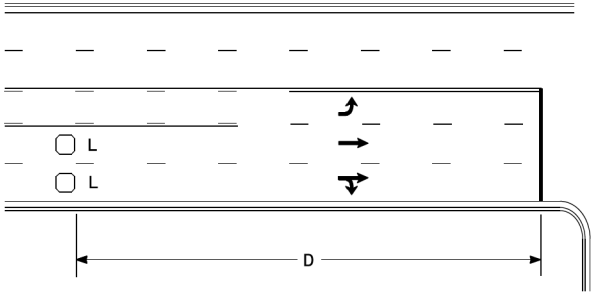


High Speed Detection
(≥35 mph)

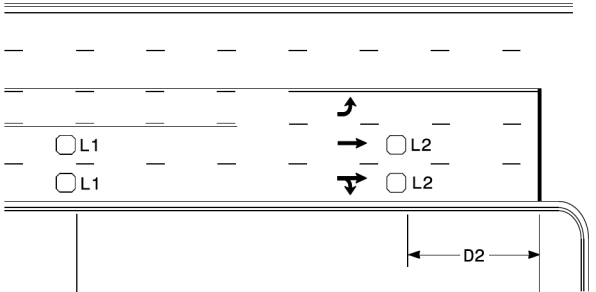


Speed Limit mph	D ft
35	200
40	250
45	300
50	355
55	420
60	475
65	550

L = 6ft X 6ft
Wired separately

Volume Density Operation

OR



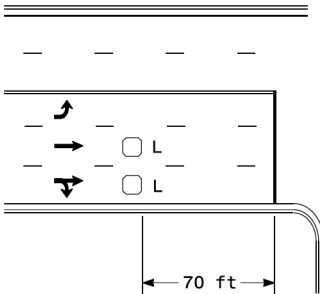
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110
60	475	120
65	550	130

L1 = 6ft X 6ft
Wired in series

L2 = 6ft X 6ft
Wired in series

"Stretch" Operation

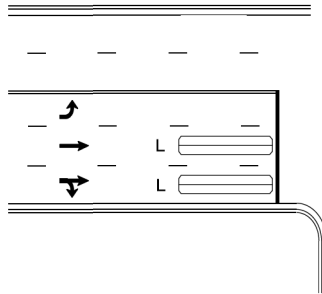
Low Speed Detection
(≤35 mph)



L = 6ft X 6ft
Wired in series

Volume Density Operation

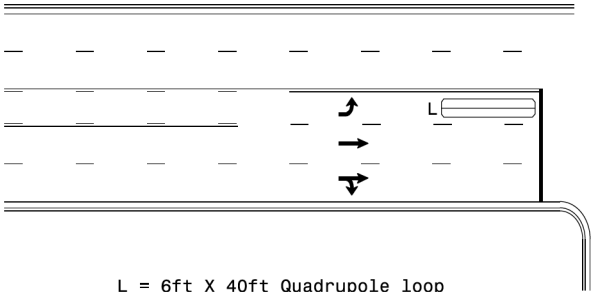
OR



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

"Stretch" Operation

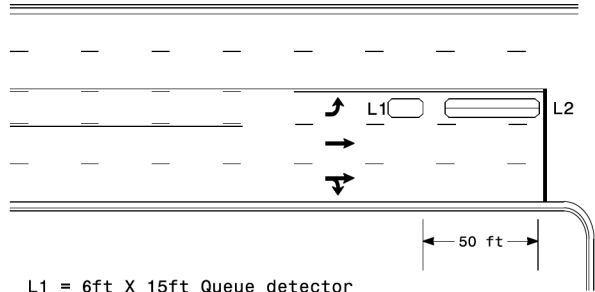
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

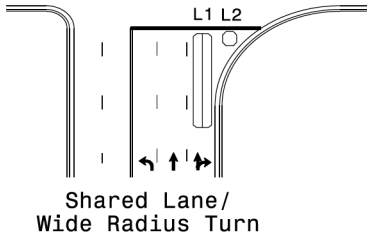
OR



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

Queue Loop Detection

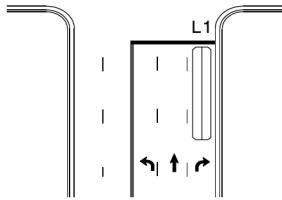
Right Turn Lane Detection



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

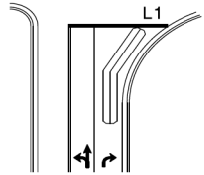
Shared Lane/
Wide Radius Turn

Standard Turn



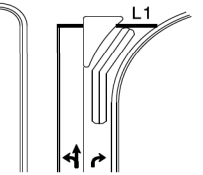
L1

Wide Radius Turn



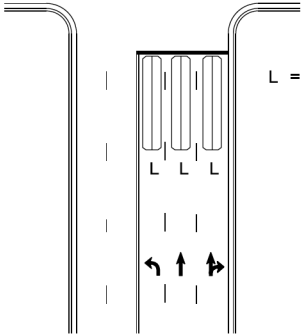
L1

Channelized Turn



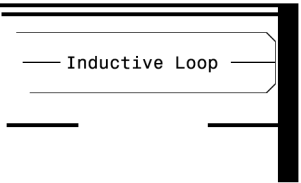
L1

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

Inductive Loop

Note:
Loop may be located in advance
of stop line under any of the
following conditions:

- stop line is greater than 15'
from edge of intersecting
roadway
- loop detects a permissive or
protected/permissive left turn
- for an exclusive right turn
lane

Recommended Number of Turns

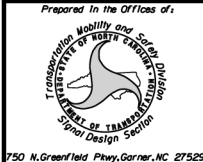
Single 6' X 6' loop
(when wired separately):

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

Typical Signal Loop Locations



Prepared in the Offices of:
TRANSPORTATION MOBILITY AND SAFETY
DIVISION
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:
REVISIONS	INIT.	DATE

SCALE
N/A

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
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11/25/2025

SIG. INVENTORY NO.