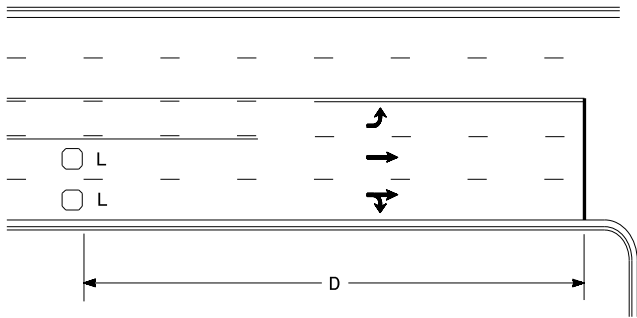


High Speed Detection
(≥35 mph)

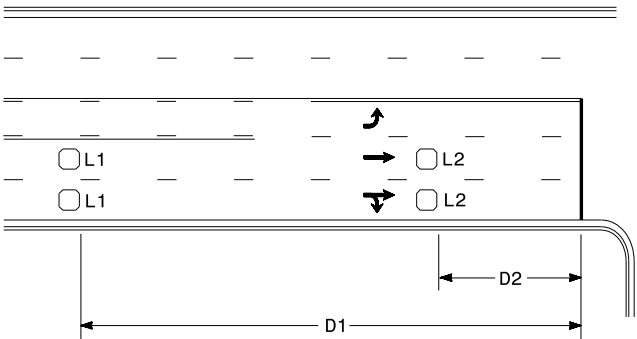


Speed Limit mph	D ft
35	200
40	250
45	300
50	355
55	420
60	475
65	550

L = 6ft X 6ft
Wired separately

Volume Density Operation

OR



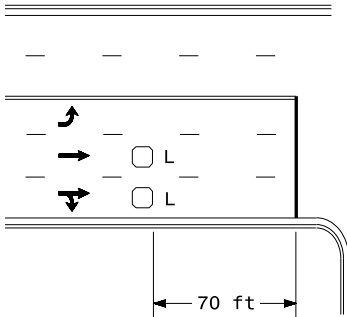
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110
60	475	120
65	550	130

L1 = 6ft X 6ft
Wired in series

L2 = 6ft X 6ft
Wired in series

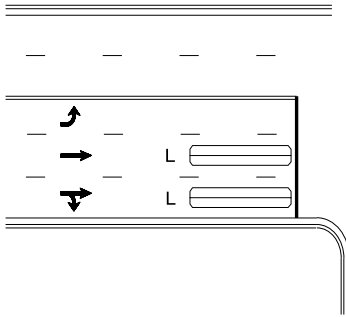
"Stretch" Operation

Low Speed Detection
(≤35 mph)



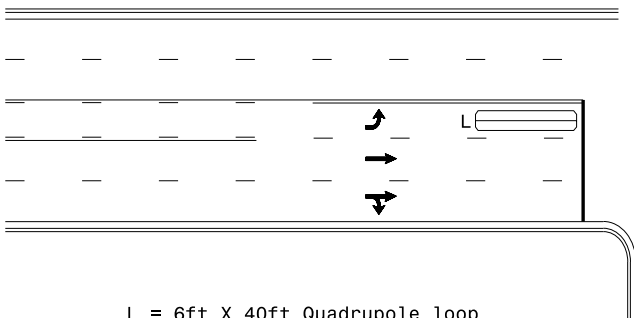
L = 6ft X 6ft
Wired in series

OR



L = 6ft X 40ft
Quadrupole loop, wired separately

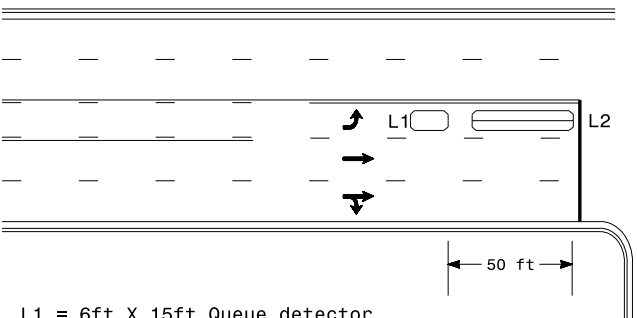
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

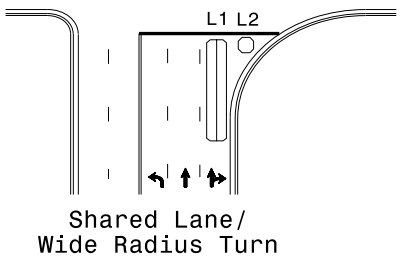
OR



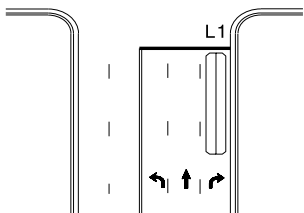
L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

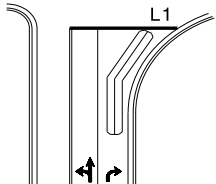
Right Turn Lane Detection



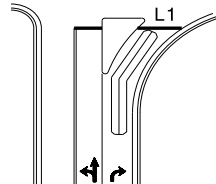
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

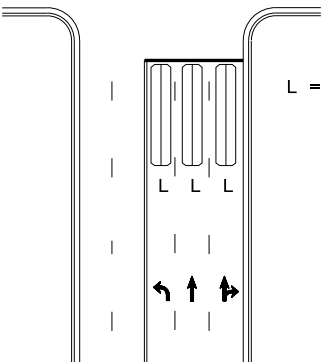


Wide Radius Turn



Channelized Turn

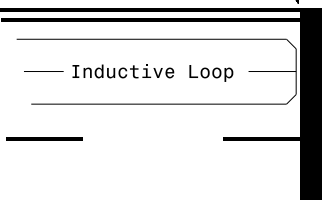
Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



Note:
Loop may be located in advance
of stop line under any of the
following conditions:
1) stop line is greater than 15'
from edge of intersecting
roadway
2) loop detects a permissive or
protected/permissive left turn
3) for an exclusive right turn
lane

Recommended Number of Turns

Single 6' X 6' loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:
Lead-in < 150', use 2 turns
Lead-in > 150', use 3 turns

Prepared in the Offices of:

TRANSPORTATION MOBILITY AND SAFETY DIVISION

UNIVERSITY OF NORTH CAROLINA

STATE OF NORTH CAROLINA

Signal Design Section

750 N. Greenfield Pkwy, Garner, NC 27529

PLAN DATE: September 2025

REVIEWED BY:

PREPARED BY: J.A. Lohr

REVIEWED BY:

SCALE: N/A

REVISIONS:

INIT. DATE:

SEAL

NORTH CAROLINA

PROFESSIONAL ENGINEER

026486

ROBERT J. ZIEGLER

11/25/2025

SIG. INVENTORY NO.