



- RAILROAD PREEMPT NOTES:**
- RAILROAD PREEMPTION TIMINGS SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL COORDINATE WITH KDOT, RAILROAD, COUNTY, AND CITY FOR A PREEMPTION REVIEW IMMEDIATELY AFTER SIGNAL TIMINGS ARE INSTALLED AND OPERABLE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2) DAYS ADVANCE NOTIFICATION PRIOR TO IMPLEMENTATION.
  - RAILROAD FLASHING-LIGHT SIGNALS SHALL OPERATE FOR AT LEAST 20 SECONDS BEFORE THE ARRIVAL OF ANY RAIL TRAFFIC.
  - CYCLE TRAFFIC SIGNAL DURING PREEMPTION WHILE OMITTING PHASES 4, 5, & 8. PHASES SHALL DWELL RED.
  - PHASES 4 & 8 SHALL BE THE FIRST RETURN PHASE(S) FROM PREEMPTION.
  - PHASE 4 PEDESTRIAN INTERVAL SHALL BE OMITTED DURING PREEMPT SEQUENCE.
  - VEHICLE CLEARANCE TIME DESIGN VEHICLE IS WB-67.
  - AFTER APPROVAL FROM PREEMPTION REVIEW, A COPY OF THE PREEMPTION WORKSHEET, TRAFFIC SIGNAL SHEETS, AND PHASING DIAGRAMS SHALL BE PLACED IN TRAFFIC SIGNAL CABINET.

EMERGENCY FLASH	
PHASE	INDICATION
1	Red
2	Red
4	Red
5	Red
6	Red
8	Red
Pedestrian	Dark

- LEGEND**
- COND. CONDUIT
  - SIG. SIGNAL CABLE
  - PED. PEDESTRIAN SIGNAL CABLE
  - DET. DETECTOR LEAD-IN CABLE
  - ST. LT. STREET LIGHTING CABLE
  - GRND. WIRE FOR POLE GROUND
  - COAX. COAXIAL CABLE
  - FUT. FUTURE CABLE
  - B.O. BLANK OUT SIGN CABLE
  - PREEMPT PREEMPTION CABLE
- \*4-C FROM PEDESTRIAN SIGNAL HEAD (K) TO ADA PUSHBUTTON

RADAR DETECTOR SUMMARY									
DETECTOR NUMBER	DETECTION ZONE SIZE	STOP BAR RADAR DETECTION	ADVANCED RADAR DETECTION	TIMINGS (SEC)		MODE		PHASE CALLED	DISTANCE FROM STOP BAR
				TOTAL STRETCH + EXTENSION	DELAY	PRESENCE	PULSE		
11	6'x55'	X	X	1.0		X	X	1	-5
12	6'x6'			1.0				1	92
21, 22	6'x55'	X	X	1.0		X	X	2	-5
23, 24	6'x6'		X	1.0			X	2	92
25, 26	6'x6'		X	1.7			X	2	210
27, 28	6'x6'			1.4				2	320
41	6'x75'	X			6.0	X		4	-18
51	6'x55'	X	X	1.0		X	X	5	-5
52	6'x6'			1.0				5	92
61, 62	6'x55'	X		1.0		X		6	-5
63	6'x55'	X	X		12.0	X	X	6	-5
64, 65	6'x6'		X	1.0			X	6	92
66, 67	6'x6'		X	1.7			X	6	210
68, 69	6'x6'			1.4				6	320
81	6'x35'	X			6.0	X		8	-5
82	6'x35'	X			6.0	X		8	-5

† TIMINGS SHOWN IN RADAR DETECTOR SUMMARY CHART INCLUDE THE TOTAL STRETCH + EXTENSION. IT IS PREFERABLE THAT THE DETECTOR TIMINGS ARE PROGRAMMED INTO THE TRAFFIC SIGNAL CONTROLLER.

Δ ADVANCED DETECTION ON PHASES 4 & 8 SHALL BE INCLUDED WITHIN THE SAME RADAR UNIT AS THE STOP BAR DETECTION. A SEPARATE ADVANCED RADAR UNIT IS NOT REQUIRED.

SUGGESTED TIMINGS (SEC.)							
PHASE	MINIMUM INITIAL	*MAXIMUM GREEN SPLIT	**PEDESTRIAN			***CLEARANCE	
			WALK	FDW	SDW	YELLOW	ALL RED
1	6	13	-	-	-	3.9	2.4
2	10	53	7	3	3	4.8	1.0
4	6	24	14	23	3	4.1	3.6
5	6	13	-	-	-	3.9	2.7
6	10	53	-	-	-	4.8	1.0
8	6	24	-	-	-	4.1	2.4

CLEARANCE DESIGN SPEEDS:  
ZOO BLVD = 45 MPH  
HOOVER ROAD = 30 MPH

\*MAXIMUM GREEN SPLIT IS FOR NON-PEDESTRIAN CALLS ONLY. TIMING INCORPORATES YELLOW & ALL RED CLEARANCE TIMES.

\*\*PEDESTRIAN PHASING SHALL EXTEND PHASE WHEN CALLED IF APPROPRIATE. PEDESTRIAN CLEARANCE TIMES SHALL FOLLOW MUTCD GUIDELINES FOR PHASES, SEE MUTCD FIGURE 4E-2 FOR MORE INFORMATION.

\*\*\*SIGNAL CLEARANCE TIMINGS ARE CALCULATED BASED ON RECOMMENDATIONS FROM NCHRP REPORT 731.

RAILROAD PREEMPT SEQUENCE		
-FOR INFORMATION ONLY, ALL TIMES IN SECONDS-		
TRAFFIC SIGNAL SEQUENCE	RAILROAD WARNING SEQUENCE	
TERMINATE ACTIVE PHASE (COMPLETE MIN. GREEN)	5	19.6
CLEARANCE TIME ACTIVE PHASE (Y+R)	6.6	
CLEARANCE TIME - TRACK CLEARANCE TIME FOR PHASE CLEARANCE. TRACK PHASE GREEN, ALL OTHER PHASES RED, BLANK OUT SIGNS ILLUMINATED UNTIL TRAIN CLEARS	24	3
		6
		11
SEPARATION BETWEEN TRAIN ARRIVAL AND TRACK CLEARANCE	4	
TRAFFIC SIGNAL TOTAL TIME (SUM)	39.6	R.R. TOTAL TIME (SUM)

\*APT - Advanced Preemption Time

- NOTES**
- ALL SIGNAL WIRES SHALL BE SOLID AWG #14 UNLESS SPECIFIED OTHERWISE.
  - 1C GROUND WIRE SHALL BE #6 AWG GREEN SOLID COPPER WIRE IN ACCORDANCE WITH ASTM B-3. GROUND WIRE SHALL CONNECT TO EACH GROUND ROD AT EVERY POLE, SERVICE BOX, AND CONTROLLER TO FORM ONE CONTINUOUS GROUND CIRCUIT.
  - ALL PEDESTALS, SERVICE BOXES AND POLES SHALL BE EQUIPPED WITH GROUND ROD. GROUND WIRE SHALL BE ATTACHED TO EACH ROD.
  - RADAR CABLES SHALL RUN CONTINUOUS. NO SPLICES WILL BE ALLOWED.
  - IN NO CASE SHALL MORE THAN 60% OF ANY CONDUIT BE FILLED BY AREA.
  - STREET LIGHTING CABLE SHALL BE SPLICED IN SERVICE BOXES. THE SPLICE SHALL BE MADE WATERPROOF.
  - LUMINAIRES WILL BE INSTALLED BY OTHER (EVERGY). CONTRACTOR SHALL INSTALL LUMINAIRE ARMS AND WIRING AS SHOWN ON THE WIRING DIAGRAM. AN ADDITIONAL 200' OF 1C #8 STREET LIGHT CABLE SHALL BE COILED IN SERVICE BOX #5 LOCATED NEAR THE SERVICE POINT.
  - ALL CONDUIT SHALL BE HOT DIPPED GALVANIZED RIDGED STEEL AS SHOWN IN THE PROJECT SPECIFICATIONS. 2" CONDUIT FOR LIGHTING MAY BE HDPE.

**Tran Systems**

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CONSULTANTS:

HOOVER ROAD MULTI-USE PATH & TRAFFIC SIGNAL ZOO BLVD. TO 29TH STREET NORTH

WICHITA, KANSAS

**CITY OF WICHITA**

REVISIONS:	DESCRIPTION	DATE	MARK

PROJ NO: 472-85394  
SCALE: N/A  
DATE: 9/30/2020  
DESIGNED BY: CCB  
DRAWN BY: MCB  
CHECKED BY: SGE

SHEET TITLE:  
**TRAFFIC SIGNAL WIRING DIAGRAM**

SHEET NO.  
**20**

SHEET 20 OF 44