

ODOT TRAFFIC SIGNAL LOOP LAYOUT EXAMPLES

OREGON DEPARTMENT OF TRANSPORTATION

The material contained herein is for information purposes only and may be used to aid new employees, and those unfamiliar with ODOT Traffic Engineering practices, in accessing and applying applicable standards, statutes, rules, and policies related to traffic control signal operation and railroad preemption design.

Version 01-06

ODOT Traffic Signal Loop Layout Examples
Oregon Department of Transportation
Highway Division
Traffic Engineering and Operation Section

<http://www.oregon.gov/ODOT/HWY/TRAFFIC/tsam2.shtml>



Traffic Signal Loop Layouts

The following five pages give common examples of ODOT Traffic Signal Loop Layouts.

These examples are intended for reference only; site conditions may require modifications to the placement of the loops. Site conditions may include but are not limited to: existing bridge decks, driveway access, railroad crossings and extra loops at stop bars.

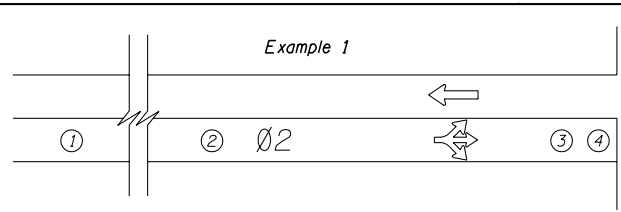
Designers are encouraged to contact the Traffic Operations Unit at 503 986-3594 with any questions they may have regarding the placement of Traffic Signal Detector Loops.

Page 7, shows a composite intersection. The Mainline Hwy. loops that are marked DBS (Determined By Speed) are to be placed as shown in the chart below and in the "ODOT SIGNAL DESIGN MANUAL" Chapter 3.

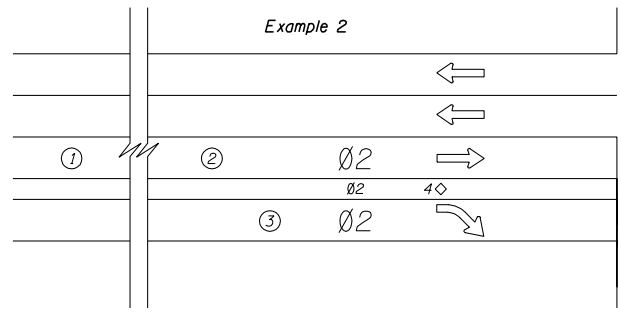
LOCATION	SPEED		LOOP SPACING (referenced from the stop line to center of loop)
	MPH	FT/SEC	
Main Line	25	36.75	140
	30	44.10	180
	35	51.45	110/220
	40	58.80	160/320
	45	66.15	160/320
	50	73.50	190/380
	55	80.85	225/450
Right Turn Lane			140 (or 115 if short lane)
Side Street/ Left Turn			5/15/75
Interchange Ramps			5/15/75/135
Bikes--Main Line	15	22.05	50
Bikes--Side Street	10	14.70	4/50
Main Line-- Temporary Bridge**			5/15/100 65**
Speed X 1.47= feet/second			
**A bypass loop may need to be installed in opposing lane 65' from the stop bar.			

Page 7, also includes 332 cabinet and 336 cabinet input file diagrams. These diagrams show the slot numbers and phases served by slot.

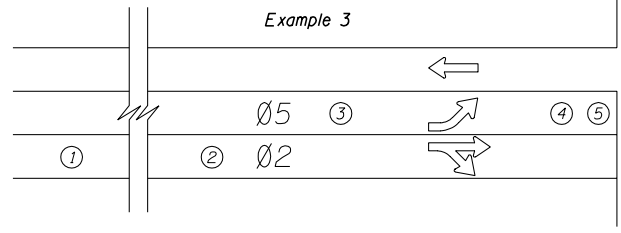
12 INCHES



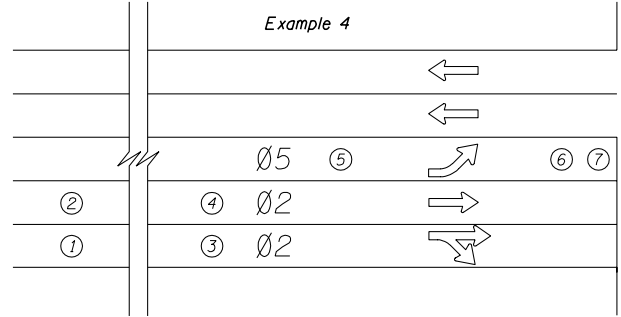
Loop Number	Distance Feet	Phase	Slot
1	220	2	12U
2	110	2	12L
3	15	2	13U
4	5		



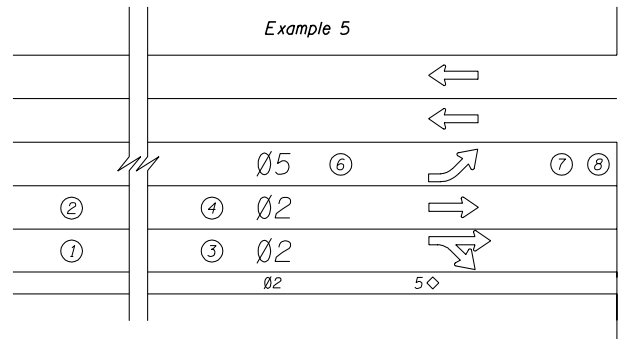
Loop Number	Distance Feet	Phase	Slot
1	320	2	12U
2	160	2	13U
3	140	2	12L
4	50	2	13L



Loop Number	Distance Feet	Phase	Slot
1	220	2	12U
2	110	2	12L
3	75	5	J1U
4	15	5	J9U
5	5		



Loop Number	Distance Feet	Phase	Slot
1	220	2	12U
2	220	2	12L
3	110	2	13U
4	110	2	13L
5	75	5	J1U
6	15	5	J9U
7	5		



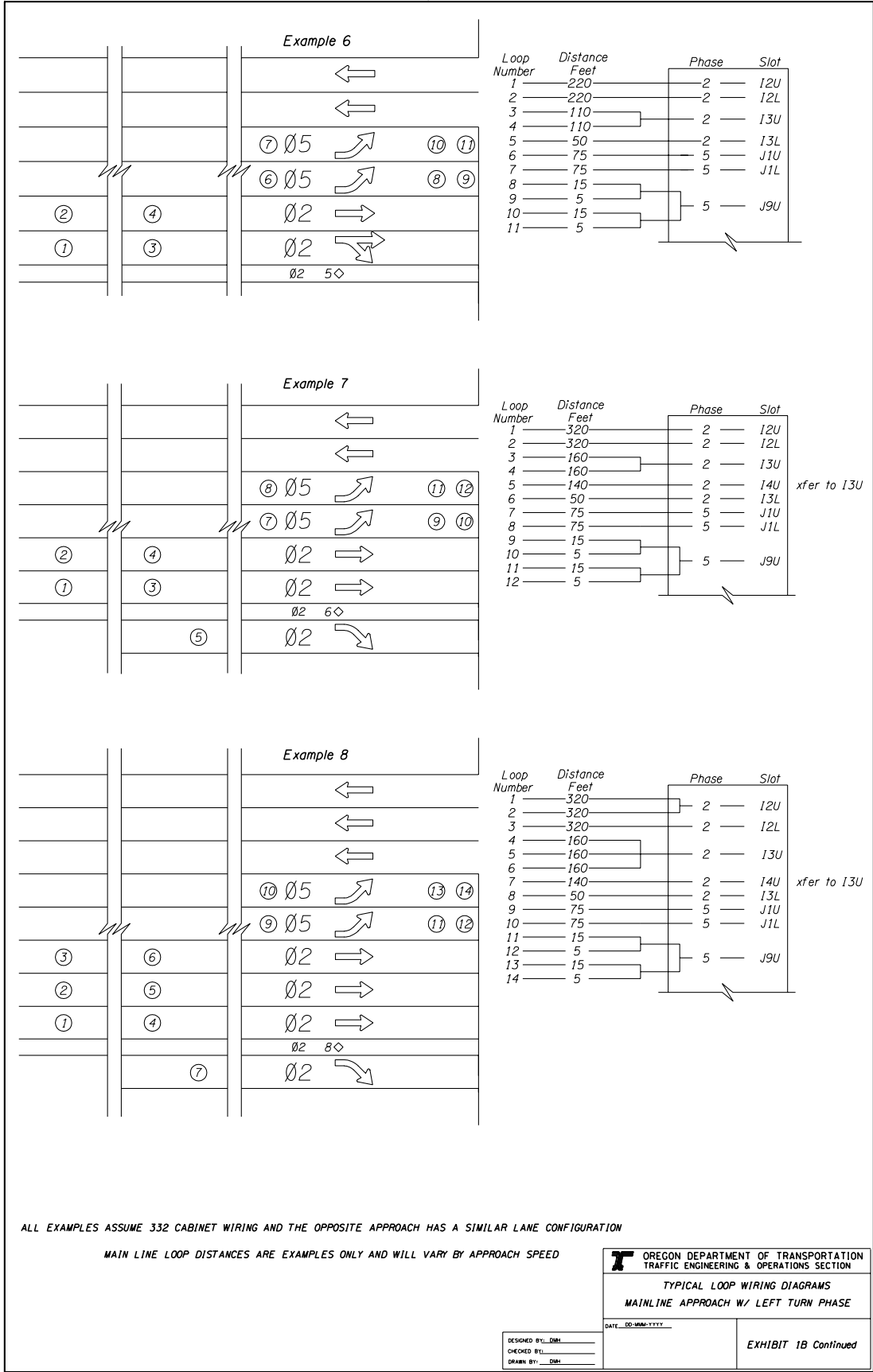
Loop Number	Distance Feet	Phase	Slot
1	220	2	12U
2	220	2	12L
3	110	2	13U
4	110	2	13L
5	50	2	13L
6	75	5	J1U
7	15	5	J9U
8	5		

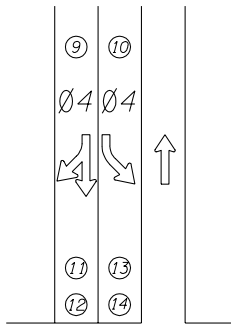
ALL EXAMPLES ASSUME 332 CABINET WIRING AND THE OPPOSITE APPROACH HAS A SIMILAR LANE CONFIGURATION
 MAIN LINE LOOP DISTANCES ARE EXAMPLES ONLY AND WILL VARY BY APPROACH SPEED

OREGON DEPARTMENT OF TRANSPORTATION
 TRAFFIC ENGINEERING & OPERATIONS SECTION
 TYPICAL LOOP WIRING DIAGRAMS
 MAINLINE APPROACH W/ LEFT TURN PHASE

DESIGNED BY: DMI
 CHECKED BY:
 DRAWN BY: DMI

DATE: 02-08-11
 EXHIBIT 1B

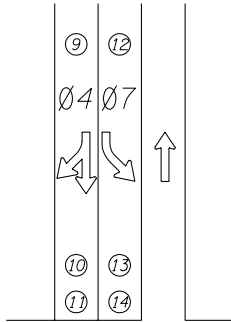




Example 9

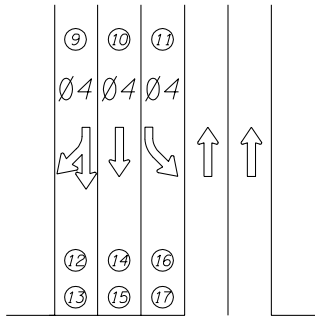
Loop Number	Distance Feet	Phase	Slot
9	75	4	16U
10	75	4	16L
11	15	4	17L
12	5	4	17U
13	15	4	17U
14	5	4	17U

xfer to 18



Example 10

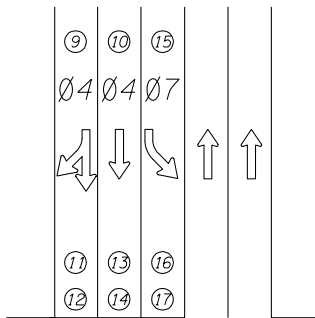
Loop Number	Distance Feet	Phase	Slot
9	75	4	16U
10	15	4	16L
11	5	7	J5U
12	75	7	J9L
13	15	7	J9L
14	5	7	J9L



Example 11

Loop Number	Distance Feet	Phase	Slot
9	75	4	16U
10	75	4	16L
11	75	7(4)	J5U
12	15	4	17L
13	5	4	17U
14	15	4	17U
15	5	7(4)	J9L
16	15	7(4)	J9L
17	5	7(4)	J9L

xfer to 17U w/CO
xfer to 18
xfer to 17U



Example 12

Loop Number	Distance Feet	Phase	Slot
9	75	4	16U
10	75	4	16L
11	15	4	17L
12	5	4	17U
13	15	4	17U
14	5	7	J5U
15	75	7	J9L
16	15	7	J9L
17	5	7	J9L

xfer to 18

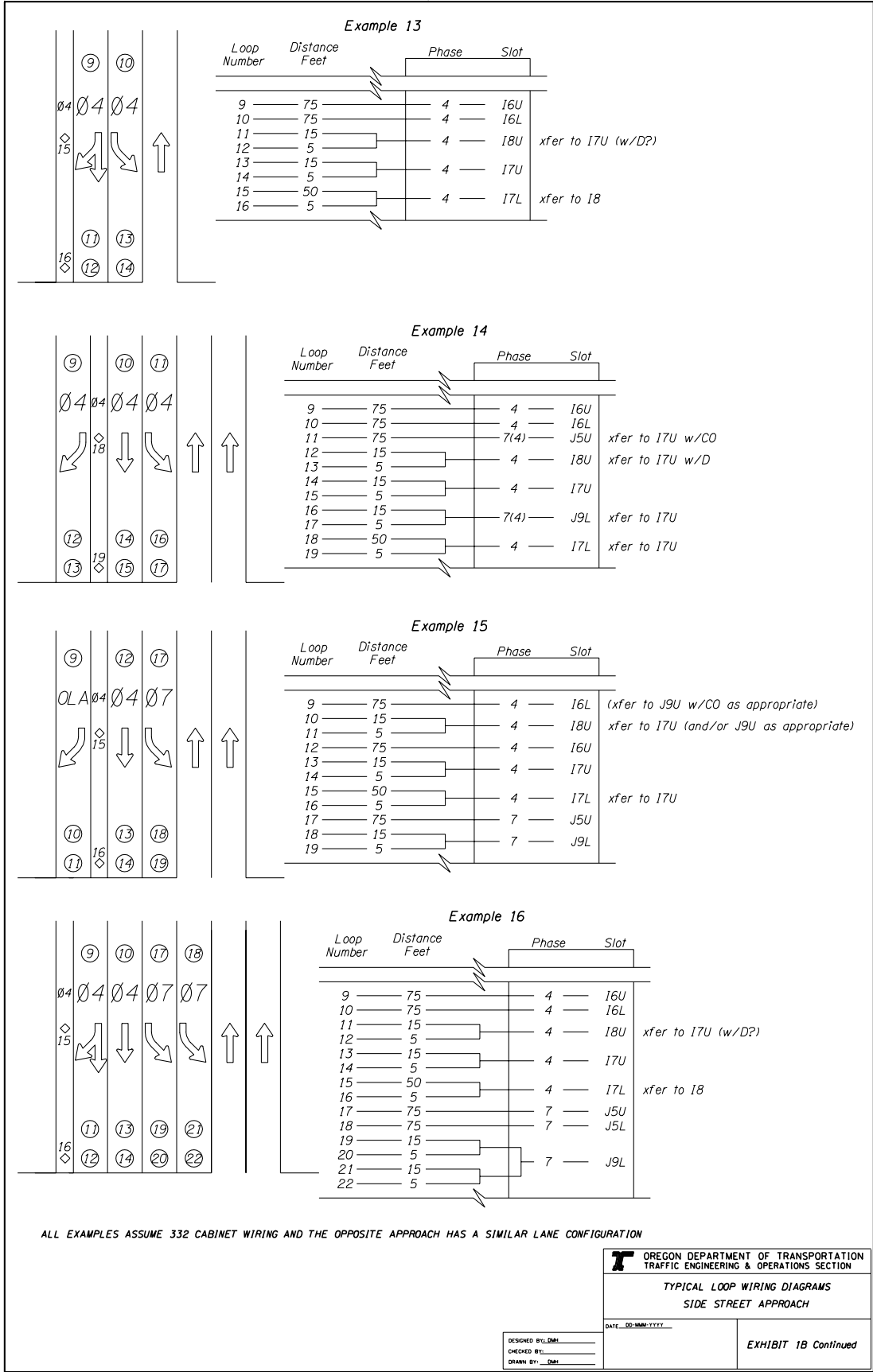
ALL EXAMPLES ASSUME 332 CABINET WIRING AND THE OPPOSITE APPROACH HAS A SIMILAR LANE CONFIGURATION

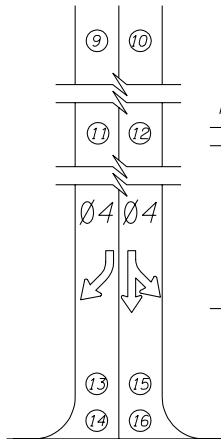
OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
TYPICAL LOOP WIRING DIAGRAMS
SIDE STREET APPROACH

DESIGNED BY: DMH
CHECKED BY: DMH
DRAWN BY: DMH

DATE: 02-08-2011

EXHIBIT 1B Continued

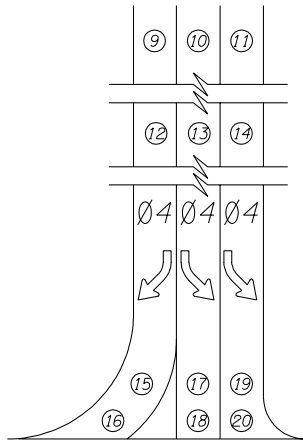




Example 17
(Interchange Ramp)

Loop Number	Distance Feet	Phase	Slot
9	135	4	16U
10	135	4	16L
11	75	4	17L
12	75	4	18U
13	15	4	17U
14	5	4	17U
15	15	4	17U
16	5	4	17U

xfer to 17L

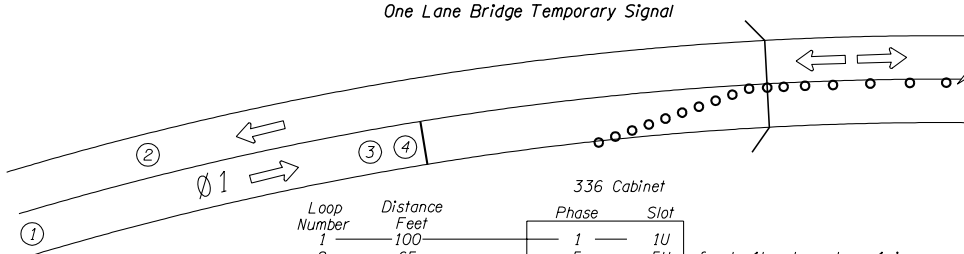


Example 18
(Interchange Ramp)

Loop Number	Distance Feet	Phase	Slot
9	135	8(4)	J6U
10	135	4	16U
11	135	4	16L
12	75	4	18U
13	75	4	17U
14	75	4	17U
15	15	4	18L
16	5	4	18L
17	15	8(4)	J8U
18	5	8(4)	J8U
19	15	8(4)	J8L
20	5	8(4)	J8L

xfer to 17L
xfer to 17L
xfer to 17L
xfer to 17U

Example 19
One Lane Bridge Temporary Signal



Loop Number	Distance Feet	Phase	Slot
1	100	1	1U
2	65	5	5U
3	15	1	1L
4	5	1	1L
5	100	3	3U
6	65	5	5L
7	15	3	3L
8	5	3	3L

Shown for wiring reference

xfer to 1L when phase 1 is green
xfer to 3L when phase 3 is green

EXAMPLE 19 ASSUMES 336 CABINET WIRING AND THE OPPOSITE APPROACH HAS A SIMILAR LANE CONFIGURATION

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
TYPICAL LOOP WIRING DIAGRAMS
SIDE STREET APPROACH

DATE: 00-0000-YYYY

DESIGNED BY: []
CHECKED BY: []
DRAWN BY: []

EXHIBIT 1B Continued

Loop Number	Distance Feet	Phase	Slot
1	120	2	120
2	120	2	120
3	120	2	120
4	120	2	120
5	120	2	120
6	120	2	120
7	120	2	120
8	120	2	120
9	120	2	120
10	120	2	120
11	120	2	120
12	120	2	120
13	120	2	120
14	120	2	120
15	120	2	120
16	120	2	120
17	120	2	120
18	120	2	120
19	120	2	120
20	120	2	120
21	120	2	120
22	120	2	120
23	120	2	120
24	120	2	120
25	120	2	120
26	120	2	120
27	120	2	120
28	120	2	120
29	120	2	120
30	120	2	120

*Determined By Speed

Xfer to 18

Controller Cabinet

Xfer to 18

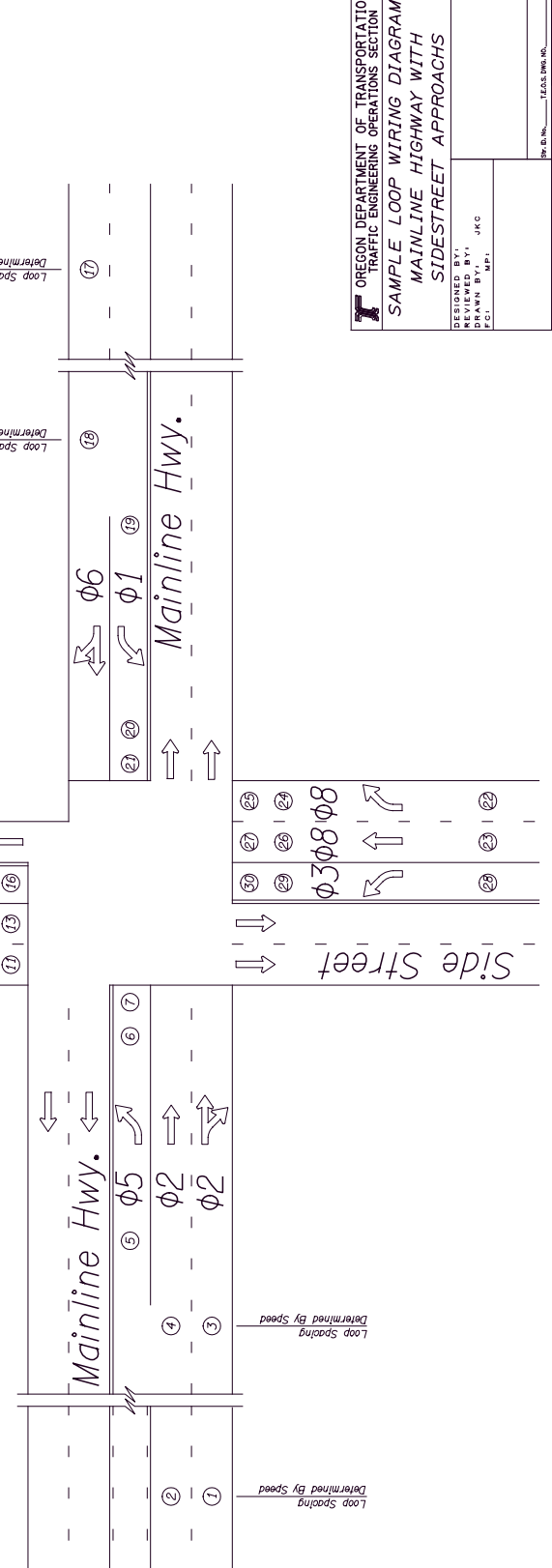
LOOP DETECTOR WIRING DIAGRAM
 "Distance" is from Stop Line to center of loop in meters

332 Cabinet Detector Input File

Slot Number	1	2	3	4	5	6	7	8	9
U (Upper)	Ph.1 E.C. Count	Ph.2 E.C. Count	Ph.3 E.C. Count	Ph.4 E.C. Count	Ph.5 E.C. Count	Ph.6 E.C. Count	Ph.7 E.C. Count	Ph.8 E.C. Count	Ph.9 E.C. Count
L (Lower)	Ph.1 E.C. Count	Ph.2 E.C. Count	Ph.3 E.C. Count	Ph.4 E.C. Count	Ph.5 E.C. Count	Ph.6 E.C. Count	Ph.7 E.C. Count	Ph.8 E.C. Count	Ph.9 E.C. Count

336 Cabinet Detector Input File

Slot Number	1	2	3	4	5	6	7	8	9	10
U (Upper)	Ph.1 E.C. Count	Ph.2 E.C. Count	Ph.3 E.C. Count	Ph.4 E.C. Count	Ph.5 E.C. Count	Ph.6 E.C. Count	Ph.7 E.C. Count	Ph.8 E.C. Count	Ph.9 E.C. Count	Ph.10 E.C. Count
L (Lower)	Ph.1 E.C. Count	Ph.2 E.C. Count	Ph.3 E.C. Count	Ph.4 E.C. Count	Ph.5 E.C. Count	Ph.6 E.C. Count	Ph.7 E.C. Count	Ph.8 E.C. Count	Ph.9 E.C. Count	Ph.10 E.C. Count



OREGON DEPARTMENT OF TRANSPORTATION
 TRAFFIC ENGINEERING OPERATIONS SECTION

SAMPLE LOOP WIRING DIAGRAM
 MAINLINE HIGHWAY WITH
 SIDESTREET APPROACHS

DESIGNED BY: J.K.C.
 DRAWN BY: J.K.C.
 P.C.I. M.P.I.

Doc. No. 1-10-55 Rev. 10