

TECH MEMO

DATE: February 3, 2023

TO: Wendy Farley-Campbell
City of Florence

FROM: Kelly Sandow P.E.
Sandow Engineering

RE: Response to TIA Review Comments-Fairway Estates



RENEWAL 06/30/24

The following provides a response to comments received by Kittelson & Associates dated 1/9/2023 regarding the Fairway Estates Traffic Impact Analysis in Florence, Oregon

Comment 1: *"The Veneta references on pages 31 and 35 are likely a labeling error/mistake"*

Correct, the data sheets on pages 31 and 35 were incorrectly Labeled as Veneta, OR. They should have been labeled Florence, OR

Comment 2: *"given the increased demand at the Rhododendron Drive/35th Street intersection and to be consistent with previous direction provided by the City of Florence Planning Commission on other recent traffic impact studies in the site vicinity, we would recommend Sandow Engineering perform a southbound left-turn lane assessment at the Rhododendron Drive/35th Street intersection under the 2024 and 2029 analysis scenarios."*

The southbound left turn lane assessment follows the Harmelink ¹methodology consistent with the evaluation prepared by Kittelson & Associates' "Florence Residential Subdivision" analysis dated September 4, 2020. The Harmelink methodology considers the left turning volume and the total traffic volume both approaching the intersection in the same direction and opposite direction as the left turn. Table 1 below provides the summary of the evaluation, and the outputs are included as an attachment.

¹ Harmelink, M.D. *Volumes Warrants for Left-Turn Storage Lanes at Unsignalized Intersections.* Department of Highways, Ontario.

TABLE 1: LEFT TURN LANE EVALUATION RESULTS

Time Period	Left Turn Volume	Advancing Volume	Opposing Volume	Criterion Met?
2022-Existing Conditions				
AM	136	244	84	No
PM	131	239	137	No
2024 With Development				
AM	152	275	91	No
PM	142	261	155	No
2029 With Development				
AM	159	288	94	No
PM	148	273	161	No

The traffic volumes do not warrant the installation of a left turn pocket with this development through the year 2029.

Additionally, the crash history at this location does not warrant mitigation by the installation of a left turn pocket.

A left turn pocket is not recommended with this development application.

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

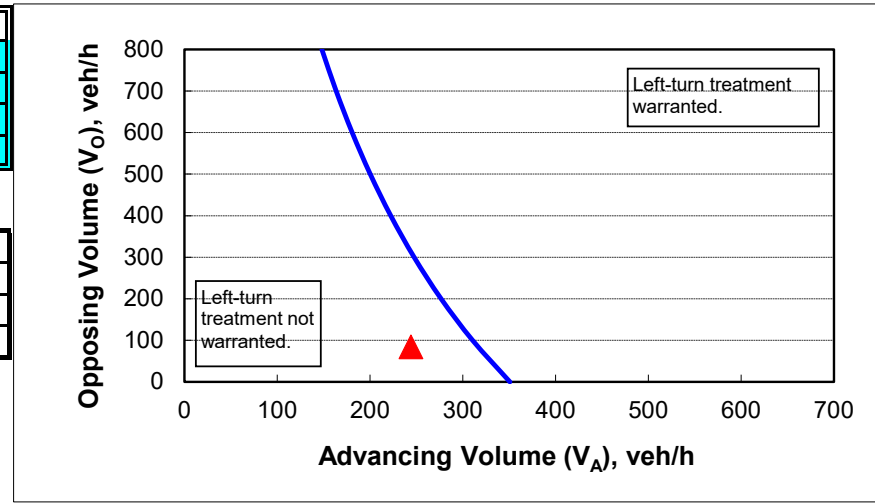
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	56%
Advancing volume (V_A), veh/h:	244
Opposing volume (V_O), veh/h:	84

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	317
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Year 2022 AM

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

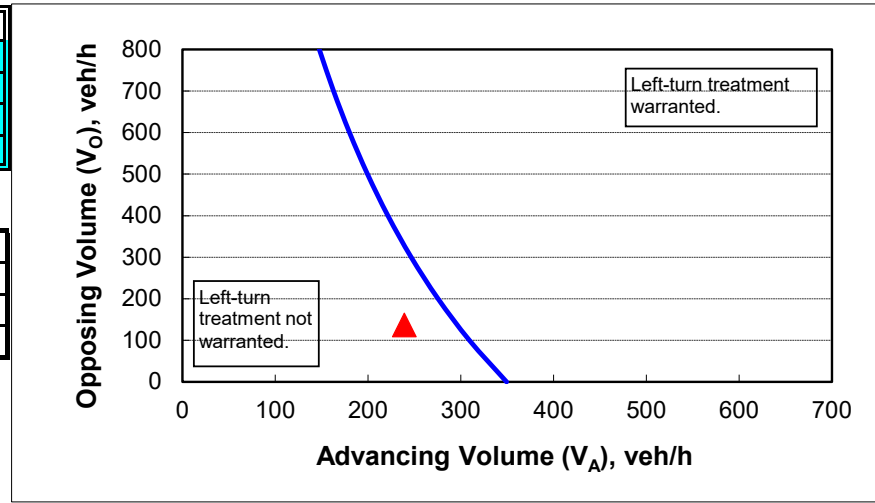
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	54%
Advancing volume (V_A), veh/h:	239
Opposing volume (V_O), veh/h:	137

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	296
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Year 2022 PM

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

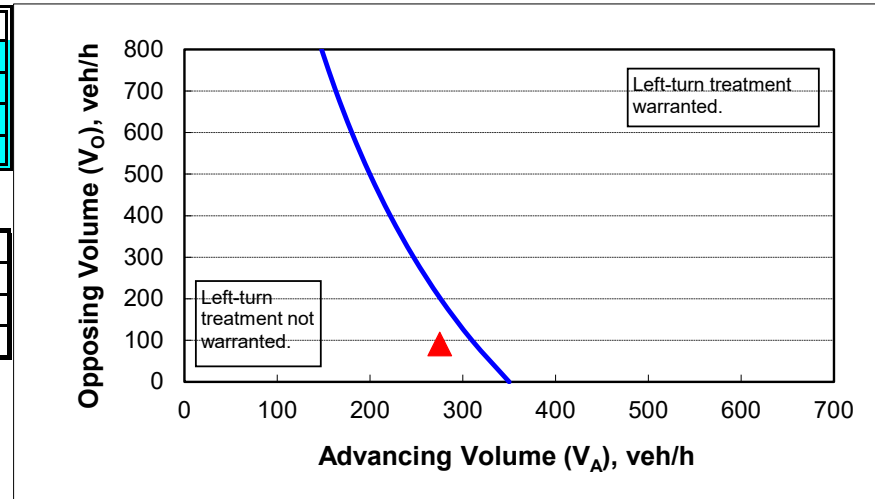
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	55%
Advancing volume (V_A), veh/h:	275
Opposing volume (V_O), veh/h:	91

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	313
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Year 2024 AM

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

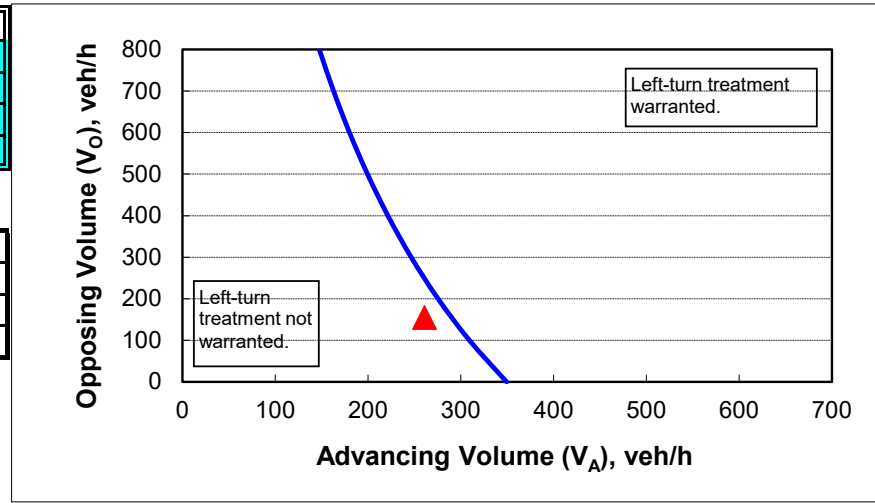
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	54%
Advancing volume (V_A), veh/h:	261
Opposing volume (V_O), veh/h:	155

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	290
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Year 2024 PM

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

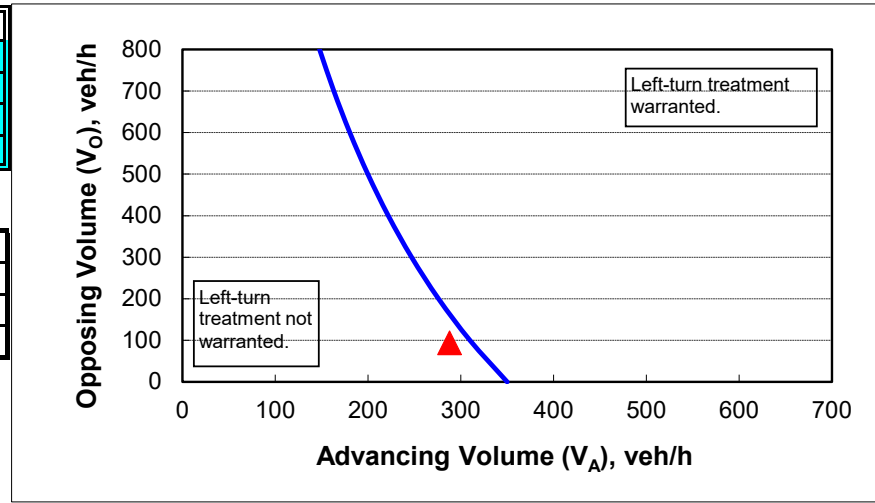
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	55%
Advancing volume (V_A), veh/h:	288
Opposing volume (V_O), veh/h:	94

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	312
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Year 2029 AM

figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

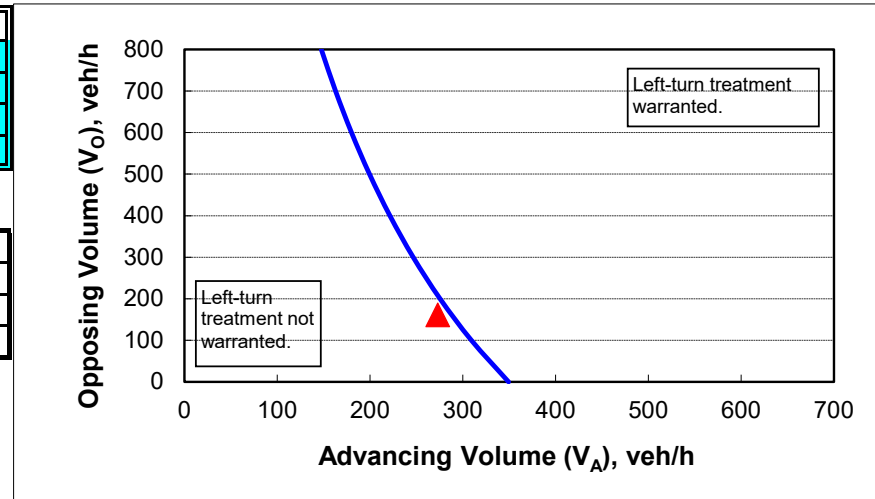
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	54%
Advancing volume (V_A), veh/h:	273
Opposing volume (V_O), veh/h:	161

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	288
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9