2. Plots three sets of the updated files on 11 inch x 17 inch bond paper and submits the plots to the Engineer for review and approval.
- C. As-built drawings will not be considered complete until the Engineer has given formal approval of the plots and design files.

PART 3 EXECUTION

3.1 EXISTING MATERIALS: LOCATION AND PROTECTION

- A. Locate and mark all underground traffic signal circuits, lighting circuits, power sources, detection loops, and fiber optic cable.

- B. Until final acceptance, repair all damage to traffic signal equipment, lighting equipment, and other ATMS devices including but not limited to, conduit, junction boxes, underground traffic signal circuits, VMS, power sources, detection loops, power conductors, or fiber optic cable, caused by the Contractor's activities or failure to maintain adequate traffic control or protection of the work. Existing improvements include but not limited to pavement, sidewalks, ramps, decorative pavement, driveways, parkways, landscaping, irrigation systems, snow ditches, and drainage improvements.
- C. Following any repairs to underground facilities, contact the Engineer for inspection, prior to restoring cover.
- D. Locate all utilities prior to construction:
 - 1. Contact Blue Stakes and all other utilities not participating in Blue Stakes.
 - 2. Determine the exact location of all existing utilities before commencing work.
 - 3. Repair any utility that is damaged resulting from the Contractor's failure to exactly locate and preserve all underground and overhead utilities, at no additional compensation.
- E. Resolve any utility conflicts with the Engineer.
- F. Minimize disruption to existing vegetation at all sites. Restore all grading to pre-existing condition.

3.2 LOCATION OF INSTALLED EQUIPMENT

- A. Proposed equipment locations may be modified to avoid conflict with underground utilities or other obstructions. Consult Engineer for approval.
- B. Install all above ground equipment the maximum practical distance from traffic or behind barrier or other approved protection.
- C. No portion of the equipment can infringe within the following distances unless behind a barrier or other approved protection.
 - 1. 35 ft from the edge of traveled way for a freeway
 - 2. 35 ft from the edge of traveled way for an off ramp
 - 3. 50 ft from the edge of traveled way for an on ramp
- D. Minimum distance behind guard rail for all above ground equipment: 4 ft.

- E. Minimum distance behind concrete barrier for all above ground equipment: 2 ft.

3.3. EXCAVATION

- A. When excavation is required do not damage streets, sidewalks, landscaping, or other surrounding conditions.
- B. Do not excavate wider than necessary for the proper construction of the foundations and other equipment.
- C. Do not perform excavation until immediately before construction of foundations.
- D. Place the material from the excavation in a position that will minimize obstructions to pedestrian or vehicular traffic and interference with surface drainage.
- E. Remove all surplus excavated material and properly dispose of it within 48 hours as directed by the Engineer.
- F. After each excavation is completed, notify the Engineer for inspection.
- G. Do not cover any underground materials or equipment fill under any circumstances, without the approval of the Engineer.
- H. At the end of each working period, barricade and cover all excavations to provide safe passage for pedestrian and vehicular traffic.
- I. Keep sidewalk and pavement excavations well covered and protected to provide safe passage for pedestrian and vehicular traffic until permanent repairs are made.

3.4 ANCHOR BOLTS

- A. Place and hold anchor bolts in proper alignment, position, and height during the placing and vibrating of concrete.
- B. Assemble bolts, nuts, washers and torque bolts as required by the manufacturer.
- C. Anchor bolts will conform to minimum requirements of ASTM A 307. Do not weld anchor bolts to reinforcing steel. Galvanize all nuts, washers and anchor bolts in accordance with ASTM A 153.

3.5 TRAFFIC CONTROL

- A. Refer to Section 00725, Maintaining Traffic.
- B. Submit all lane closure and traffic control plans to the Department for approval. Refer to Section 01554, Traffic Control.
- C. Contact each business manager 48 hours prior to construction affecting any business access. Place BUSINESS ACCESS signs where access to business is not readily apparent. Keep at least one driveway open during periods when business is open for businesses with multiple driveways. Coordinate with the business owner for businesses with only one driveway to minimize the amount of time that the driveway is closed.

3.6 TEMPORARY TRAFFIC SIGNAL TIMING

- A. Design and implement any temporary traffic signal timing or phasing required for traffic management during construction. Submit any proposed timing or phasing changes, including any temporary signal head placement, to the Engineer for review and approval seven days in advance.
- B. Implement the approved temporary changes including for example, programming the controller, relocating traffic signal heads and, recabing. Contact the Engineer for inspection (giving 24 hours notice) prior to implementing temporary phasing.

3.7 REUSE EXISTING CONDUIT AND JUNCTION BOXES

- A. Reuse existing conduit as follows:
 - 1. When no new adjacent conduit is being installed, or
 - 2. When new adjacent conduit is being installed within 1 ft of existing conduit the Contractor is proposing to reuse.
- B. Reuse only existing conduit that meets National Electric Code requirements and UDOT standards for conduit material and depth of cover.
- C. Replace existing plastic lid on all reused junction boxes with polymer concrete lid.

3.8 ABANDON EXISTING EQUIPMENT IN PLACE

- A. Install #14 pull wire in all conduit that is abandoned in place.
- B. Obliterate all existing foundations left in place to a depth of at least 6 inches below the existing surface. Properly dispose of removed concrete.
- C. Properly label in each junction box all cables and conductors that are left in place.

3.9 REMOVE EXISTING EQUIPMENT

- A. Remove existing equipment as specified.
 - 1. Either properly dispose of equipment or return equipment to the appropriate UDOT facility, as indicated.
 - 2. Contact Engineer at least 48 hours prior.
- B. All removed poles, cabinets, and polymer concrete junction boxes:
 - 1. Contact the Engineer at least 48 hours prior.
 - 2. Return to respective UDOT maintenance shed.
- C. Return all removed electronics and control equipment to:
 - Utah Department of Transportation
 - Traffic Operations Center
 - 2060 South 2760 West
 - Salt Lake City, UT 84104-4592

3.10 ELECTRICAL

- A. Perform all work in accordance with the National Electric Code.

3.11 WIRING

- A. Tape the ends of unused conductors and label them as spares.
- B. Crimp and solder all terminal connections.
- C. Use powdered soapstone, talc, or other approved lubricants when pulling wiring in conduit.
- D. Use color coded conductors as specified.

- E. Neatly arrange wiring within cabinets, junction boxes, and enclosures. Do not install cables or conductors behind the cabinet heater.
- F. Ground step-down transformer at cabinet to the ground rod in the nearest junction box that has power service conductors running directly to the transformer.

3.12 WIRE SPLICING

- A. Do not splice wires except in detection circuits when changing the wire type in the junction boxes.
- B. Mechanically secure, solder, individually insulate, and water seal all splices.

END OF SECTION