

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	87 N-0673-01	2017	6	99

TRAFFIC SIGNAL EQUIPMENT REQUIREMENTS

These specifications are intended to describe specific equipment requirements for the traffic signal equipment to be installed for each responsible entity. Additional construction and material requirements are located in the traffic signal specifications.

1. CITY OF WICHITA

1.1. Traffic Signal Controller Hardware Requirements

The Contractor shall supply fully assembled TRAFFICWARE Model 2070C/LX ATC controllers that are in full compliance with ATCS201 v6.24 and TEES 2009 by CalTrans. The Contractor shall provide evidence that controller units, with a make and model identical to those being provided, have been tested and approved in accordance with TEES, by Caltrans, or an approved agent of City of Wichita. A Quality Control Plan shall be submitted within fifteen (15) days from the Notice to Proceed as required by the TEES.

1.1.1. Front Panel Harness Interface

The front panel harness cable shall have a minimum length of 254 mm (10 inches) to allow for interchangeability among equipment manufacturers.

1.2. Required Components for the Model 2070C/LX

The Contractor shall supply Model 2070C/LX controllers with the following configuration:

Unit Chassis	
Model 2070 1C	CPU Module
Model 2070 2E	Field I/O Module w/C1, C11, C12 (Installed in H3 Slot)
Model 2070 3B	Front Panel Assembly (8 x 40 Display)
Model 2070 4A	Power Supply Module (Minimum 4.0 AMP)
Model 2070 5B	MCB Mounting Assembly
Model 2070 7A	Async Serial Comm Module (Installed in H2 Slot)

1.3. Watchdog

Startup time for an active watchdog signal shall be no longer than 9 seconds.

1.4. GPS Timeclocks

1.4.1. General. The GPS timeclocks must be compatible with the Contractor's 2070C/LX controllers as well as the City's existing Siemens Eagle 2070L hardware and software.

1.4.2. Requirements. The GPS shall be configured such that the controller's time is updated automatically on a user-programmable schedule.

1.4.3. Mounting. The preferred GPS timeclock will be able to be plugged into any standard 170 detection rack or internal 2070 module.

2. SEDGWICK COUNTY / KDOT / CITY OF DERBY

2.1. Traffic Signal Controller Hardware Requirements

The Contractor shall supply the same controller as specified for the City of Wichita, with the addition of NEMA connectors. The standard NEMA D-Connector will be utilized (mainly for pre-emption purposes), and a new D-connector compatible with controller will need to be wired in cabinet. Existing D-connector shall also be maintained to allow easy change out of controllers.

3. RADAR

a. General. Install radar detection according to the manufacturer's requirements and as shown in the Contract Documents. Radar equipment shall be Wavetronix Matrix and Advance systems or approved equal.

b. Installation and Training. A factory certified representative from the supplier must be on-site during and supervise the installation, testing and training of the video/radar system and computer equipment. Radar fine tuning and system set-up and programming will be performed by the supplier with assistance of the contractor. Provide 2 complete manuals for each RDS type.

c. Vehicle Detection. Radar Detection Zone. The radar detection system must provide flexible and reliable detection zone placement within 600 feet of the combined radar unit. Preferred advance detection configurations are by means of a graphical interface using the radar return of vehicles travelling the roadway. The detection zone must be capable of being sized, and overlapped to provide optimal road coverage and detection. The radar detection system must reliably detect vehicle presence in the design field of view. If a vehicle occupies a detection zone, the detection zone on the live radar must indicate the presence of a vehicle, thereby verifying proper operation of the detection system. The processor unit shall provide the necessary access to maintain, save or backup the design configuration to a laptop, tablet or thumb drive. Detection accuracy of the radar detection system must be comparable to properly operating inductive loops. Detection accuracy must include the presence of any vehicle in the defined detection zone regardless of the lane that the vehicle is occupying.

d. Warranty, Maintenance, and Support. Assign a 2 year manufacturer's warranty to the owner. The warranty period will begin upon acceptance of the RDS by the Engineer. The warranty shall include the capability to access software support and updates provided by the manufacturer for the RDS processor unit. Supplier shall provide information to maintain technical support and software updates per manufacturer's website. Software shall be compatible with NEMA TS2 and Cal Trans 170 and 2070 traffic signal controllers. Supplier shall provide needed hardware and software for initial field setup, including a radar detection setup device as required.

3. BATTERY BACKUP SYSTEM (BBS)

Battery backup system enclosure shall match existing cabinet finish. See Traffic Signal Specifications Section 3.4.1 for additional details.

ITS EQUIPMENT REQUIREMENTS

These specifications are intended to describe specific equipment requirements for the ITS equipment to be installed. Additional construction and material requirements are located in the ITS equipment specifications.

CCTV ASSEMBLY

The CCTV camera shall be an IP camera. See ITS Equipment Specifications Section 12.2.1 for details.

The CCTV pole mount bracket for traffic signal mounted cameras shall be outdoor rated as recommended by the camera manufacturer. See ITS Equipment Specifications Section 12.2.2 for details.

The concrete CCTV pole at Site 6 shall be concrete and use a CCTV camera lowering system.

DMS

KDOT will provide the DMS for this project; provide KDOT a 6 month lead time for ordering DMS and delivery. Contractor will be responsible for storage of DMS after delivery.

NETWORK SWITCH

The network switch shall be a Cisco IE-3000 network switch manufactured by Cisco Systems, Inc.

The network switch expansion module shall be a Cisco IEM-3000-4SM manufactured by Cisco Systems, Inc.

SMALL FORM PLUGGABLE (SFP) MODULES

The SFP module shall be compatible with the intended switch in which the device is being used. The switch may include a Cisco IE-3000, Kyland SICOM 3170, or other.

TRAFFIC SIGNAL CONTROLLERS

SITE NUMBER	SITE NAME	RESPONSIBLE ENTITY	REQUIRED TRAFFIC SIGNAL CONTROLLER	SHEET(S)
SITE 1	K-15 & MARKET ST.	CITY OF DERBY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	8
SITE 2	K-15 & MADISON AVE.	CITY OF DERBY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	10
SITE 3	K-15 & BUCKNER ST.	CITY OF DERBY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	12
SITE 4	K-15 & MEADOWLARK RD. / 71ST ST.	SEDGWICK COUNTY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	14
SITE 5	K-15 & PATRIOT AVE. / 63RD ST.	SEDGWICK COUNTY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	16
SITE 6	K-15 & MIXING YARD	-	-	-
SITE 7	K-15 & 47TH ST.	SEDGWICK COUNTY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	20
SITE 8	K-15 & MACARTHUR RD.	SEDGWICK COUNTY	TRAFFICWARE MODEL 2070C/LXN ATC CONTROLLER	22
SITE 9	K-15 & 31ST ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	24
SITE 10	SOUTHEAST BLVD. & WASSALL ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	26
SITE 11	SOUTHEAST BLVD. & HYDRAULIC ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	28
SITE 12	SOUTHEAST BLVD. & MT. VERNON	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	30
SITE 13	SOUTHEAST BLVD. & HARRY ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	32
SITE 14	SOUTHEAST BLVD. & WASHINGTON AVE.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	34
SITE 15	WASHINGTON AVE. & LINCOLN ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	36
SITE 16	WASHINGTON AVE. & ORME ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	38
SITE 17	WASHINGTON AVE. & DEWEY ST.	CITY OF WICHITA	TRAFFICWARE MODEL 2070C/LX ATC CONTROLLER	40

TRANSPORTING SALVAGEABLE MATERIAL

(FOR INFORMATION ONLY)

SITE NUMBER	SITE NAME	RESPONSIBLE ENTITY	SALVAGEABLE MATERIAL	SHEET(S)
SITE 1	K-15 & MARKET ST.	CITY OF DERBY	TRAFFIC SIGNAL CONTROLLER	8
SITE 2	K-15 & MADISON AVE.	CITY OF DERBY	TRAFFIC SIGNAL CONTROLLER	10
SITE 3	K-15 & BUCKNER ST.	CITY OF DERBY	TRAFFIC SIGNAL CONTROLLER	12
SITE 4	K-15 & MEADOWLARK RD. / 71ST ST.	SEDGWICK COUNTY	TRAFFIC SIGNAL CONTROLLER, VIDEO DETECTION	14
SITE 5	K-15 & PATRIOT AVE. / 63RD ST.	SEDGWICK COUNTY	TRAFFIC SIGNAL CONTROLLER	16
SITE 6	K-15 & MIXING YARD	-	-	-
SITE 7	K-15 & 47TH ST.	SEDGWICK COUNTY	TRAFFIC SIGNAL CONTROLLER	20
SITE 8	K-15 & MACARTHUR RD.	SEDGWICK COUNTY	TRAFFIC SIGNAL CONTROLLER	22
SITE 9	K-15 & 31ST ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	24
SITE 10	SOUTHEAST BLVD. & WASSALL ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	26
SITE 11	SOUTHEAST BLVD. & HYDRAULIC ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	28
SITE 12	SOUTHEAST BLVD. & MT. VERNON	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	30
SITE 13	SOUTHEAST BLVD. & HARRY ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	32
SITE 14	SOUTHEAST BLVD. & WASHINGTON AVE.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	34
SITE 15	WASHINGTON AVE. & LINCOLN ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	36
SITE 16	WASHINGTON AVE. & ORME ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	38
SITE 17	WASHINGTON AVE. & DEWEY ST.	CITY OF WICHITA	TRAFFIC SIGNAL CONTROLLER, RADIO(S)	40

RECAPITULATION OF QUANTITIES

ITEM	UNIT	QUANTITY
INTELLIGENT TRANSPORTATION SYSTEM SITE 1	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 2	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 3	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 4	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 5	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 6	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 7	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 8	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 9	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 10	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 11	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 12	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 13	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 14	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 15	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 16	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 17	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 18	L.S.	1
INTELLIGENT TRANSPORTATION SYSTEM SITE 19	L.S.	1
TRAFFIC CONTROL	L.S.	1
MOBILIZATION	L.S.	1

KANSAS DEPARTMENT OF TRANSPORTATION
SUMMARY OF QUANTITIES
SHEET 2 OF 2

DATE	
BY	
REFERENCES NOTED	
REFERENCES CHECKED	

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