Horizon Church Sanctuary

Transportation Impact Analysis

Tualatin, OR

Date:
May 1, 2024

Prepared for:
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Executive Summary

1. The proposed Horizon Sanctuary will include the construction of a 19,268-square-foot building to be located on the Horizon Community Church and High School property in Tualatin, Oregon. A baseball field will be constructed in the southeast quadrant of the site. Additionally, a parking lot expansion is proposed, which will include the construction of 234 parking spaces (including 14 ADA spaces) to offset the loss of parking associated with future subdivision of the site.
2. The trip generation calculations show that the proposed development is estimated to generate 6 morning peak hour, 9 evening peak hour, 146 weekday, and 200 Sunday peak hour trips. Compared with the existing church uses a net increase of 2 morning peak hour, 3 evening peak hour, 52 weekday, and 72 Sunday peak hour trips is anticipated.
3. No significant trends or crash patterns were identified at any of the site accesses.
4. Sight distance requirements are met at all site accesses.
5. Preliminary traffic signal warrants are not expected to be met for any of the site accesses.
6. Left-turn lane warrants are not expected to be met for any the site accesses.
7. All study intersections are expected to operate within jurisdictional standards under all analysis scenarios.
8. Queuing analysis results show the 95th percentile queues at the site accesses are anticipated to provide adequate vehicle storage space that does not inhibit safe and expeditious travel under all scenarios.

Project Description

Introduction

The proposed Horizon Sanctuary will include the construction of a 19,268-square-foot building to be located on the Horizon Community Church and High School property in Tualatin, Oregon. A baseball field will be constructed in the southeast quadrant of the site. Additionally, a parking lot expansion is proposed, which will include the construction of 234 parking spaces (including 14 ADA spaces) to offset the loss of parking associated with future subdivision of the site.

Based on scoping coordination with the City of Tualatin and Washington County, it was determined that a full TIA would not be warranted, but rather a limited access and safety review that examines crash history, sight distance, and warrants at the three site driveways.

Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations are included in the appendix to this report.

Location Description

The Horizon Campus is located on Tax Lot 2S135D 000106 and encompasses approximately 37.99 acres which has been annexed into the City of Tualatin. A portion of the tax lot, approximately 8.3 acres, is planned to be subdivided from the campus and developed with other uses.

The site currently includes an existing building and four modular classrooms that serve as the learning center, preschool, and high school facilities for the Horizon Christian School. Church services are currently held in the high school gymnasium, which has a capacity of approximately 660 seats for the service. The 800-seat Horizon Sanctuary would create a new building dedicated to the Church activities. Services would no longer be held in the gym.

The proposed baseball field will replace the existing field in the northwest corner of the property. The existing field will not be removed at this time but a portion of the field lies in Tax Lot 2S135D 000401 to the south. This property is approved for the Autumn Sunrise residential development and the baseball field will no longer be usable.

Three existing driveways serve the campus. The main access road connects to a driveway connecting with SW Boones Ferry Road and a driveway connection with SW Norwood Road. A third driveway serving the parking lot north of the access road also connects with SW Norwood Road. With redevelopment of the subdivided parcel, this access will no longer be available for church and school use.

Figure 1 presents an aerial image with the Horizon Christian Church property outlined in yellow. The location for the proposed Horizon Sanctuary building is outlined in red, the proposed parking is outlined in blue, and the proposed baseball field is outlined in aqua. The 8.3-acre portion of the site to be subdivided for future development is hatched in yellow. A site plan is included as an attachment to this memorandum.

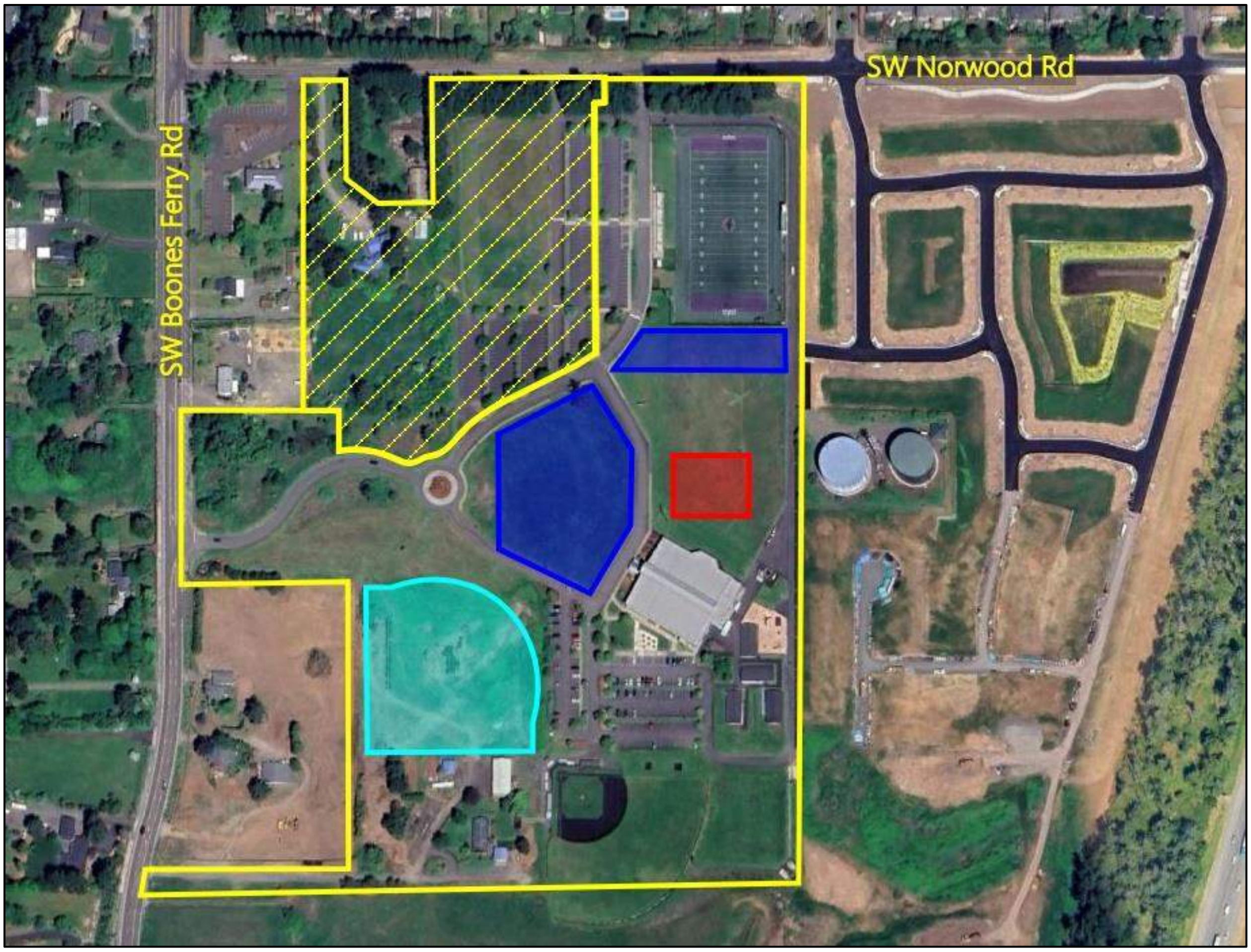


Figure 1: Project Location (©Google Earth 2024)

Vicinity Streets

The proposed development is expected to impact two roadways near the site. Table 1 provides a description of each of the vicinity roadways.

Table 1: Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Cross-Section	Speed	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
SW Boones Ferry Road[1]	City of Tualatin	Major Arterial	3 Lanes	35 mph	Both Sides	None	Bike Lanes
	Washington Co.	Arterial (Major Arterial[2])		45 mph	Partial Both Sides		
SW Norwood Road	Washington Co.	Collector (Major Collector[2])	2 Lanes	45 mph	Partial Both Sides	None	None

Notes:

1. *SW Boones Ferry Road is under City jurisdiction north of SW Norwood Road and County jurisdiction south of SW Norwood Road.*
2. *City of Tualatin classification of road under County jurisdiction.*

Study Intersections

Based on coordination with the City of Tualatin and Washington County staff, the three site accesses were identified for analysis. A summarized description of the study intersections is provided in Table 2.

Table 2: Study Intersection Descriptions

Intersection		Geometry	Traffic Control	Phasing/Stopped Approaches
1	SW Boones Ferry Road & Main Site Access	Four-Legged[1]	Stop-Controlled	WB Stop-Controlled
2	SW Norwood Road & West Site Access[2]	Three-Legged	Stop-Controlled	NB Stop-Controlled
3	SW Norwood Road & East Site Access	Three-Legged	Stop-Controlled	NB Stop-Controlled

Notes:

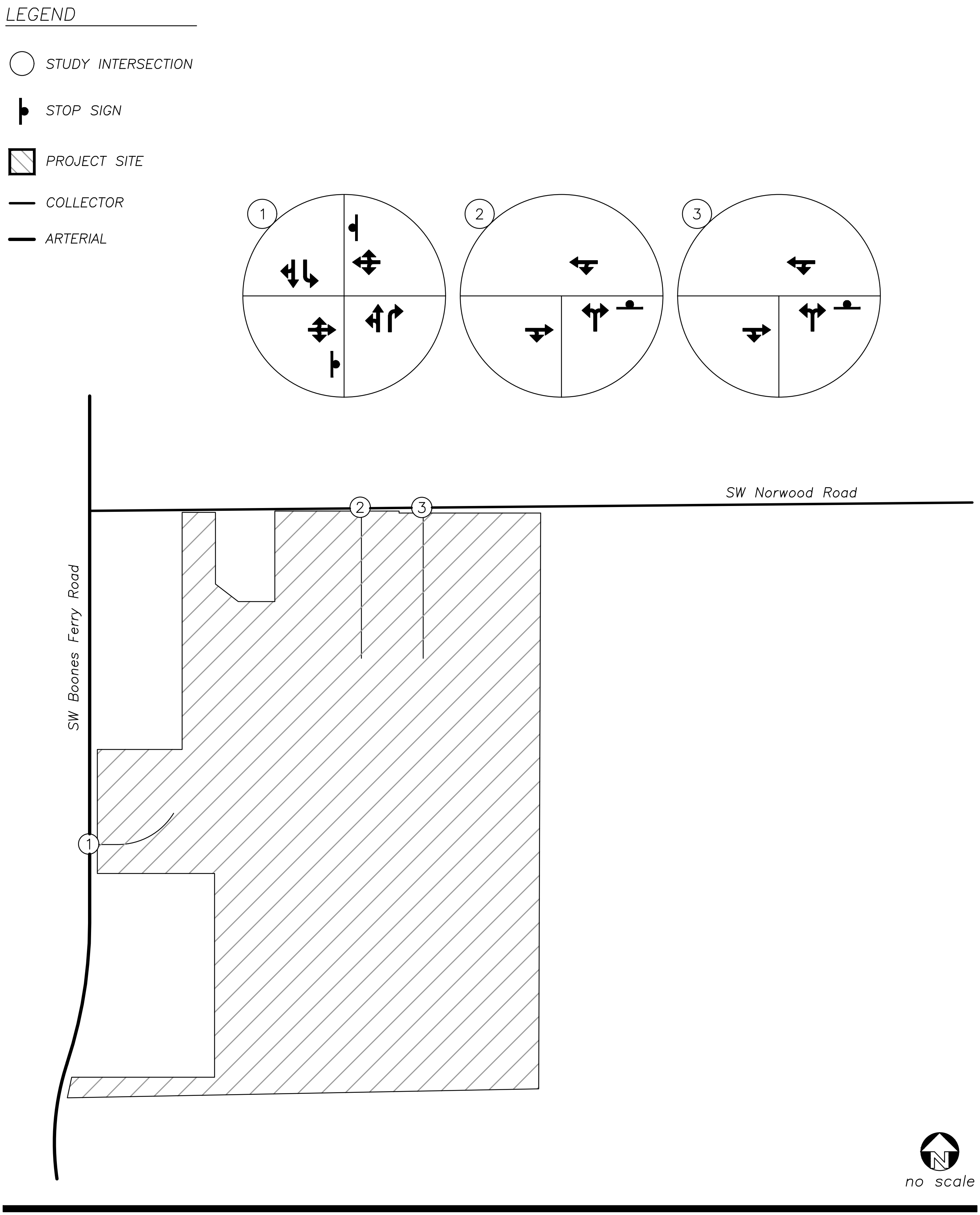
1. *West leg of intersection is a residential driveway.*
2. *When development of the subdivided portion of the church property occurs, this access will no longer be available for use by activities on the Horizon Campus.*

Transit

The project is located near one transit line that has stops within less than a one-quarter mile walking/biking distance of the site.

Route 96 – Tualatin/I-5 provides weekday rush-hour service between Commerce Circle and the Mohawk Park & Ride in Tualatin, and regular service between Mohawk Park & Ride and Portland City Center. Weekday service is scheduled from approximately 5:15 AM to 9:10 PM with headways of approximately 30 to 60 minutes. There is currently no weekend or holiday service. The nearest bus stops to the site are currently located just south of the intersection of SW Boones Ferry Road at SW Norwood Road.

A vicinity map showing the project site, vicinity streets, and study intersection configurations is shown in Figure 2.



VICINITY MAP

Figure 2

Horizon Church Sanctuary TIA

4/17/2024

Site Trips

Trip Generation

To estimate trips that will be generated by the proposed development, a combination of traffic counts and trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*[1] were used. City of Tualatin staff requested that trip generation estimates be prepared based on building size. An explanation of the trip generation methodology is provided below.

Existing Condition

The Horizon Christian Church currently holds services in the high school gym on campus. The 7,750-SF gym has a service capacity of approximately 660 seats. While the gym currently serves as the sanctuary for the church, it does not include an of the accessory spaces, such as offices and meeting rooms, that a church would typically include.

Traffic counts at the three site accesses were collected on Sunday, March 10, 2024, from 10:00 AM to 11:30 AM. The peak traffic volumes entering and exiting were measured at 59 inbound and 69 outbound trips for a total of 128 peak hour trips. Using data from land-use code 560, *Church*, these Sunday peak hour volumes are estimated to be approximately equivalent to a 12,332-SF church. With an equivalent building size, trip generation for other church functions on the campus for the weekday peak hours and daily conditions could also be estimated. The results are summarized in Table 3.

Table 3: Trip Generation Summary

ITE Code	Intensity	Morning Peak Hour			Evening Peak Hour			Weekday Trips	Sunday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Existing Condition											
Existing Traffic Counts		-	-	-	-	-	-	-	59	69	128
560 – Church (Equivalent)	12,332 SF[1]	2	2	4	3	3	6	94	61	67	128
Proposed Condition											
560 – Church	19,268 SF	4	2	6	4	5	9	146	96	104	200
Net Change		2	0	2	1	2	3	52	35	37	72

Notes:

1. *Based on the measured traffic counts, the traffic volumes for the services held in the Horizon Christian School gym are equivalent to a church of approximately 12,332 SF.*

Using the equivalent building size, the existing church functions on campus are estimated to generate 4 morning peak hour, 6 evening peak hour, 94 weekday, and 128 Sunday peak hour trips.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Proposed Condition

Data from land-use code 560, *Church,* was also used to estimate the proposed church trip generation based on the building size. The resulting trip generation estimates are summarized in Table 3.

Because the proposed baseball field will replace an existing field that can no longer be used, no additional trip generation will be created with this improvement.

The calculations show that the proposed development is estimated to generate 6 morning peak hour, 9 evening peak hour, 146 weekday, and 200 Sunday peak hour trips.

Net Trip Increase

The proposed development is estimated to result in a net increase of 2 morning peak hour, 3 evening peak hour, 52 weekday, and 72 Sunday peak hour trips.

Detailed trip generation calculations for both the existing and proposed church activities are included in the appendix.

Trip Distribution

The directional distribution of site trips to and from the proposed site was estimated based on the locations of likely trip origins and destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at the study intersections.

The following trip distribution was estimated and used for analysis for inbound trips:

- Approximately 47 percent of site trips will travel from the south along SW Boones Ferry Road;
- Approximately 41 percent of site trips will travel from the north along SW Boones Ferry Road; and
- Approximately 12 percent of site trips will travel from the east along SW Norwood Road.

The following trip distribution was estimated and used for analysis for outbound trips:

- Approximately 46 percent of site trips will travel to the south along SW Boones Ferry Road;
- Approximately 47 percent of site trips will travel to the north along SW Boones Ferry Road; and
- Approximately 7 percent of site trips will travel to the east along SW Norwood Road.

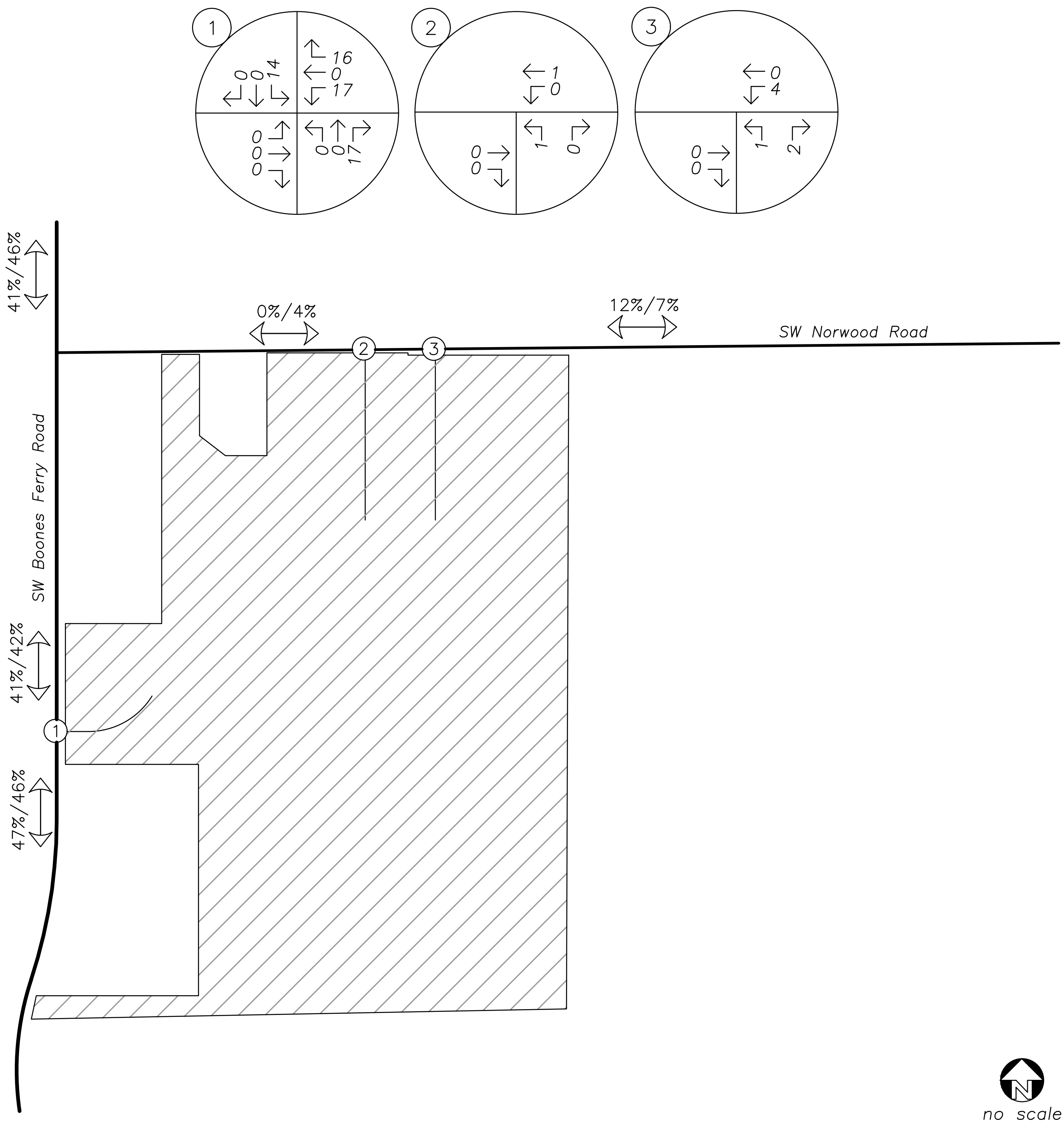
The trip distribution and assignment for the total site trips generated during the Sunday peak hour is shown in Figure 3.

LEGEND

IN%/OUT% *PERCENT OF PROJECT TRIPS*

TRIP GENERATION			
	IN	OUT	TOTAL
AM	2	0	2
PM	1	2	3
SUN	35	37	72

SUNDAY PEAK HOUR



SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development - Net Increase in Trips
Sunday Peak Hour

Figure 3
Horizon Church Sanctuary TIA
4/17/2024

Traffic Volumes

Given the low weekday activity associated with the church under both existing and future conditions, traffic volumes were only developed for the Sunday peak hour condition.

Existing Conditions

Traffic counts were conducted at the study intersections on Sunday, March 10, 2024, from 10:00 AM to 11:30 AM. Data was used from each intersection's Sunday peak hour.

Figure 4 shows the resulting year 2024 existing traffic volumes.

Background Conditions

To provide an analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. For the general background growth, the annual growth rate of 2.0 percent per year over two years was applied to the year 2024 existing traffic volumes. In addition to the general growth, the following nearby developments are approved but were not yet constructed at the time of the traffic counts will be included as in-process traffic:

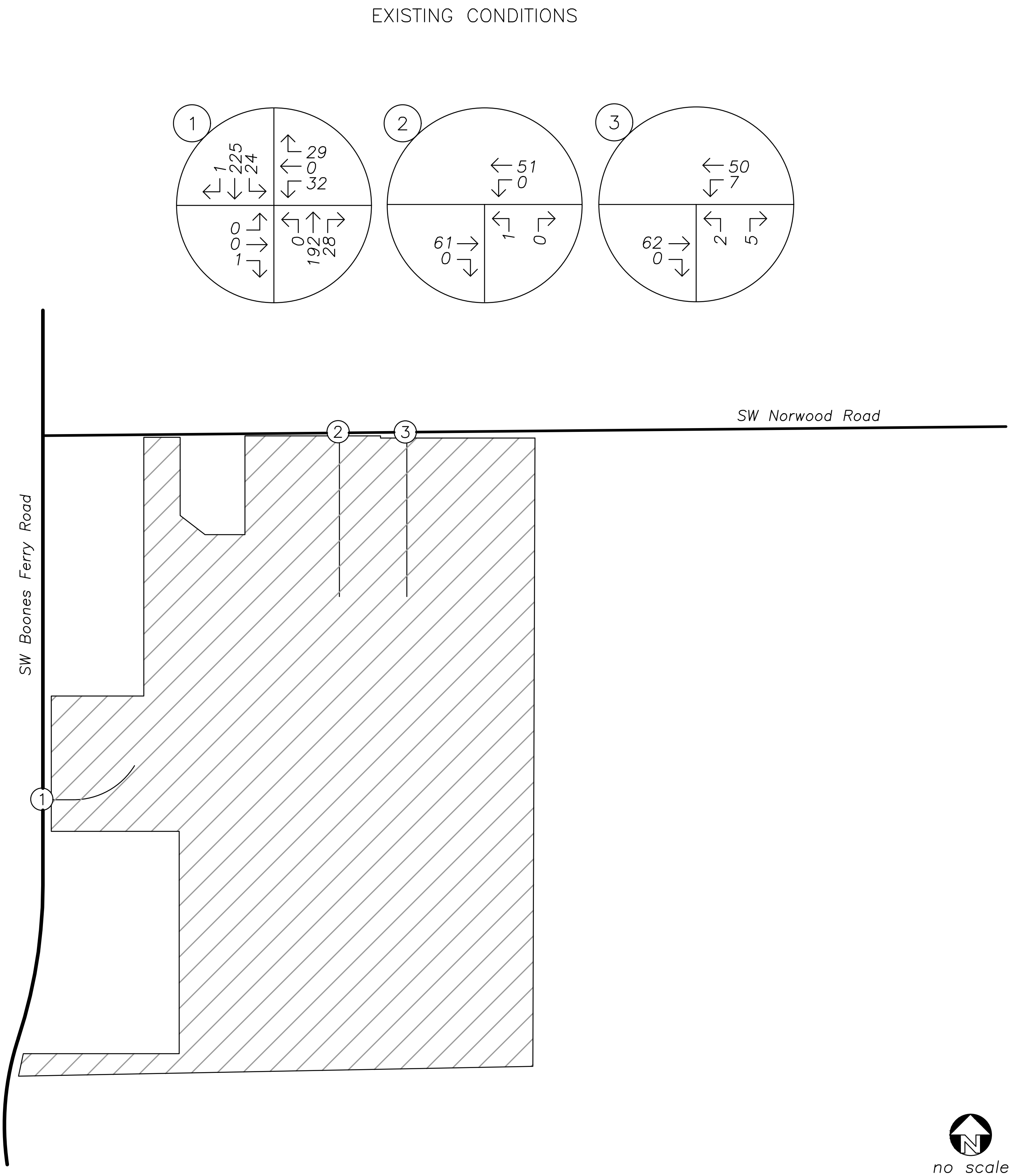
- Autumn Sunrise
- Plambeck Gardens

Figure 5 shows the resulting year 2026 background traffic volumes.

Buildout Conditions

The net increase in Sunday peak hour trips described in the *Site Trips* section, was added to the year 2026 background volumes to obtain the expected year 2026 buildout conditions.

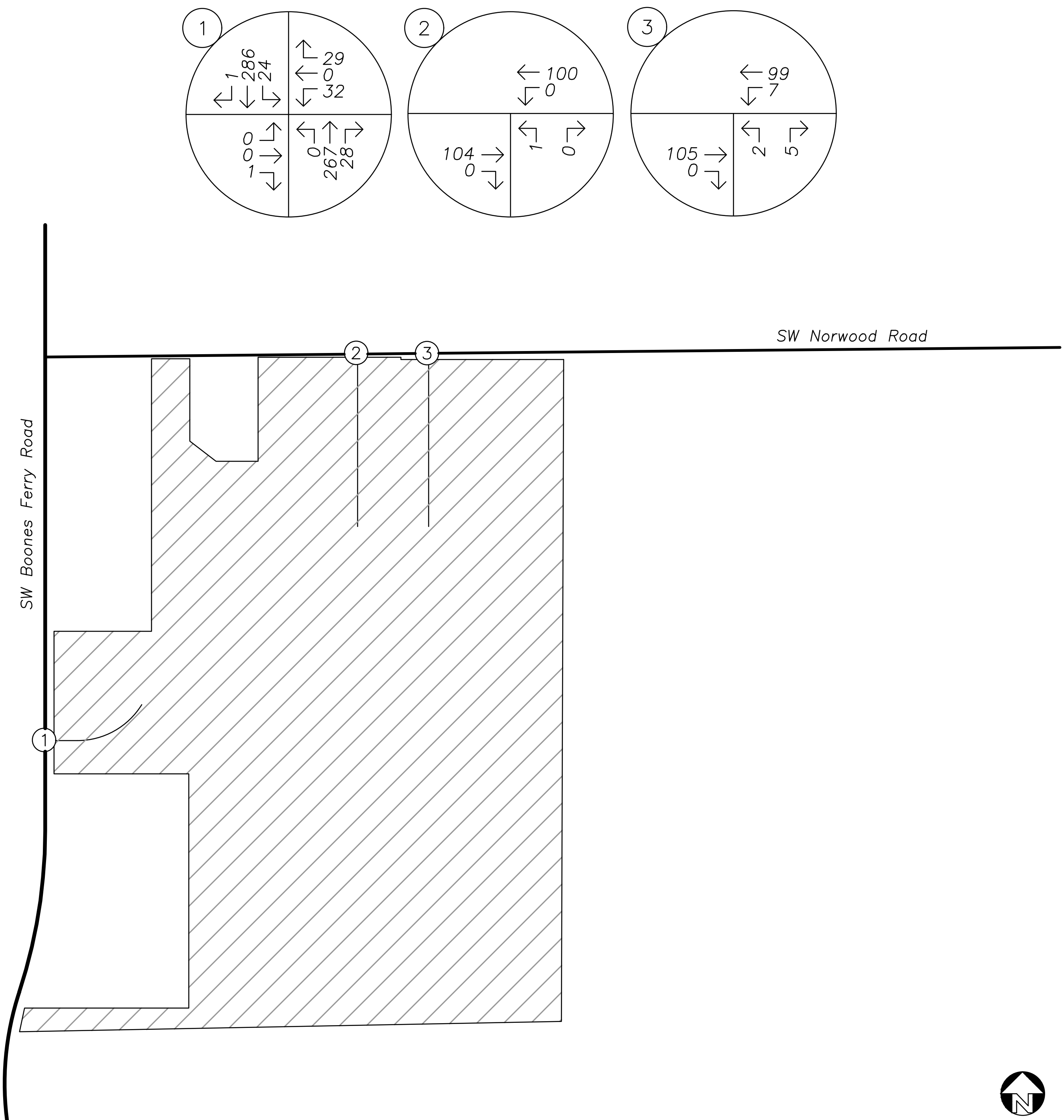
Figure 6 shows the resulting year 2026 buildout traffic volumes.



TRAFFIC VOLUMES
Year 2024 Existing Conditions
Sunday Peak Hour

Figure 4
Horizon Church Sanctuary TIA
4/17/2024

BACKGROUND CONDITIONS



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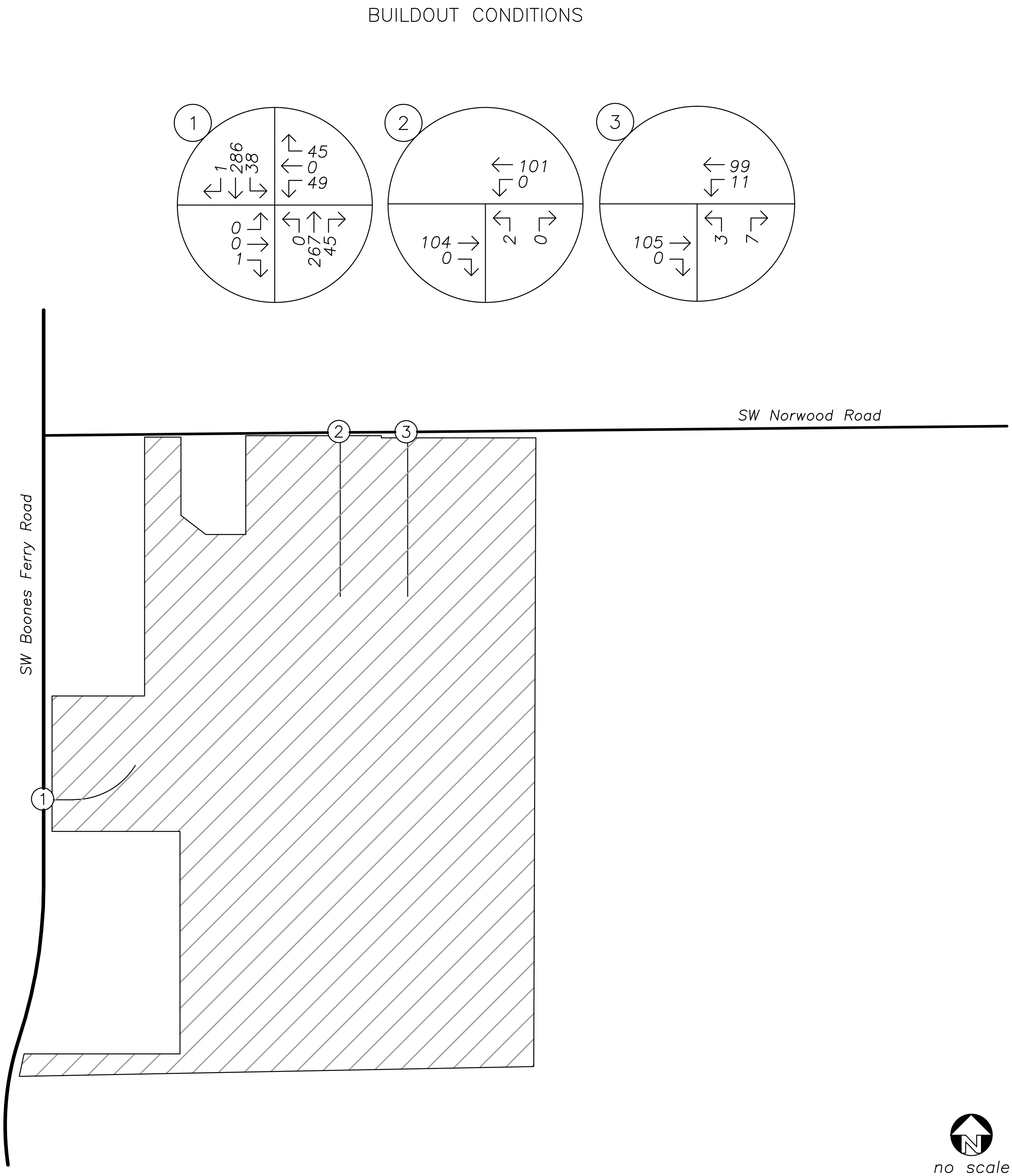
TRAFFIC VOLUMES

Year 2026 Background Conditions
Sunday Peak Hour

Figure 5

Horizon Church Sanctuary TIA

4/17/2024



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TRAFFIC VOLUMES
Year 2026 Buildout Conditions
Sunday Peak Hour

Figure 6
Horizon Church Sanctuary TIA
4/17/2024

Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Data System, a review of approximately five years of the most recent available crash history (January 2018 through December 2022) was performed at the site access intersections. The crash data was evaluated based on the number of crashes, the type of collisions, and the severity of the collisions. Crash severity is based on injuries sustained by people involved in the crash, and includes five categories:

- Property Damage Only (PDO)
- Suspected Serious Injury (Injury C)
- Suspected Minor Injury (Injury B)
- Possible Injury (Injury A)
- Fatal Injury

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak hour represents approximately 10 percent of the annual average daily traffic (AADT) at the intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

One crash was reported at the main site access on SW Boones Ferry Road during the study period. The crash was occurred on Wednesday afternoon between 4:00 and 5:00 PM, which more likely correlates with school activity rather than church activity. It was reported as a turning collision, and resulted in property damage only (PDO). Neither of the site accesses on SW Norwood Road had any crashes reported during the study period.

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the site access intersections. No safety mitigation is recommended per the crash data analysis.

Sight Distance Evaluation

A sight distance analysis was conducted at the three site access driveways. Both intersection sight distance (ISD) and stopping sight distance (SSD) were assessed. The ISD is an operational measure, intended to provide sufficient line of sight along the major street so that a driver could turn from the minor street without impeding traffic flow. The SSD is the minimum requirement to ensure safe operation of the roadway. Stopping sight distance allows an oncoming driver to see a hazard in the roadway, react, and come to a complete stop if necessary to avoid a collision. As long as the available intersection sight distance is at least equal to the minimum required stopping sight distance for the design speed of the roadway, adequate sight distance is available for safe operation of the intersection.

Sight Distance Measurements

Since all three site accesses are located on roads under Washington County jurisdiction, sight distance was measured at the proposed access locations as required by Development Code Section 501-8.5F., which requires an eye height of 3.5 feet and an object height of 4.25 feet above the road and be assumed to be 10 feet from the near edge pavement to the front of a stopped vehicle, (actual measurement is taken from 15 feet from pavement edge.) Minimum intersection sight distance shall be equal to ten times the vehicles speed of the road, which is determined by the design speed, posted speed, or the 85th percentile speed.

Available Sight Distance

Both SW Boones Ferry Road and SW Norwood Road have posted speeds of 45 mph where the site accesses are located. Per Washington County code, the minimum sight distance is 450 feet and the required stopping sight distance is 360 feet. The following observations were made at the three site accesses:

- Site Access at SW Boones Ferry Road: Sight distance was measured to exceed 530 feet north and south of the site access which meets the minimum recommendation.
- West Site Access at SW Norwood Road: Sight distance was measured to exceed 500 feet east and west of the site access which meets the minimum recommendation.
- East Site Access at SW Norwood Road: Sight distance was measured to exceed 500 feet east and west of the site access which meets the minimum recommendation.

Warrant Analysis

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were examined at the three site accesses to determine whether the installation of a new traffic signal will be warranted at these intersections upon completion of the proposed development. Methodologies were based on the *Manual on Uniform Traffic Control Devices*[2] (MUTCD). Warrant 1, Eight-Hour Vehicular Volumes, was evaluated based on the common assumption that traffic counted during the evening peak hour represents 10 percent of the average daily traffic (ADT) and that the 8th highest hour is 5.65 percent of the daily volume.

The 70 percent warrant for speeds of 40 mph or greater was analyzed due to the posted speeds of 45 mph along SW Boones Ferry Road and SW Norwood Road. Based on the preliminary analysis, traffic signal warrants are not expected to be met for the intersection. Accordingly, no signalization of the unsignalized study intersection is necessary or recommended.

Left-turn Lane Warrants

Left-turn lanes are not present on SW Norwood Road; therefore, left-turn lane warrants were examined at the existing site accesses on SW Norwood Road using the methodology outlined in the National Cooperative Highway Research Program Report (NCHRP) 457, published by the Transportation Research Board in 2001. These turn-lane warrants are evaluated based on the number of left-turning vehicles, the number of advancing and opposing vehicles, and the roadway travel speed.

Based on the analysis left-turn lane warrants are not met at the proposed site accesses along SW Norwood Road.

[2] Federal Highway Administration, Manual on Uniform Traffic Control Devices, 11th Edition, 2023

Operational Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[3]. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little, or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Performance Standards

The following agency performance standards are applicable in the study area:

- The City of Tualatin requires minimum LOS E operations for unsignalized intersections.
- Washington County has a mobility target of 0.90 but a v/c ratio of 0.99 or less is acceptable.

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 4 for the Sunday peak hour.

Table 4: Capacity Analysis Summary

Intersection & Condition	Sunday Peak Hour		
	LOS	Delay (s)	V/C
1. SW Boones Ferry Road & Main Site Access			
2024 Existing Conditions	B	13	0.15
2026 Background Conditions	C	15	0.19
2026 Buildout Conditions	C	18	0.30
2. SW Norwood Road & West Site Access			
2024 Existing Conditions	A	9	0.01
2026 Background Conditions	A	10	0.01
2026 Buildout Conditions	A	10	0.01

[3] Transportation Research Board, *Highway Capacity Manual 7th Edition*, 2022.

Table 4: Capacity Analysis Summary

Intersection & Condition	Sunday Peak Hour		
	LOS	Delay (s)	V/C
3. SW Norwood Road & East Site Access			
2024 Existing Conditions	A	9	0.01
2026 Background Conditions	A	9	0.01
2026 Buildout Conditions	A	9	0.02

As shown, all site accesses are expected to operate within jurisdictional standards under all analysis scenarios.

Queuing Analysis

An analysis of expected queuing was conducted for the study intersections. The 95th percentile queue lengths were estimated based on the same Synchro/SimTraffic simulations used for the delay calculations. The 95th percentile queue is a statistical measurement which indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may theoretically never be met or observed in the field.

The 95th percentile queue lengths reported in the simulation are presented in Table 5 for the morning and evening peak hours. Reported queue lengths were rounded up to the nearest 25 feet, equivalent to an average vehicle length. Detailed queuing analysis reports are included in the appendix.

Table 5: 95th Percentile Queueing Analysis Summary

Intersection/Movement	Available Storage (ft)	2026 Background Queue (ft)	2026 Buildout Queue (ft)
1. SW Boones Ferry Road & Main Site Access			
SB LTL	340	50	50
NB RTL	125	25	-
WB Approach	>500	50	75
2. SW Norwood Road & West Site Access			
NB Approach	>500	25	25
WB Approach	150	-	-
3. SW Norwood Road & East Site Access			
NB Approach	>500	50	50
WB Approach	400	25	25

Queuing analysis results show the 95th percentile queues at the site accesses are anticipated to provide adequate vehicle storage space that does not inhibit safe and expeditious travel under all scenarios.

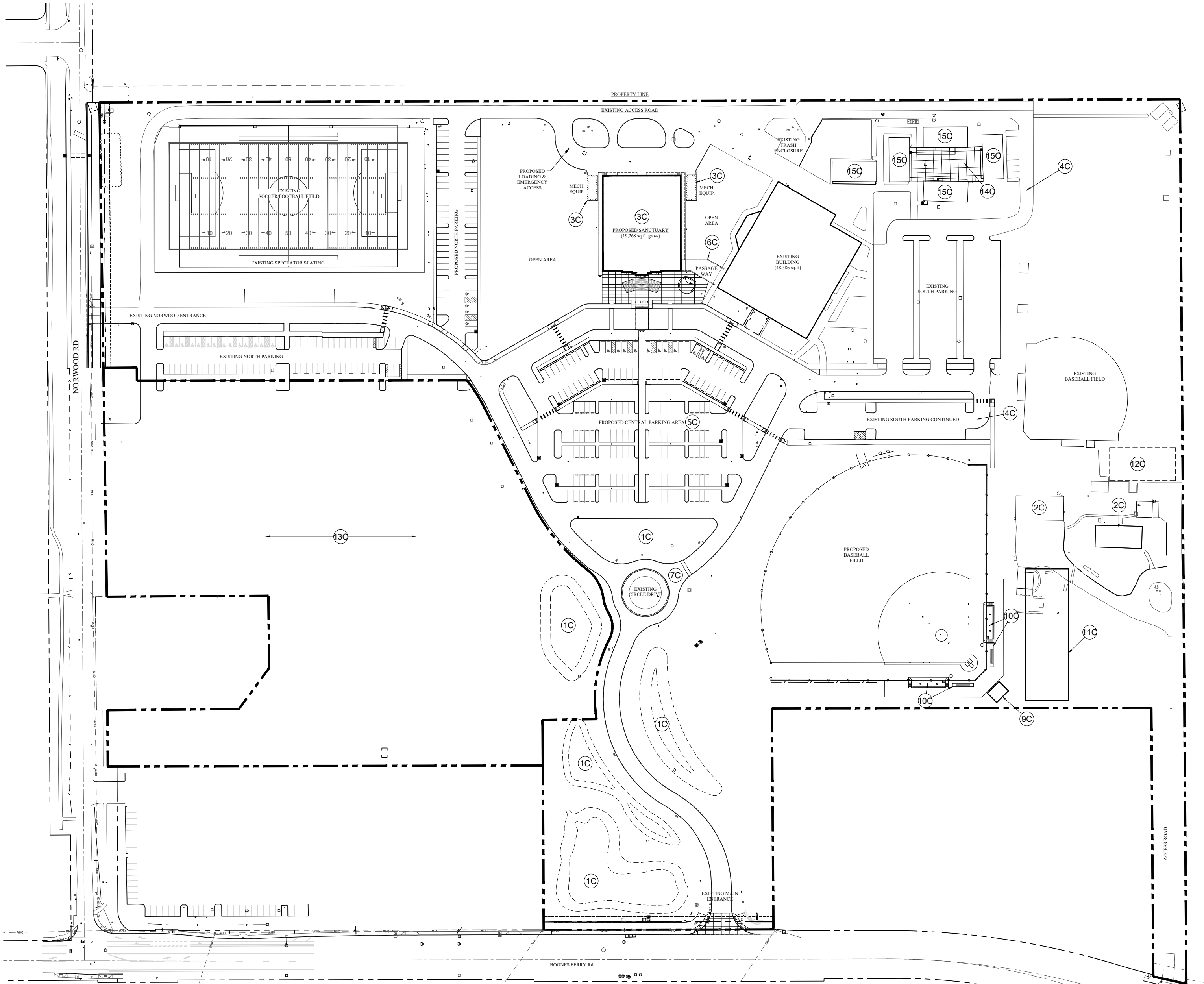
Conclusions

Key findings of this study include:

- No significant trends or crash patterns were identified at any of the site accesses.
- Sight distance requirements are met at all site accesses.
- Preliminary traffic signal warrants are not expected to be met for any of the site accesses.
- Left-turn lane warrants are not expected to be met for any the site accesses.
- All study intersections are expected to operate within jurisdictional standards under all analysis scenarios.
- Queuing analysis results show the 95th percentile queues at the site accesses are anticipated to provide adequate vehicle storage space that does not inhibit safe and expeditious travel under all scenarios.

Appendix

- Site Plan
- Trip Generation Calculations
- Traffic Counts
- In-Process Trips
- Crash History Data
- Left-Turn Lane Warrant Analysis
- Preliminary Signal Warrant Analysis
- Definitions
- Synchro Reports
- Queuing Reports



1 A1.1 OVERALL SITE PLAN
1" = 60'-0"
0 15' 30' 60'

GENERAL NOTES:

1. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PER OSSC 106.3.4.2.

DEFERRED SUBMITTALS (BIDDER DESIGN)

KEY NOTES:

NOTE: SOME NOTES DO NOT APPLY TO EACH SHEET

- 1C EXISTING STORM FACILITY
- 2C EXISTING BUILDING TO REMAIN (48,565 sq.ft.)
- 3C PROPOSED SANCTUARY - NEW 19,268 sq.ft.
- 4C NEW DRIVE LANE
- 5C PROPOSED CENTRAL PARKING - 110 SPACES
- 6C BREEZEWAY - ALTERNATE COST
- 7C RADIUS IMPROVEMENTS - ALTERNATE COST
- 8C EXISTING BLDG'S TO REMAIN
- 9C 20'x25' RESTROOM & CONCESSION
- 10C BLEACHERS & DUGOUT
- 11C 65'x200/ TRAINING FACILITY - FUTURE
- 12C OPTIONAL 50'x100' TRAINING FACILITY - FUTURE
- 13C FUTURE DEVELOPMENT
- 14C LANDSCAPE QUAD AREA
- 15C EXISTING MODULAR CLASSROOM'S

PARKING SUMMARY:

NEW SANCTUARY (200 BASED ON 800 SEATS)	225
CURRENT MIDDLE SCHOOL	40
EXTRA	102
TOTAL	367
CURRENT SPACES	448
REMOVED	-191
TOTAL	257
NEW CENTRAL PARKING LOT	110
TOTAL PROVIDED	367

PERMIT SET

REGISTERED ARCHITECT DAVID A. BISSETT STATE OF OREGON

dba DAVID BISSETT ARCHITECT PC
503.341.4445 davidb@dbarch.com
www.DBAarch.com

OVERALL SITE PLAN
HORIZON COMMUNITY CHURCH
23620 SW BOONES FERRY Rd.
TUALATIN, OR

horizon community church

Revisions

Drawn By	Checked By
TA	DB

Issue Date: Nov. 30, 2023
Drawing File Name: Horizon Sanctuary
Sheet Number: A1.1

TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition

Land Use:	Church
Land Use Code:	560
Land Use Subcategory:	All Sites
Setting/Location	General Urban/Suburban
Variable:	1000 SF GFA
Trip Type:	Vehicle
Formula Type:	Rate
EXISTING: *Variable Quantity:*	12.332

AM PEAK HOUR

Trip Rate: 0.32

	Enter	Exit	Total
Directional Split	62%	38%	
Trip Ends	2	2	4

PM PEAK HOUR

Trip Rate: 0.49

	Enter	Exit	Total
Directional Split	44%	56%	
Trip Ends	3	3	6

WEEKDAY

Trip Rate: 7.6

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	47	47	94

SUNDAY PEAK HOUR

Trip Rate: 10.36

	Enter	Exit	Total
Directional Split	48%	52%	
Trip Ends	61	67	128

TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition

Land Use:	Church
Land Use Code:	560
Land Use Subcategory:	All Sites
Setting/Location	General Urban/Suburban
Variable:	1000 SF GFA
Trip Type:	Vehicle
Formula Type:	Rate
PROPOSED: *Variable Quantity:*	19.268

AM PEAK HOUR

Trip Rate: 0.32

	Enter	Exit	Total
Directional Split	62%	38%	
Trip Ends	4	2	6

PM PEAK HOUR

Trip Rate: 0.49

	Enter	Exit	Total
Directional Split	44%	56%	
Trip Ends	4	5	9

WEEKDAY

Trip Rate: 7.6

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	73	73	146

SUNDAY PEAK HOUR

Trip Rate: 10.36

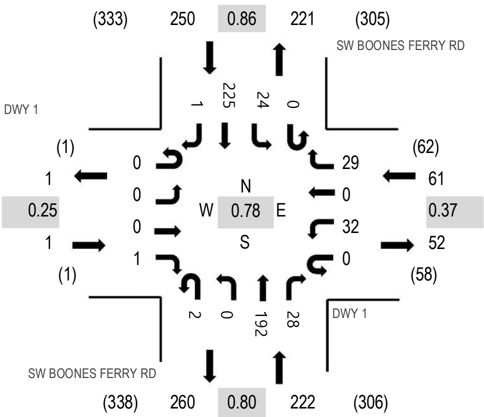
	Enter	Exit	Total
Directional Split	48%	52%	
Trip Ends	96	104	200

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 SW BOONES FERRY RD & DWY 1 AM
Date: Sunday, March 10, 2024
Peak Hour: 10:30 AM - 11:30 AM
Peak 15-Minutes: 10:45 AM - 11:00 AM

Peak Hour

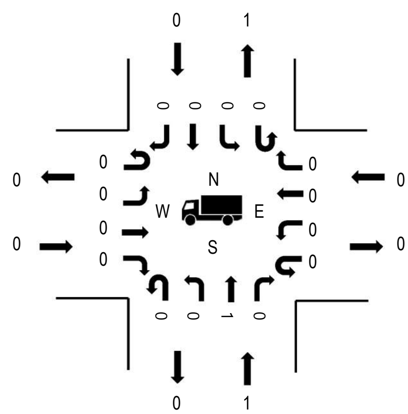
Motorized Vehicles



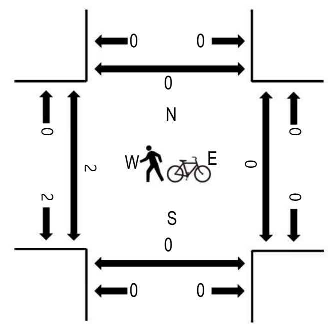
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	0.0%	0.37
NB	0.5%	0.80
SB	0.0%	0.86
All	0.2%	0.78

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DWY 1 Eastbound U-Turn	Left	Thru	Right	DWY 1 Westbound U-Turn	Left	Thru	Right	SW BOONES FERRY RD Northbound U-Turn	Left	Thru	Right	SW BOONES FERRY RD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour
10:00 AM	0	0	0	0	0	0	0	0	0	0	38	0	0	1	38	0	77	459
10:15 AM	0	0	0	0	0	1	0	0	0	0	46	0	0	5	39	0	91	512
10:30 AM	0	0	0	0	0	0	0	1	0	0	48	4	0	4	62	0	119	534
10:45 AM	0	0	0	0	0	19	0	22	1	0	55	16	0	9	50	0	172	
11:00 AM	0	0	0	1	0	11	0	6	0	0	53	7	0	9	42	1	130	
11:15 AM	0	0	0	0	0	2	0	0	1	0	36	1	0	2	71	0	113	
Count Total	0	0	0	1	0	33	0	29	2	0	276	28	0	30	302	1	702	
Peak Hour	0	0	0	1	0	32	0	29	2	0	192	28	0	24	225	1	534	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

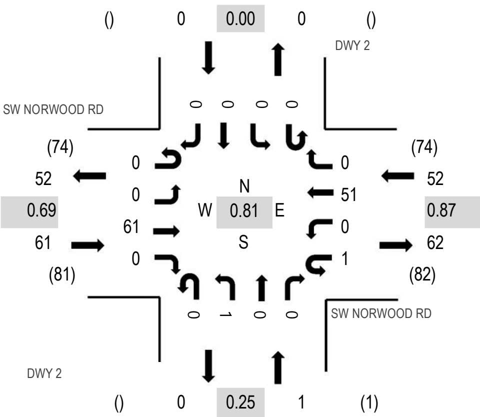
Interval Start Time	Heavy Vehicles EB	NB	WB	SB	Total	Interval Start Time	Bicycles on Roadway EB	NB	WB	SB	Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk EB	NB	WB	SB	Total
10:00 AM	0	0	0	1	1	10:00 AM	0	0	0	0	0	10:00 AM	0	0	0	0	0
10:15 AM	0	1	0	0	1	10:15 AM	0	0	0	0	0	10:15 AM	3	0	0	0	3
10:30 AM	0	1	0	0	1	10:30 AM	0	0	0	0	0	10:30 AM	1	0	0	0	1
10:45 AM	0	0	0	0	0	10:45 AM	0	0	0	0	0	10:45 AM	1	0	0	0	1
11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	0	0
Count Total	0	2	0	1	3	Count Total	0	0	0	0	0	Count Total	5	0	0	0	5
Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	0	0	Peak Hour	2	0	0	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 DWY 2 & SW NORWOOD RD AM
Date: Sunday, March 10, 2024
Peak Hour: 10:30 AM - 11:30 AM
Peak 15-Minutes: 11:00 AM - 11:15 AM

Peak Hour

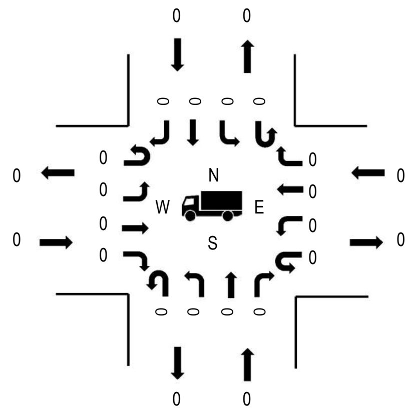
Motorized Vehicles



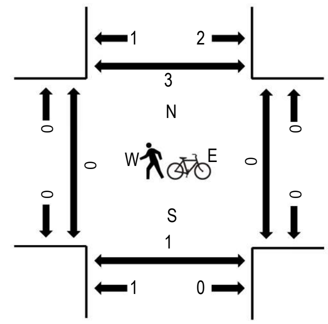
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.69
WB	0.0%	0.87
NB	0.0%	0.25
SB	0.0%	0.00
All	0.0%	0.81

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	SW NORWOOD RD Eastbound U-Turn	Left	Thru	Right	SW NORWOOD RD Westbound U-Turn	Left	Thru	Right	DWY 2 Northbound U-Turn	Left	Thru	Right	DWY 2 Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour
10:00 AM	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0	20	95
10:15 AM	0	0	9	0	0	0	13	0	0	0	0	0	0	0	0	0	22	110
10:30 AM	0	0	10	0	0	0	12	0	0	0	0	0	0	0	0	0	22	114
10:45 AM	0	0	16	0	1	0	14	0	0	0	0	0	0	0	0	0	31	
11:00 AM	0	0	22	0	0	0	12	0	0	1	0	0	0	0	0	0	35	
11:15 AM	0	0	13	0	0	0	13	0	0	0	0	0	0	0	0	0	26	
Count Total	0	0	81	0	1	0	73	0	0	1	0	0	0	0	0	0	156	
Peak Hour	0	0	61	0	1	0	51	0	0	1	0	0	0	0	0	0	114	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

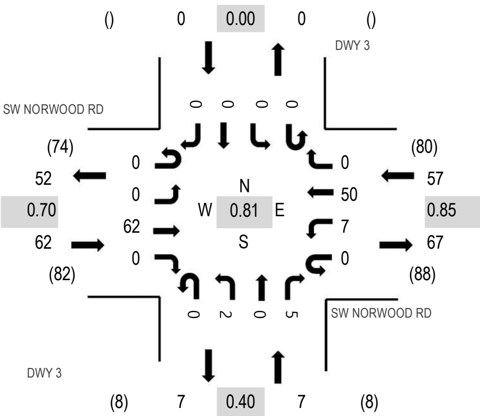
Interval Start Time	Heavy Vehicles EB	NB	WB	SB	Total	Interval Start Time	Bicycles on Roadway EB	NB	WB	SB	Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk EB	NB	WB	SB	Total
10:00 AM	0	0	0	0	0	10:00 AM	0	0	0	0	0	10:00 AM	0	0	0	2	2
10:15 AM	0	0	0	0	0	10:15 AM	0	0	0	0	0	10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0	10:30 AM	0	0	0	0	0	10:30 AM	0	1	0	0	1
10:45 AM	0	0	0	0	0	10:45 AM	0	0	0	0	0	10:45 AM	0	0	0	1	1
11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	2	2
Count Total	0	0	0	0	0	Count Total	0	0	0	0	0	Count Total	0	1	0	5	6
Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0	Peak Hour	0	1	0	3	4

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 DWY 3 & SW NORWOOD RD AM
Date: Sunday, March 10, 2024
Peak Hour: 10:30 AM - 11:30 AM
Peak 15-Minutes: 10:45 AM - 11:00 AM

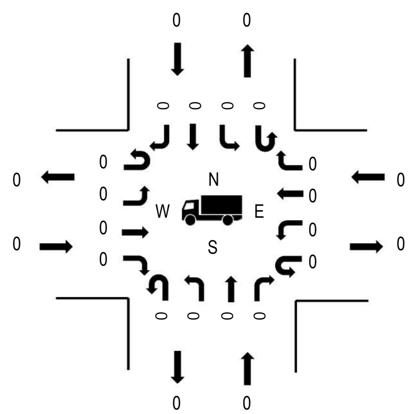
Peak Hour

Motorized Vehicles

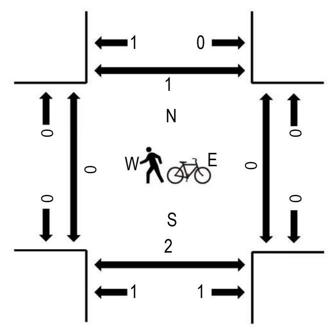


Note: Total study counts contained in parentheses.

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.70
WB	0.0%	0.85
NB	0.0%	0.40
SB	0.0%	0.00
All	0.0%	0.81

Traffic Counts - Motorized Vehicles

Interval Start Time	SW NORWOOD RD Eastbound				SW NORWOOD RD Westbound				DWY 3 Northbound				DWY 3 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
10:00 AM	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0	20	107
10:15 AM	0	0	9	0	0	1	13	0	0	0	0	1	0	0	0	0	24	124
10:30 AM	0	0	10	0	0	2	12	0	0	0	0	0	0	0	0	0	24	126
10:45 AM	0	0	17	0	0	3	14	0	0	1	0	4	0	0	0	0	39	
11:00 AM	0	0	22	0	0	2	11	0	0	1	0	1	0	0	0	0	37	
11:15 AM	0	0	13	0	0	0	13	0	0	0	0	0	0	0	0	0	26	
Count Total	0	0	82	0	0	8	72	0	0	2	0	6	0	0	0	0	170	
Peak Hour	0	0	62	0	0	7	50	0	0	2	0	5	0	0	0	0	126	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles EB	NB	WB	SB	Total	Interval Start Time	Bicycles on Roadway EB	NB	WB	SB	Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk EB	NB	WB	SB	Total
10:00 AM	0	0	0	0	0	10:00 AM	0	0	0	0	0	10:00 AM	0	0	0	0	0
10:15 AM	0	0	0	0	0	10:15 AM	0	0	0	0	0	10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0	10:30 AM	0	0	0	0	0	10:30 AM	0	2	0	0	2
10:45 AM	0	0	0	0	0	10:45 AM	0	0	0	0	0	10:45 AM	0	0	0	1	1
11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0	11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	0	0	11:15 AM	0	0	0	0	0
Count Total	0	0	0	0	0	Count Total	0	0	0	0	0	Count Total	0	2	0	1	3
Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	1	3

In-Process Trips: Sunday Estimates

ITE Code	Intensity		Sunday (10:30-11:30 AM)			Daily Trips
			In	Out	Total	
Autumn Sunrise						
210 - Single-Family Detached Housing	320	Dwelling Units	111	138	249	2714
215 - Single-Family Attached Housing	80	Dwelling Units	23	29	52	574
Total	400		134	167	301	3288
Plambeck Gardens						
223 - Affordable Housing	116	Dwelling Units	31	49	80	1096

CITY OF TUALATIN, WASHINGTON COUNTY

BOONES FERRY RD and Intersectional Crashes at BOONES FERRY RD, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

95 - 99 of 200 Crash records shown.

	S D M																					
SER#	P R J S W	DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE											
INVEST	E A U I C O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S						
RD DPT	E L G N H R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED				
UNLOC?	D C S V L K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
~~04164~~	~~N N N N~~	~~11/13/2020~~	~~16~~	~~SW BOONES FERRY RD~~	~~INTER~~	~~3-LEG~~	~~N~~	~~N~~	~~RAIN~~	~~ANGL-OTH~~	~~01 NONE 9~~	~~STRGHT~~										~~02,03~~
~~NONE~~		~~FR~~	~~0~~	~~SW NORWOOD RD~~	~~CN~~		~~STOP SIGN~~	~~N~~	~~WET~~	~~TURN~~	~~N/A~~	~~S -N~~								~~000~~		~~00~~
~~N~~		~~6A~~			~~02~~	~~0~~		~~N~~	~~DARK~~	~~PDO~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
~~N~~		~~45 21 13.25~~	~~-122 46~~														~~UNK~~					
			~~29.07~~																			
											~~02 NONE 9~~	~~TURN-L~~										
											~~N/A~~	~~E -S~~								~~000~~		~~00~~
											~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
																	UNK					
04196	N N N N N N	10/06/2021	16	SW BOONES FERRY RD	ALLEY		N	N	CLD	ANGL-OTH	01 NONE 9	TURN-L										02
STATE		WE	565	SW NORWOOD RD	S	(NONE)	UNKNOWN	N	WET	TURN	N/A	E -S								018		00
N		4P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 21 3.95	-122 46			(02)											UNK					
			29.05																			
											02 NONE 9	STRGHT										
											N/A	S -N								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
~~05839~~	~~N N N N~~	~~10/29/2018~~	~~16~~	~~SW BOONES FERRY RD~~	~~STRGHT~~		~~N~~	~~N~~	~~CLD~~	~~S-1STOP~~	~~01 NONE 9~~	~~STRGHT~~										~~29~~
~~NONE~~		~~MO~~	~~115~~	~~SW NORWOOD RD~~	~~N~~	~~(NONE)~~	~~UNKNOWN~~	~~N~~	~~WET~~	~~REAR~~	~~N/A~~	~~N -S~~								~~000~~		~~00~~
~~N~~		~~3P~~			~~08~~			~~N~~	~~DAY~~	~~PDO~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
~~N~~		~~45 21 14.61~~	~~-122 46~~			~~(02)~~											~~UNK~~					
			~~29.08~~																			
											~~02 NONE 9~~	~~STOP~~										
											~~N/A~~	~~N -S~~								~~011~~		~~00~~
											~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
																	~~UNK~~					
~~02675~~	~~N N N N~~	~~07/09/2021~~	~~16~~	~~SW BOONES FERRY RD~~	~~STRGHT~~		~~Y~~	~~N~~	~~CLR~~	~~S-1STOP~~	~~01 NONE 9~~	~~STRGHT~~										~~29~~
~~NONE~~		~~FR~~	~~25~~	~~SW NORWOOD RD~~	~~S~~	~~(NONE)~~	~~UNKNOWN~~	~~N~~	~~DRY~~	~~REAR~~	~~N/A~~	~~S -N~~								~~000~~		~~00~~
~~N~~		~~4P~~			~~06~~			~~N~~	~~DAY~~	~~PDO~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
~~N~~		~~45 21 12.77~~	~~-122 46~~			~~(02)~~											~~UNK~~					
			~~29.06~~																			
											~~02 NONE 9~~	~~STOP~~										
											~~N/A~~	~~S -N~~								~~011~~		~~00~~
											~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~		~~00~~
																	~~UNK~~					
~~00560~~	~~N Y N N~~	~~01/27/2020~~	~~16~~	~~SW BOONES FERRY RD~~	~~STRGHT~~		~~N~~	~~Y~~	~~CLR~~	~~FIX-OBJ~~	~~01 NONE 0~~	~~STRGHT~~									~~053,121~~	~~10~~
~~NO RPT~~		~~MO~~	~~410~~	~~SW NORWOOD RD~~	~~S~~	~~(NONE)~~	~~UNKNOWN~~	~~N~~	~~WET~~	~~FIX~~	~~PRVTE~~	~~S -N~~								~~000~~	~~053,121~~	~~00~~
~~Y~~		~~2A~~			~~00~~			~~N~~	~~DLIT~~	~~INJ~~	~~PSNGR CAR~~		~~01 DRVR~~	~~INJC~~	48	M	~~OR-Y~~		~~081~~	~~000~~		~~10~~
N		45 21 9.07	-122 46			(02)											OR<25					
			29.02																			

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

NORWOOD RD and Intersectional Crashes at NORWOOD RD, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

1 - 3 of 3 Crash records shown.

SER# INVEST RD DPT UNLOC?	S D M P R J S W E A U I C O E L G N H R D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	SPCL USE TRLR QTY OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04147	Y Y N N N N	11/11/2020	16	SW BOONES FERRY RD	INTER	3-LEG	N	N	CLR	ANGL-STP	01	NONE 9	TURN-R											30,08
CITY		WE	0	SW NORWOOD RD	E		UNKNOWN	N	DRY	TURN		N/A	S -E									000		00
N		1P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 21 13.25	-122 46 29.07																UNK					
											02	NONE 9	STOP											
												N/A	E -W									011		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																			UNK					
04164	N N N N	11/13/2020	16	SW BOONES FERRY RD	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT											02,03
NONE		FR	0	SW NORWOOD RD	CN		STOP SIGN	N	WET	TURN		N/A	S -N									000		00
N		6A			02	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 21 13.25	-122 46 29.07																UNK					
											02	NONE 9	TURN-L											
												N/A	E -S									000		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																			UNK					
03705	N N N N	10/11/2020	17	SW NORWOOD RD	STRGHT		N	Y	RAIN	FIX OBJ	01	NONE 0	STRGHT										079,002	27
CITY		SU	50	SW 89TH AVE	W	(NONE)	UNKNOWN	N	WET	FIX		PRVTE	E -W									000	079	00
Y		11A			05			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	55	F	OR-Y		016,081	038		27
N		45 21 13.31	-122 46 10.63			(02)													OR<25					
											01	NONE 0	STRGHT											
												PRVTE	E -W									000	079	00
												PSNGR CAR		02	PSNG	INJA	59	M			000	000	002	00

~~Disclaimer:~~ The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

Left-Turn Lane Warrant Analysis

Project:	Horizon Church Sanctuary	
Intersection:	SW Norwood Road & West Access	No left turns NA
Date:	5/1/2024	
Scenario:	2026 Buildout Conditions Sunday Peak Hour	

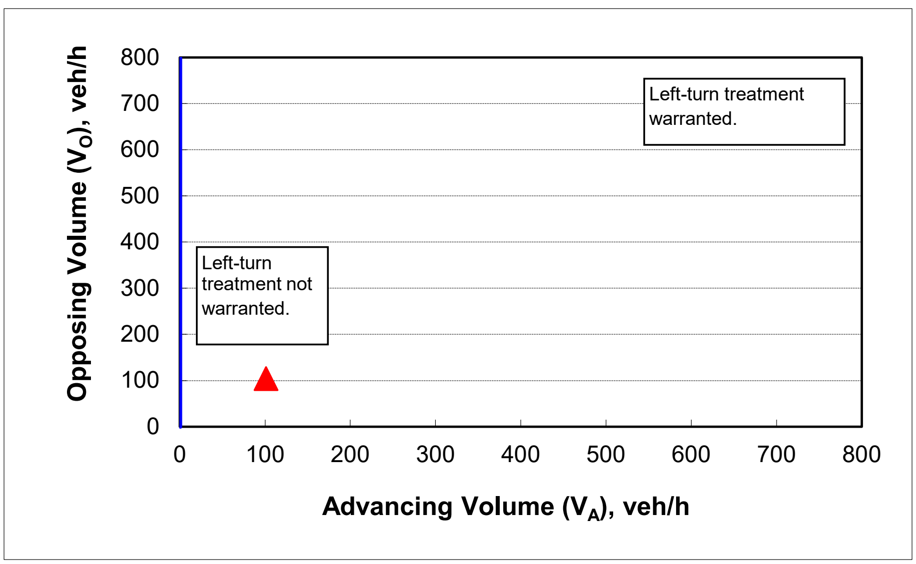
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	0%
Left turns in advancing volume (V_A), veh/h:	0
Advancing volume (V_A), veh/h:	101
Opposing volume (V_O), veh/h:	104

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	#DIV/0!
Guidance for determining the need for a major-road left-turn bay:	
#DIV/0!	



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

Left-Turn Lane Warrant Analysis

Project: Horizon Church Sanctuary
Intersection: SW Norwood Road & East Access
Date: 5/1/2024
Scenario: 2026 Buildout Conditions Sunday Peak Hour

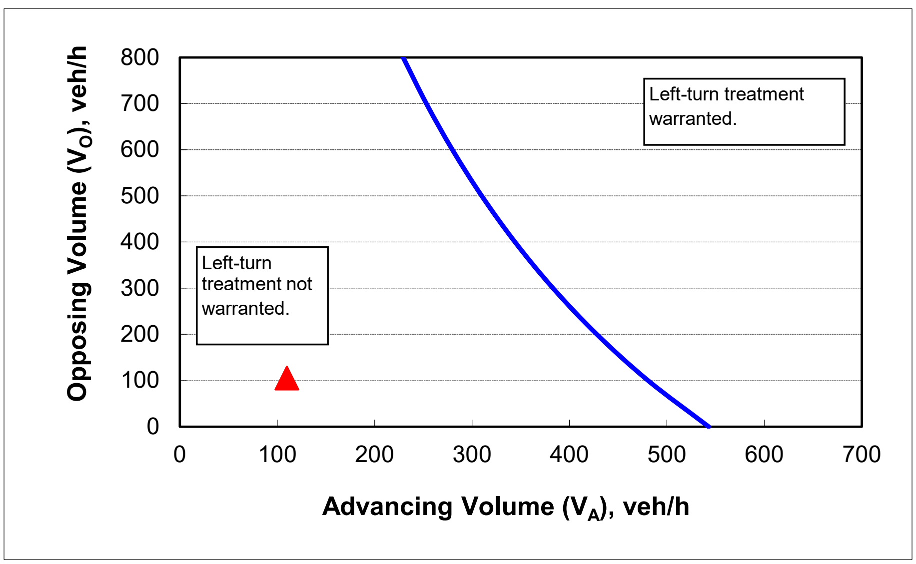
2-lane roadway (English)

INPUT

Variable	Value
85^{th} percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	10%
Left turns in advancing volume (V_A), veh/h:	11
Advancing volume (V_A), veh/h:	110
Opposing volume (V_O), veh/h:	105

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	478
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

Traffic Signal Warrant Analysis

Project:	Horizon Church Sanctuary
Date:	5/1/2024
Scenario:	2026 Buildout Conditions Sunday Peak Hour

Major Street:	SW Boones Ferry Road	Minor Street:	Main Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	637	PM Peak Hour Volumes:	95

Warrant Used:

______ 100 percent of standard warrants used

__X__ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	6,370	6,200	
Minor Street*	950	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	6,370	9,300	
Minor Street*	950	950	**No**
Combination Warrant			
Major Street	6,370	7,440	
Minor Street*	950	1,480	**No**

Note: Minor street right-turning traffic volumes reduced by 25%.

Traffic Signal Warrant Analysis

Project: Horizon Church Sanctuary
Date: 5/1/2024
Scenario: 2026 Buildout Conditions Sunday Peak Hour

Major Street:	SW Norwood Road	Minor Street:	West Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	205	PM Peak Hour Volumes:	2

Warrant Used:

______ 100 percent of standard warrants used
__X__ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,050	6,200	
Minor Street*	20	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,050	9,300	
Minor Street*	20	950	**No**
Combination Warrant			
Major Street	2,050	7,440	
Minor Street*	20	1,480	**No**

Note: Minor street right-turning traffic volumes reduced by 25%.

Traffic Signal Warrant Analysis

Project: Horizon Church Sanctuary
Date: 5/1/2024
Scenario: 2026 Buildout Conditions Sunday Peak Hour

Major Street:	SW Norwood Road	Minor Street:	East Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	215	PM Peak Hour Volumes:	10

Warrant Used:

_______ 100 percent of standard warrants used
___X___ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,150	6,200	
Minor Street*	100	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,150	9,300	
Minor Street*	100	950	**No**
Combination Warrant			
Major Street	2,150	7,440	
Minor Street*	100	1,480	**No**

Note: Minor street right-turning traffic volumes reduced by 25%.

Level of Service Definitions

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

- *Level of service A:* Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.
- *Level of service B:* Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.
- *Level of service C:* Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.
- *Level of service D:* Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.
- *Level of service E:* Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.
- *Level of service F:* Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

Level of Service Criteria
For Signalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

Level of Service Criteria
For Unsignalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	32	0	29	0	192	28	24	225	1
Future Vol, veh/h	0	0	1	32	0	29	0	192	28	24	225	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	125	350	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	0	0	1	41	0	37	0	246	36	31	288	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	597	633	289	596	597	246	290	0	0	282	0	0
Stage 1	351	351	-	246	246	-	-	-	-	-	-	-
Stage 2	246	282	-	350	351	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	418	400	755	418	419	798	1284	-	-	1292	-	-
Stage 1	670	636	-	762	706	-	-	-	-	-	-	-
Stage 2	762	681	-	671	636	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	389	390	755	408	409	798	1284	-	-	1292	-	-
Mov Cap-2 Maneuver	389	390	-	408	409	-	-	-	-	-	-	-
Stage 1	654	621	-	762	706	-	-	-	-	-	-	-
Stage 2	727	681	-	654	620	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	9.78			12.95			0			0.75		
HCM LOS	A			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	755	531	1292	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.147	0.024	-	-
HCM Control Delay (s/veh)	0	-	-	9.8	12.9	7.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	0	0	51	1	0
Future Vol, veh/h	61	0	0	51	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	75	0	0	63	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	138	75
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	63	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1537	-	860	992
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	860	992
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	965	-

Approach	EB		WB		NB
HCM Control Delay, s/v	0		0		9.19
HCM LOS					A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	860	-	-	1537	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s/veh)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	0	7	50	2	5
Future Vol, veh/h	62	0	7	50	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	77	0	9	62	2	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	156	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1535	-	841	990
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1535	-	836	990
Mov Cap-2 Maneuver	-	-	-	-	836	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.9	8.86
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	940	-	-	221	-
HCM Lane V/C Ratio	0.009	-	-	0.006	-
HCM Control Delay (s/veh)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	32	0	29	0	267	28	24	286	1
Future Vol, veh/h	0	0	1	32	0	29	0	267	28	24	286	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	125	350	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	0	0	1	41	0	37	0	342	36	31	367	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	771	807	367	771	772	342	368	0	0	378	0	0
Stage 1	429	429	-	342	342	-	-	-	-	-	-	-
Stage 2	342	378	-	428	429	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	319	317	683	320	333	705	1202	-	-	1191	-	-
Stage 1	608	588	-	677	641	-	-	-	-	-	-	-
Stage 2	677	619	-	609	587	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	295	309	683	311	324	705	1202	-	-	1191	-	-
Mov Cap-2 Maneuver	295	309	-	311	324	-	-	-	-	-	-	-
Stage 1	592	572	-	677	641	-	-	-	-	-	-	-
Stage 2	641	619	-	592	572	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.28	15.42	0	0.63
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	683	423	1191	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.185	0.026	-	-
HCM Control Delay (s/veh)	0	-	-	10.3	15.4	8.1	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	104	0	0	100	1	0
Future Vol, veh/h	104	0	0	100	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	128	0	0	123	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	128	0	252	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	123	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1470	-	741	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1470	-	741	927
Mov Cap-2 Maneuver	-	-	-	-	741	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	907	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	9.87
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	741	-	-	1470	-
HCM Lane V/C Ratio	0.002	-	-	-	-
HCM Control Delay (s/veh)	9.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	105	0	7	99	2	5
Future Vol, veh/h	105	0	7	99	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	130	0	9	122	2	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	269	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1468	-	724	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1468	-	720	926
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.49	9.25
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	856	-	-	119	-
HCM Lane V/C Ratio	0.01	-	-	0.006	-
HCM Control Delay (s/veh)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	49	0	45	0	267	45	38	286	1
Future Vol, veh/h	0	0	1	49	0	45	0	267	45	38	286	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	125	350	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	0	0	1	63	0	58	0	342	58	49	367	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	807	865	367	806	808	342	368	0	0	400	0	0
Stage 1	465	465	-	342	342	-	-	-	-	-	-	-
Stage 2	342	400	-	464	465	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	302	294	683	302	317	705	1202	-	-	1170	-	-
Stage 1	582	566	-	677	641	-	-	-	-	-	-	-
Stage 2	677	605	-	582	566	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	266	282	683	289	304	705	1202	-	-	1170	-	-
Mov Cap-2 Maneuver	266	282	-	289	304	-	-	-	-	-	-	-
Stage 1	557	543	-	677	641	-	-	-	-	-	-	-
Stage 2	622	605	-	557	543	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.28	17.69	0	0.96
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	683	403	1170	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.299	0.042	-	-
HCM Control Delay (s/veh)	0	-	-	10.3	17.7	8.2	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	104	0	0	101	2	0
Future Vol, veh/h	104	0	0	101	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	128	0	0	125	2	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	128	0	253	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1470	-	740	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1470	-	740	927
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	9.88
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	-	-	1470	-
HCM Lane V/C Ratio	0.003	-	-	-	-
HCM Control Delay (s/veh)	9.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.8					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	105	0	11	99	3	7
Future Vol, veh/h	105	0	11	99	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	130	0	14	122	4	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	279	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1468	-	715	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1468	-	708	926
Mov Cap-2 Maneuver	-	-	-	-	708	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.75	9.31
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	847	-	-	180	-
HCM Lane V/C Ratio	0.015	-	-	0.009	-
HCM Control Delay (s/veh)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection: 1: SW Boones Ferry Road & Residential Driveway/Main Access

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	L
Maximum Queue (ft)	18	56	4	31
Average Queue (ft)	1	24	0	6
95th Queue (ft)	9	43	3	26
Link Distance (ft)	568	648		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			125	350
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: West Access & SW Norwood Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	23
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	380
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: East Access & SW Norwood Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	18	31
Average Queue (ft)	1	7
95th Queue (ft)	10	27
Link Distance (ft)	548	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: SW Boones Ferry Road & Residential Driveway/Main Access

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	16	78	40
Average Queue (ft)	1	28	9
95th Queue (ft)	8	56	33
Link Distance (ft)	568	648	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			350
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: West Access & SW Norwood Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	380
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: East Access & SW Norwood Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	24	35
Average Queue (ft)	1	8
95th Queue (ft)	12	31
Link Distance (ft)	548	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0