

# **SCDOT Traffic Signals Plan Preparation Requirements for Design Build Projects**

## **1. GENERAL PLAN REQUIREMENTS**

Traffic signal design plans shall be prepared at a scale of 1"=40' using SCDOT's standard traffic signal plan border and cell libraries. The signal plans will include placement of signal equipment, such as signal poles and pedestals, span wire; controllers and cabinets; vehicular and pedestrian signal heads; vehicle detection; pullboxes/splice boxes and conduits; signs; pedestrian features, such as pushbuttons, ramps, and crosswalks, and other information required for the signal design. The plans shall include Signal Equipment, NEMA Phasing, Phase in Operation, Signal Timings and Loop or Video Detector Installation Charts and Tables.

## **2. TRAFFIC SIGNAL CLEARANCE TIMINGS**

Traffic signal clearance distance diagrams and clearance timing calculations shall be submitted for each intersection for temporary and final signal installations.

## **3. TRAFFIC SIGNAL COMMUNICATIONS PLANS**

Traffic signal interconnect plans shall be prepared depicting the location and placement of overhead and/or underground communication equipment at and between each intersection. The interconnect plans will include the controllers and cabinets; fiber optic cable, conduit and splice boxes/pullboxes; and signal and utility poles used to mount communication equipment.

## **4. ADDENDUMS TO TRAFFIC SIGNAL DESIGN GUIDELINES**

Loop or Video detection for traffic signals shall follow the requirements as follows:

SCDOT TRAFFIC SIGNAL MANUAL- CHAPTER 4  
STOP & GO SIGNAL DESIGN

Speed (mph)	RECOMMENDED		TIMING PARAMETERS				Notes
	Setback (feet)	Equiv. Second	Min Initial	Max Initial	Passage	Min Gap	
30	80*	1.8	12	12	2.5	2.5	<b>Low speeds - urban</b> Detection is primarily to gap out signal. Loops are placed at 80' from the stop bar with a 2.5 second gap to extend
<b>35</b>	<b>200</b>	<b>3.9</b>	<b>15</b>	<b>24</b>	<b>3.0</b>	<b>2.5</b>	<b>Urban and Suburban Arterials –</b> Detection is primarily used to determine minimum green times and gap out signal. Detection will be placed to provide limited decision zone protection. . Loops are placed at 4 - 5.5 seconds from the stop bar with a 2.5 second gap to extend vehicles through
40	300	5.1	15	34	6.0	2.5	
45	330	5.0	15	37	6.0	2.5	
50	370	5.0	15	41	6.0	2.5	
55	445	5.5	15	49	6.0	3.0	<b>High Speed Rural or Access Controlled Arterials –</b> Detection is primarily used to determine minimum green times and gap out signal. Loops are placed at approximately 5.5 seconds from the stop bar with a 3 second gap to extend vehicles through the decision zone.
60	485	5.5	15	53	6.0	3.0	
<b>&gt;45</b>	<b>255', 385' **</b>	<b>Varies (4-6)</b>	<b>15</b>	<b>Varies (30-42)</b>	<b>3.0 (since 2)</b>	<b>2.5</b>	

**SCDOT Setback Detector Placement and Volume Density Timings**

**Figure 4-7**

Setback distances are approximate and may be adjusted based on presence of driveways or pavement types.

\* Considered low speed - decision zone not an issue - volume density not used

\*\* Settings for existing setback detection, consisting of 2 6'X6' loops per lane at 255' and 385'

SCDOT Stop Bar Detector Placement

Speed (mph)	RECOMMENDED		TIMING PARAMETERS			
	Setback (feet)	Equiv. Second	Min Initial	Max Initial	Passage	Min Gap
n/a	@Stop Bar	n/a	Typically 4-8 seconds*	n/a	2-3	n/a

(Typically side streets and left turn lanes)

**Figure 4-8**

\*This value can be increased to accommodate pedestrian crossing time each cycle; however additional minimum green time can be obtained by the activation of a pedestrian button.

	1 loop per lane	2 loops per lane
Approach Lanes	Seconds	Seconds
Single through lane	2-3	1-1.5
Two through lanes	1.5-2.0	0.5-1.0
Three (or more) through lanes	1.0-1.5	0.5-0.7

Volume Density Seconds per Actuation

**Figure 4-9**

These values are approximate and engineering judgement should be used. When traffic is evenly distributed over multiple lanes, use lower number. Increase for high truck traffic.