



CITY COUNCIL MEETING

Monday, August 03, 2026 at 6:00 PM
Sandy City Hall and via Zoom

AGENDA

TO ATTEND THE MEETING IN-PERSON:

Come to Sandy City Hall (lower parking lot entrance) - 39250 Pioneer Blvd., Sandy, OR 97055

TO ATTEND THE MEETING ONLINE VIA ZOOM:

Please use this link: <https://us02web.zoom.us/j/83084213799>

Or by phone: (253) 215-8782; Meeting ID: 83084213799

WORK SESSION – 6:00 PM

1. [Intersection Study for Highway 211 and Dubarko Road](#)
2. [Intersection Study for 362nd Drive and Dubarko Road](#)

REGULAR MEETING – 7:00 PM

PLEDGE OF ALLEGIANCE

ROLL CALL

CHANGES TO THE AGENDA

PUBLIC COMMENT (3-minute limit)

Note: Public hearing testimony will take place later on the agenda. The Council welcomes your comments on other matters at this time. The Mayor will call on each person when it is their turn to speak for up to three minutes.

-- If you are attending the meeting in-person, please submit your comment signup form to the City Recorder before the regular meeting begins at 7:00 p.m. Forms are available on the table next to the Council Chambers door.

-- If you are attending the meeting via Zoom, please complete the online comment signup webform by 4:00 p.m. on the day of the meeting: <https://www.ci.sandy.or.us/citycouncil/webform/council-meeting-public-comment-signup-form-online-attendees>.

RESPONSE TO PREVIOUS COMMENTS

CONSENT AGENDA

3. [City Council Minutes: July 20, 2026](#)

NEW BUSINESS

4. [PUBLIC HEARING: Ordinance 2026-17 - Senate Bill 1561 Nonconforming Development](#)
5. [PUBLIC HEARING: Ordinance 2026-10 - Chapter 17.74 Temporary Uses / Structures](#)

REPORT FROM THE CITY MANAGER

COMMITTEE / COUNCIL REPORTS

STAFF UPDATES

Monthly Reports: <https://reports.cityofsandy.com/>

ADJOURN

EXECUTIVE SESSION: The City Council will meet in executive session pursuant to ORS 192.660(2)(f)

Americans with Disabilities Act Notice: Please contact Sandy City Hall, 39250 Pioneer Blvd. Sandy, OR 97055 (Phone: 503-668-5533) or (Email: recorder@ci.sandy.or.us) at least 48 hours prior to the scheduled meeting time if you need an accommodation to observe and/or participate in this meeting.



STAFF REPORT

Item # 1.

Meeting Type: City Council
Meeting Date: August 3, 2026
From: Kelly O'Neill Jr., Development Services Director
Reah Flisakowski, Portland Planning Business Development Manager for DKS
Kevin Chewuk, Senior Transportation Planner for DKS
Subject: Intersection Study for Highway 211 and Dubarko Road

DECISION TO BE MADE:

Hold a work session to discuss the intersection study for Highway 211 and Dubarko Road that was performed by DKS Associates and Harper Houf Peterson Righellis Inc. (HHPR).

APPLICABLE COUNCIL GOAL:

- **Goal 7.12:** Complete initial study of intersection at Highway 211 and Dubarko Road to determine required budget for safety improvements.

BACKGROUND / CONTEXT:

The Highway 211 and Dubarko Road Intersection Improvement Evaluation memorandum evaluates existing and future conditions and summarizes improvement options that were analyzed at the intersection and recommends a preferred treatment.

Definition note: Level of service (LOS): A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hours travel demand. LOS D and E are progressively worse operation conditions. LOS F represents conditions where average vehicle delay has become excessive, and demand has exceeded capacity.

- **The operations at the intersection are already underperforming:** 2026 operations show that the intersection is exceeding the City's LOS D mobility target in the p.m. peak hour, with the Dubarko Road approach operating at LOS E.
- **The frequency of collisions at the intersection is higher than similar intersections with the volume of traffic served:** the crash history is above the critical crash-rate threshold, with 26 crashes over five years, including 18 injury crashes. The observed crash rate of 1.40 crashes per million entering vehicles exceeds the critical crash rate at similar intersections of 0.41.
- **Conditions are forecast to worsen by 2030 and 2040 without improvements:** operations are expected to reach LOS F and significant delay is expected under the no-build scenarios

assuming the existing two-way stop control at the intersection, both with and without the planned east extension of Dubarko Road to US 26.

KEY CONSIDERATIONS / ANALYSIS:

Multiple alternatives were evaluated at the intersection using the forecasted 2040 traffic volumes, including two way stop control, a roundabout, and a traffic signal. The alternatives were compared for operations, pedestrian/bicycle access, property impacts, cost, and safety.

- Two-way stop control has an operations fatal flaw, despite assuming different lane configurations, as no configuration allowed for the current mobility target to be met through 2040 without changes to the existing traffic control at the intersection.
- A roundabout performs well operationally and provides safety benefits, but has a higher estimated construction cost, greater property/right-of-way impacts, and more design complexity due to speed and grade conditions.
- A traffic signal ranks highest overall, and is expected to meet signal warrants by 2030, addresses operations, safety and pedestrian crossing needs, and with an estimated total cost significantly less than a roundabout.
- The downhill slopes approaching the intersection could make it prone to slippery driving conditions during the winter season, especially as drivers attempt to stop. Some options, such as an Icy Road Warning System, “Rest in Red” technology for traffic signals and Heated Pavement have been implemented to help detect, warn drivers, or control snow and ice in other areas. These could be implemented at the intersection to help alleviate some of the challenges for drivers during the winter season.

BUDGET IMPACT:

The traffic signal alternative has an estimated total cost of about \$4.6 million and a benefit-cost ratio of 2.04, compared to \$8.5 million and a benefit-cost ratio of 1.55 for the roundabout.

- This suggests that the traffic signal improvement alternative is a more cost-effective solution when compared to the roundabout, although both have a B/C ratio well above 1.0, which suggests that they provide more economic safety benefits when compared to the cost of construction.
- The improvements would likely need to be funded with a combination of funding sources, including Transportation SDCs, proportional share fees from developments that impact the intersection, and fuel taxes.

RECOMMENDATION:

The recommended improvement is a traffic signal with an exclusive left-turn lane and shared through/right-turn lanes on each approach. Recommended left-turn storage is 100 feet for the northbound, southbound, and eastbound approaches, and 125 feet for the westbound approach.

No interim improvements are recommended because the intersection is already substandard and expected to worsen by 2030. The results show that the traffic signal at the intersection is needed by 2030, and that improvements should occur with the left turn lanes to allow the intersection to meet the mobility target during the 2040 peak hours.

A preliminary roadway design concept was prepared by HHPR for the intersection to show the recommended traffic signal and left-turn lane improvements. The preliminary concept estimates that about 25,000 square feet of new pavement will be needed, with some widening required along Dubarko Road to provide the new left-turn lanes on the eastbound and westbound approaches and along the west side of Highway 211 to provide the new left-turn lanes on the northbound and southbound approaches. A retaining wall of approximately 6,500 square feet will also be required to accommodate the roadway widening along the west side of Highway 211, south of Dubarko Road.

LIST OF ATTACHMENTS / EXHIBITS:

- Exhibit A. Intersection Study for Highway 211 and Dubarko Road

TECHNICAL MEMORANDUM

DATE: July 23rd, 2026

TO: Kelly O'Neill Jr. | City of Sandy

FROM: Kevin Chewuk and Reah Flisakowski | DKS Associates

SUBJECT: City of Sandy – Highway 211 and Dubarko Road
Intersection Improvement Evaluation

22071-000-020

This memorandum summarizes an intersection improvement evaluation at the Highway 211 and Dubarko Road intersection in Sandy, Oregon. This study identifies the most appropriate transportation improvements, with the following sections providing a summary of the expected intersection performance and recommendations.

EXISTING 2026 TRANSPORTATION CONDITIONS

This section provides documentation of existing transportation conditions at the Highway 211 and Dubarko Road intersection (see Figure 1), including an inventory of the existing transportation network and a safety evaluation and operational analysis. For the purposes of the transportation analysis, the year 2026 was used as the baseline for existing conditions. Supporting details are provided in the appendix.

TRANSPORTATION FACILITIES

Highway 211 provides a key north to south roadway connection between US 26 in downtown Sandy and Highway 224 in Eagle Creek, while Dubarko Road provides a key east to west roadway connection on the south side of Sandy, connecting 362nd Drive with Langensand Road. These segments are Minor Arterials under City of Sandy jurisdiction (see Table 1) and currently maintain a two to three-lane cross-section (i.e., one through lane in each direction, with right-turn lanes on southbound Highway 211 at the Dubarko Road intersection and on eastbound and westbound Dubarko Road at the Highway 211 intersection).

Highway 211 has a posted speed of 45 miles per hour at the Dubarko Road intersection, with an existing annual average daily traffic (AADT) volume of 8,000, of which four percent are trucks. Dubarko Road has an AADT volume of 2,150 at the Highway 211 intersection, of which four percent are trucks.

TABLE 1: EXISTING ROADWAY CHARACTERISTICS

ROADWAY (SEGMENT LOCATION)	CLASSIFICATION *	AADT/ TRUCK %	LANES	POSTED SPEED	PEDESTRIAN FACILITY	BIKE FACILITY
HIGHWAY 211 (AT DUBARKO ROAD INTERSECTION)	Minor Arterial	8,000 / 4%	2	45 mph	Sidewalk on west side / None **	None ****
DUBARKO ROAD (AT HIGHWAY 211 INTERSECTION)	Minor Arterial	2,150 / 4%	2	25 mph	Sidewalk on one side / both sides ***	Bike lanes

* Source: City of Sandy Transportation System Plan, May 2023.

** A sidewalk is available on the west side of Highway 211 north of Dubarko Road; no facilities are available south of Dubarko Road.

*** A sidewalk is available on both sides of Dubarko Road east of Highway 211, and on the north side only west of Highway 211.

**** A southbound bike lane is available on Highway 211 at the Dubarko Road intersection; no bike facilities are available elsewhere along Highway 211 at the Dubarko Road intersection.

FIGURE 1: STUDY INTERSECTION

SAFETY ANALYSIS

The most recent five years of available collision data at the Highway 211 and Dubarko Road intersection was obtained from ODOT and used to evaluate the collision history¹. There were 26 crashes recorded at the intersection over the five-year period (see Table 2), with 18 of the crashes resulting in an injury, two of which were serious injuries. There were no crashes involving people walking or biking at the intersection.

The collision types that occurred were angle, turning, rear and fixed object, and commonly show “no yield”, “disregarded traffic control” or “driver inattention” as the cited cause.

TABLE 2: SUMMARY OF COLLISIONS

INTERSECTION	TOTAL COLLISIONS	COLLISION TYPE				COLLISION SEVERITY		
		ANGLE	TURNING	REAR	OTHER	FATAL	INJURY	PDO*
HIGHWAY 211 / DUBARKO ROAD	26	18	4	3	1	0	18	8

Source: ODOT Crash Analysis and Reporting Unit. Reported collision data from 2019 to 2023.

* PDO = Property Damage Only

Crash rates provide an additional perspective on intersection safety and identify locations where people have a higher risk of being involved in a crash. Crash frequencies (the number of crashes in a period of time) tend to increase with higher vehicle traffic. With more exposure to vehicles, there are more opportunities for crashes to occur. Crash rates consider the number of crashes relative to the traffic volume at the intersection and are expressed in units of crashes per million entering vehicles.

The crash rate (crashes per million entering vehicles) for the Highway 211 and Dubarko Road intersection was calculated and evaluated using the critical crash rate method from the Highway Safety Manual. The critical crash rate method compares an intersection’s crash history to that of other similar intersections, adjusting for volume at the intersection. Where an intersection’s crash rate is greater than the critical crash rate, it is an indication that a problem might exist, and that further study is warranted.

As shown in Table 3, the crash rate calculated is above this threshold, indicating the frequency of collisions is higher than similar intersections with the volume of traffic served. A summary of alternatives considered to mitigate the impact at this intersection is provided later in this document.

¹ ODOT reported collisions for January 1, 2019, through December 31, 2023.

TABLE 3: HIGHWAY 211 AND DUBARKO ROAD COLLISION ANALYSIS

INTERSECTION	TOTAL COLLISIONS	OBSERVED CRASH RATE (PER MEV)	CRITICAL CRASH RATE (PER MEV)	OVER CRITICAL CRASH RATE
HIGHWAY 211 / DUBARKO ROAD	26	1.40	0.41	Yes

EXISTING YEAR CAPACITY ANALYSIS

This section will summarize the existing year intersection operations at the Highway 211 and Dubarko Road intersection using Highway Capacity Manual (HCM) 6th edition methodology.

EXISTING MOTOR VEHICLE VOLUMES

Traffic operations were analyzed using the estimated 30th highest annual hour traffic volume (30 HV) consistent with methodology outlined in the Oregon Department of Transportation *Analysis Procedure Manual (APM)*. Based on analysis of Automatic Traffic Recorder (ATR) data the seasonal peak occurs on a weekday afternoon in July². A traffic count was collected in December during the weekday over a 16-hour period (6:00 a.m. to 10:00 p.m.) and the individual peak hours³ were utilized and adjusted to reflect this seasonal peak⁴. The raw traffic counts are included in the Appendix.

INTERSECTION PERFORMANCE MEASURES

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations. Agencies often incorporate these performance measures into their mobility standards. Descriptions are given below:

- **Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hours travel demand. LOS D and E are progressively worse operation conditions. LOS F represents conditions where average vehicle delay has become excessive, and demand has exceeded capacity.
- **Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00 (generally above 0.70), congestion noticeably increases, and

² Based on ATR data along US 26 in Gresham (26-003).

³ The weekday a.m. peak hour started at 7:05 a.m. and p.m. peak hour started at 3:40 p.m. at the Highway 211 and Dubarko Road intersection.

⁴ The most recent five years of July and December data from ATR 26-003 (2019, 2021-2024) was utilized to develop a calculated seasonal factor of 1.08 for the weekday period.

performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Jurisdictional Mobility Targets

The City of Sandy operating standards require that a level of service “D” or better be maintained for any signalized intersection and unsignalized intersections with stop control on the minor approach, and a volume-to-capacity ratio of less than or equal to 0.90 on each intersection approach at roundabouts.

Existing Intersection Operations

Motor vehicle conditions were evaluated during the weekday a.m. and p.m. peak hours using the *Highway Capacity Manual, 6th Edition* (HCM)⁵ methodologies. Synchro reports can be found in the appendix.

As shown in Table 4, the Highway 211 and Dubarko Road intersection operates with a LOS “E” for the Dubarko Road approach in the p.m. peak hour, which does not meet the current mobility target. A summary of alternatives considered to mitigate the impact at this intersection is provided later in this document.

TABLE 4: 2026 INTERSECTION OPERATIONS AT HIGHWAY 211 AND DUBARKO ROAD

INTERSECTION	TRAFFIC CONTROL	MOBILITY TARGET	WEEKDAY A.M. PEAK HOUR (30 HV)			WEEKDAY P.M. PEAK HOUR (30 HV)		
			LOS	DELAY	V/C	LOS	DELAY	V/C
HIGHWAY 211/ DUBARKO ROAD	Two-Way Stop Control	LOS D	C	18	0.27	E	36	0.42

Note: Intersection operations are reported for the worst minor street movement.

FUTURE TRANSPORTATION CONDITIONS

This section summarizes future year conditions and identifies how the Highway 211 and Dubarko Road intersection will function in the future. Included is a summary of future travel estimates, intersection operational performance, and recommended intersection configurations.

⁵ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016.

PLANNING HORIZON AND SCENARIOS

The planning horizon selected for analysis is the year 2040, which represents the horizon year for the Sandy Transportation System Plan (TSP). Additionally, the horizon year of 2030 was also analyzed, which represents the short-term horizon forecast.

Future 2030 and 2040 traffic forecasts were prepared for three alternatives, all of which include no changes to the existing intersection, but one that also includes the planned eastward extension of Dubarko Road from Meadow Avenue to US 26 (Sandy TSP Project D20). An evaluation of different lane configurations for the Highway 211 approaches to Dubarko Road and for the Dubarko Road approaches to Highway 211 is provided later in this document. The three scenarios shown below include the following assumptions:

- **2030 No-Build (without the Dubarko Road extension)** – Existing traffic volumes plus background traffic growth through 2030, with the existing lane configurations.
- **2040 No-Build (without the Dubarko Road extension)** – Existing traffic volumes plus background traffic growth through 2040, with the existing lane configurations.
- **2040 Build (with the Dubarko Road extension)** – Existing traffic volumes plus background traffic growth through 2040, with the rerouted traffic associated with the east extension of Dubarko Road to US 26 and the existing lane configurations.

FUTURE MOTOR VEHICLE VOLUMES

The motor vehicle volumes for 2030 and 2040 consist of the existing traffic volumes and background traffic growth. Background traffic volume growth for the a.m. and p.m. peak hours through 2040 was estimated by applying an average growth factor based on the 2020 and 2040 traffic volumes at the Highway 211 and Dubarko Road intersection from the Sandy TSP. The growth was incrementally applied to the 2026 count data collected at Highway 211 and Dubarko Road to the future forecast years of 2030 and 2040 both without and with the east extension of Dubarko Road to US 26.

FORECASTED 2030 AND 2040 INTERSECTION OPERATIONS

Table 5 shows the forecasted 2030 and 2040 intersection operations at the Highway 211 and Dubarko Road intersection, both without and with the east extension of Dubarko Road to US 26. As shown, the intersection is expected to continue to exceed the mobility target during the p.m. peak hour as it did under 2026 existing conditions. In fact, the average delay for the Dubarko Road approach is forecasted to increase by 22 seconds in the p.m. peak hour by 2030 and operate with a LOS "F". This substandard condition gets progressively worse through 2040 as the intersection is forecasted to see a significant increase in delay in both the a.m. and p.m. peak hours and operate with a LOS "F", both without and with the east extension of Dubarko Road to US 26.

A summary of alternatives considered to mitigate the impact at this intersection is provided later in this document. Detailed intersection operations calculation worksheets are included in the Appendix.

TABLE 5: 2030 AND 2040 INTERSECTION OPERATIONS AT HIGHWAY 211 AND DUBARKO ROAD

HIGHWAY 211 / DUBARKO ROAD	TRAFFIC CONTROL	MOBILITY TARGET	A.M. PEAK HOUR			P.M. PEAK HOUR		
			LOS	DELAY	V/C	LOS	DELAY	V/C
2030 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION)	Two-Way Stop Control	LOS D	C	22	0.36	F	58	0.60
2040 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION)	Two-Way Stop Control	LOS D	F	71	0.84	F	594	1.98
2040 BUILD (WITH THE DUBARKO ROAD EXTENSION)	Two-Way Stop Control	LOS D	F	119	1.07	F	311	1.46

Note: Intersection operations are reported for the worst minor street movement. The analysis assumes the existing lane configurations at the intersection, which includes a shared left turn/through lane and a right-turn lane on the southbound, eastbound and westbound approaches, and a shared left turn/through/right turn lane on the northbound approach.

ALTERNATIVE EVALUATION

Preliminary improvement options were evaluated at the Highway 211 and Dubarko Road intersection. The design alternatives were focused at the intersection as well as what would be required along the approaching segment, and were based in accordance with the Sandy TSP. The alternatives were evaluated based on the following screening measures, with a score of 2 given to an alternative that meets or fully addresses the criterion, 1 given to an alternative that somewhat addresses the criterion, and 0 given to an alternative that does not meet or negatively impacts the criterion:

- Operations – meet the mobility standard for the intersection.
- Pedestrian/Bicycle – enhance connectivity and access for pedestrians and bicyclists.
- Right-of-Way – limit right-of-way and other environmental, topographic and property impacts.
- Expected Cost – limit the overall project costs.
- Safety – improve safety for all users.

INTERSECTION CONFIGURATION AND CONTROL EVALUATION

The recommended configuration and control for the Highway 211 and Dubarko Road intersection was developed based on the identified needs at the intersection. Intersection geometries and control type supported by warrant analysis are covered in this section.

TURN LANE EVALUATION

A turn lane evaluation was assessed for the uncontrolled Highway 211 approaches at the Dubarko Road intersection using the existing 2026 traffic volumes.

The analysis found that a northbound and southbound left-turn lane on Highway 211 would be warranted during both the a.m. and p.m. peak hours, and a northbound right-turn lane on Highway 211 is warranted based on the p.m. peak hour volume only. The turn lane warrant calculations are in the Appendix.

SIGNAL WARRANT ANALYSIS

A signal warrant analysis for the Highway 211 and Dubarko Road intersection was analyzed following the Manual on Uniform Traffic Control Devices (MUTCD) Warrants⁶. The warrants were evaluated using the forecasted 2030 and 2040 traffic volumes. The number of lanes used in the warrant analysis for Dubarko Road was based on the existing geometry, which included separate left/through and right turn lanes on the approaches, and therefore right turn discounts were applied to warrant volumes⁷. The result was none of the forecasted right turn volume was included in the warrant analysis for the Dubarko Road approach.

The results of the warrant analysis are shown in Table 6, with the intersection projected to meet the eight-hour (Warrant #1) and the crash experience (Warrant #7) warrant by 2030, and the four-hour (Warrant #2) and the peak hour (Warrant #3) warrant by 2040. More details on warrant analysis can be found in the Appendix.

TABLE 6: HIGHWAY 211 AND DUBARKO ROAD INTERSECTION SIGNAL WARRANT ANALYSIS

WARRANT	WARRANT MET?	
	2030 P.M. PEAK HOUR	2040 P.M. PEAK HOUR
WARRANT 1: EIGHT-HOUR VEHICULAR VOLUME	Yes	Yes
WARRANT 2: FOUR-HOUR VEHICULAR VOLUME	No	Yes
WARRANT 3: PEAK HOUR	No	Yes
WARRANT 7: CRASH EXPERIENCE	Yes	Yes

ALL-WAY STOP CONTROL REVIEW

The installation of any stop sign must meet the Manual on Uniform Traffic Control Devices (MUTCD) standards⁸. Research has shown that the installation of stop signs, while reducing roadway speeds immediately adjacent to the stop sign, has no effect on overall neighborhood speed limit compliance, and unwarranted stop signs tend to have a lower driver compliance rate.

Based on the criteria from the MUTCD for installing stop signs and findings related to the Highway 211 and Dubarko Road intersection, the all-way stop criteria is not met because the minor street

⁶ Manual on Uniform Traffic Control Devices, 2009 Edition, Chapter 4C. Based on Warrants #1, #2, #3 and #7.

⁷ Right turn discount based on 85 percent of the unsignalized right lane capacity.

⁸ Manual on Uniform Traffic Control Devices, 11th Edition, Federal Highway Administration, December 2025.

approaches do not meet the minimum volume thresholds, and therefore all-way stop control is not recommended.

INTERSECTION CONTROL EVALUATION

The Highway 211 and Dubarko Road intersection was identified as exceeding the mobility target in 2026 and this substandard condition is expected to become progressively worse through 2040. The following improvement options were analyzed at the Highway 211 and Dubarko Road intersection using the forecasted 2040 traffic volumes without the east extension of Dubarko Road to US 26. These volumes were selected for this evaluation since it represents the critical analysis period.

- **Two-way Stop** – the existing control at the intersection is maintained, with stop control on the Dubarko Road approaches.
 - > A new northbound and southbound left-turn lane and northbound right-turn lane will be tested since the warrants are expected to be met.
 - > A new eastbound and westbound left turn lane will be tested.
- **Roundabout** – the intersection will be controlled with a single-lane roundabout.
- **Traffic signal** - the intersection will be controlled with a traffic signal. The traffic signal warrant is expected to be met by 2030.

TRAFFIC OPERATIONS

As shown in Table 7, only the roundabout and traffic signal (with some turn lane improvements) would be expected to allow for the intersection to meet the mobility target through 2040 during the peak hours. Under the roundabout option the intersection is forecasted to operate with a LOS "B" and v/c of 0.66 or better through 2040.

The traffic signal option is not expected to meet the current mobility target with the current configuration at the intersection and was further evaluated with different configurations to see if they allow the current mobility target to be met through 2040. The analysis (shown in Table 7) initially assumed the current configuration with a shared northbound left/through/right turn lane and shared southbound left/through lane and right-turn lane on the Highway 211 approaches to Dubarko Road, and instead a configuration that includes a separate left turn lane was assumed, to include a left turn lane and shared through/right-turn lane for both approaches. The analysis shows that this configuration provides some benefit to these approaches at the intersection, but it will be expected to continue to operate with LOS "E" in 2040 during the a.m. peak hour and a v/c well above 1.0 during both peak hours. This is mainly caused by a high amount of delay that will continue to be experienced with the shared left/through lane configuration for the eastbound and westbound approaches at the intersection.

The traffic signal option was further evaluated with a separate left turn lane for the eastbound and westbound approaches, while maintaining the existing configuration for the northbound and southbound approaches. The existing shared left/through and right turn lane configuration on both approaches would be modified to include a left-turn lane and shared through/right-turn lane. The analysis shows that this configuration would be expected to mitigate the forecasted substandard

condition during the a.m. peak hour, but it is expected to continue to operate with LOS "E" in 2040 during the p.m. peak hour. This configuration requires the northbound and southbound approaches to operate with split phase signal timing, meaning these approaches receive green time at the signal during separate phases (i.e., the northbound approach is held while the southbound approach receives its green phase time, and the southbound approach is held while the northbound approach receives its green phase time). This type of phasing is less efficient when compared to standard phasing where they receive green time at the same time.

Another test was done for the traffic signal option that included both the modified configurations evaluated for the eastbound and westbound, and northbound and southbound approaches. For this test, a left turn lane and shared through/right-turn lane was assumed for each approach. The analysis shows that this configuration would be expected to mitigate the forecasted substandard condition, and the intersection would be expected to operate with a LOS "C" and a v/c of 0.64 or better during the peak hours of 2040. This configuration allows for the split phase signal timing to be replaced with standard phasing for the northbound and southbound approaches, which is expected to decrease the delay by up to 42 seconds during the peak hours in 2040 when compared to the option that only modified the eastbound and westbound approaches and therefore included it.

The two-way stop control option was also further evaluated with different configurations, but none allowed for the current mobility target to be met through 2040 without changes to the existing traffic control at the intersection (see Table 7). The analysis tested configurations that included separate left turn lanes on the northbound and southbound approaches, a separate right turn lane on the northbound approach, and separate left turn lanes on the eastbound and westbound approaches. The analysis shows that while these configurations provide some negligible benefit to these approaches at the intersection, it will be expected to continue to operate with LOS "E" or LOS "F" in 2040 during the peak hours.

TABLE 7: HIGHWAY 211 AND DUBARKO ROAD INTERSECTION CONTROL OPTIONS

INTERSECTION CONTROL	MOBILITY TARGET	2040 AM PEAK HOUR			2040 PM PEAK HOUR		
		LOS	DELAY	V/C	LOS	DELAY	V/C
TWO-WAY STOP CONTROL , EXISTING CONFIGURATION*	LOS D	A/ F	9/71	0.09/ 0.84	A/ F	9/594	0.37/ 1.98
TWO-WAY STOP CONTROL , EXISTING CONFIGURATION* WITH NEW NORTHBOUND AND SOUTHBOUND LEFT-TURN LANES		A/ F	9/67	0.07/ 0.82	A/ F	9/486	0.26/ 1.76
TWO-WAY STOP CONTROL , EXISTING CONFIGURATION* WITH NEW NORTHBOUND RIGHT-TURN LANE		A/ F	9/64	0.09/ 0.81	A/ F	9/486	0.30/ 1.76
TWO-WAY STOP CONTROL , EXISTING CONFIGURATION* WITH NEW EASTBOUND AND WESTBOUND LEFT-TURN LANE		A/ E	9/42	0.09/ 0.53	A/ F	9/445	0.37/ 1.44
ROUNDBOUT	0.90 V/C	A/B	8/13	0.52/ 0.46	B/B	13/10	0.66/ 0.33
TRAFFIC SIGNAL , EXISTING CONFIGURATION*	LOS D	F	82	2.29	F	96	1.61
TRAFFIC SIGNAL , EXISTING CONFIGURATION* WITH NEW NORTHBOUND AND SOUTHBOUND LEFT-TURN LANE, AND REMOVAL OF SOUTHBOUND RIGHT-TURN LANE		E	69	2.52	C	22	1.30
TRAFFIC SIGNAL , EXISTING CONFIGURATION* WITH NEW EASTBOUND AND WESTBOUND LEFT-TURN LANE, AND REMOVAL OF EASTBOUND AND WESTBOUND RIGHT-TURN LANES		C	21	0.64	E	56	0.90
TRAFFIC SIGNAL , EXISTING CONFIGURATION* WITH NEW NORTHBOUND, SOUTHBOUND, EASTBOUND AND WESTBOUND LEFT-TURN LANES, AND REMOVAL OF SOUTHBOUND, EASTBOUND AND WESTBOUND RIGHT-TURN LANES		C	21	0.61	B	14	0.64

Note: Intersection operations are reported for the entire intersection at traffic signals, and for the worst major/minor turn movement at roundabouts and two-way stop control intersections.

* Existing configuration includes a shared left turn/through lane and a right-turn lane on the southbound, eastbound and westbound approaches, and a shared left turn/through/right turn lane on the northbound approach.

PEDESTRIAN AND BICYCLE

The design for both the signal and roundabout alternatives can include pedestrian crossings on all approaches and accommodate cyclists through the intersection. The roundabout alternative will also include splitter islands and reverse curves approaching the roundabout to lower speeds through the intersection and enhance the safety of pedestrian crossings, while the traffic signal option will include controlled pedestrian crossings for each movement.

The two-way stop control alternative will result in uncontrolled traffic flow along Highway 211, which could lead to higher travel speeds through the Dubarko Road intersection and make the pedestrian crossings more challenging.

Outside of the immediate intersection, people walking and biking will be served by the existing sidewalks on Dubarko Road and on the west side of Highway 211 north of Dubarko Road, and the existing bike lanes on Dubarko Road.

PEDESTRIAN CROSSING EVALUATION

The need for new pedestrian crossings was evaluated with the uncontrolled traffic flow along Highway 211 to understand the recommended treatment at the potential pedestrian crossings. The crossing treatment evaluation was performed following guidance procedures in the National Cooperative Highway Research Program (NCHRP) Report 562 Pedestrian Crossing Analysis workbook. The analysis suggests that the Highway 211 crossing should include a pedestrian hybrid beacon given the posted speed and traffic volume at this location. The Sandy TSP includes a planned project that would provide crossing improvements to the Highway 211 and Dubarko Road intersection (Sandy TSP Project ID C2). This planned project would address the crossing deficiency, although it is currently not funded. However, the pedestrian hybrid beacon is not considered a feasible interim improvement at the intersection for the signal or roundabout alternatives since it does not resolve the substandard intersection operations that exist today and that are expected to get progressively worse by 2030. These alternatives are assumed to resolve the substandard intersection operations and address the pedestrian crossing need at the intersection. The pedestrian hybrid beacon is assumed to be required with the two-way stop alternative as part of the alternative evaluation process.

RIGHT OF WAY, ENVIRONMENTAL, TOPOGRAPHIC AND PROPERTY IMPACTS

The traffic signal alternative assumes that separate left-turn lanes are needed on each approach. All turn lanes will need to be designed to accommodate the 2040 p.m. peak hour 95th percentile queues to allow for adequate deceleration before vehicles reach the back of queue. The right-of-way needs associated with the traffic signal alternative are driven by the design guidance for Highway 211 and Dubarko Road, the curb returns, and the area required for the placement of signal equipment. A preliminary roadway design concept (shown in Figure 2) was prepared for the

intersection to show the recommended traffic signal and left-turn lane improvements⁹. The preliminary concept estimates that about 25,000 square feet of new pavement will be needed, with some widening required along Dubarko Road to provide the new left-turn lanes on the eastbound and westbound approaches and along the west side of Highway 211 to provide the new left-turn lanes on the northbound and southbound approaches. A retaining wall of approximately 6,500 square feet will also be required to accommodate the roadway widening along the west side of Highway 211, south of Dubarko Road. More details on the preliminary roadway concept can be found in the appendix.

The roundabout alternative assumes single-lane entries and exits on all approaches, with a WB-67 design vehicle. This requires the roundabout to have an inscribed circle diameter of approximately 115 feet. The posted speed along the segment of Highway 211 at Dubarko Road is 45 mph and is sloped downhill as it approaches from the north, which will also require special design considerations such as longer splitter islands or reversing curves approaching the roundabout to transition the roadside environment from higher to lower speeds approaching the roundabout intersection. There are significant topographic challenges surrounding the intersection, and any shift in the roadway alignment will likely result in significant costs associated with grading and potential retaining walls. This will also impact adjacent parcels and would require significant right-of-way acquisition to allow for the construction of the roundabout and associated approaches.

⁹ Preliminary Roadway Concept for the Highway 211/Dubarko Road intersection. Prepared by HHP.

FIGURE 2: PRELIMINARY CONCEPT FOR TRAFFIC SIGNAL AND LEFT-TURN LANE IMPROVEMENTS



CONCEPTUAL CONSTRUCTION COSTS

Conceptual cost estimates were prepared for the improvement alternatives using planning-level quantities and unit prices based on similar work for other projects. The estimates provided include the assumed traffic control and associated work to the approaches, and the assumed costs for project design and construction engineering. These estimates do not include the costs associated with acquisition of right-of-way, although the traffic signal option is not expected to require additional right-of-way. As shown in Table 8, the traffic signal alternative would have an estimated construction cost of \$3.8 million which is \$3.3 million below the estimated construction cost of the single-lane roundabout at \$7.1 million. The project design estimate is \$700,000 for the traffic signal and about \$1.3 million for the roundabout.

The costs associated with the retaining wall, new signal equipment and the new pavement for the widened approaches will have the greatest impact on the signal costs. The roundabout costs are most influenced by the diameter of the intersection, splitter islands and new pavement and retaining walls on the realigned approaches.

OPERATING COSTS

Construction and right-of-way costs are one-time costs at the time of construction. Assumed costs for on-going operations and maintenance are summarized below. A traffic signal is estimated to have an expected total operating cost of about \$100,000 through 2040, which is about \$25,000 more than the roundabout at \$75,000 (see Table 8).

• Traffic Signal

- Signal retiming - \$5,000 every 3 years
- Lighting - \$3,000 annually
- Signal Maintenance – \$4,000 annually
 - > Expected total operating cost through 2040: \$100,000.

• Roundabout

- Lighting - \$3,000 annually
- Roundabout landscaping - \$2,000 annually
 - > Expected total operating cost through 2040: \$75,000.

TABLE 8: PRELIMINARY COST ESTIMATES FOR IMPROVEMENT OPTIONS (2026 COSTS)

IMPROVEMENT OPTION	CONSTRUCTION COST *	PROJECT DESIGN COST ****	TOTAL OPERATING COSTS (THROUGH 2040)	TOTAL ESTIMATED COST (THROUGH 2040)
TRAFFIC SIGNAL	\$3,800,000 **	\$700,000	\$100,000	\$4,600,000
ROUNDAABOUT	\$7,100,000 ***	\$1,325,000	\$75,000	\$8,500,000

Notes: * The construction estimates provided include the assumed traffic control and associated work to the approaches. These estimates do not include the costs associated with acquisition of right-of-way, although the traffic signal option is not expected to require additional right-of-way.

** Cost includes \$2,830,000 for construction, \$370,000 for administration/project overhead and \$600,000 for contingencies.

*** Cost includes \$5,325,000 for construction, \$675,000 for administration/project overhead and \$1,100,000 for contingencies.

**** The project design estimate provided includes the assumed costs for project design and construction engineering (assumed as 25% of construction cost).

SAFETY

One way to consider the safety enhancement of constructing a new traffic control pattern is by determining the Benefit Cost Ratio (B/C Ratio) of a solution by estimating the ratio of the total economic safety benefits compared to the cost of construction. As shown in Table 9, both the traffic signal and roundabout improvement options have a B/C ratio well above 1.0, suggesting they are cost-effective solutions. This analysis assumes the collision reduction benefit associated with 26 collisions that occurred over the 5-year period at the intersection. Below is a summary of the safety benefits that each alternative would be expected to provide at the intersection.

TABLE 9: BENEFIT COST RATIO OF IMPROVEMENT OPTIONS

IMPROVEMENT OPTION	CRASH TYPES REDUCED	CRASH TYPES INCREASED	ANNUAL ECONOMIC COLLISION REDUCTION SAVINGS	PLANNING LEVEL COST	B/C RATIO
TRAFFIC SIGNAL	Angle	Rear End	\$622,000	\$3,800,000	2.04
ROUNDAABOUT	All Types	-	\$881,000	\$7,100,000	1.55

TRAFFIC SIGNAL

The conversion of a stop-controlled approach into a signalized intersection in an urban area can reduce angle crashes by up to 67 percent but will typically increase rear-end crashes by up to 143 percent¹⁰. This increase in rear-end collision potential is caused by the introduction of the red light to the approaches where there had previously been no traffic control. However, the signal provides vehicles on the minor streets dedicated green time to advance through the intersection without taking risky gaps in traffic, reducing the number of angle collisions. For pedestrians, bicyclists and other vulnerable roadway users, the crossings at the intersection are also safer with controlled pedestrian phases on all approaches where the traffic is stopped at the red light.

ROUNDBOUT

The conversion of a stop-controlled approach into a single-lane roundabout in an urban area can reduce all crashes at the intersection by as much as 72 percent¹¹. Many of the crash types resulting in severe or fatal crashes, such as head-on and angle crashes, are significantly reduced by orienting traffic flows in one single direction and reducing the number of potential conflict points. Because of the geometry of the roundabout, vehicles speeds are reduced while circulating the intersection. The splitter islands provide pedestrian refuge which means that the largest crossing width for a pedestrian or bicyclists at the single-lane roundabout is one vehicle travel lane.

EVALUATION SUMMARY

A summary of the alternative evaluation is provided in Table 10. The traffic signal ranked the highest of the alternatives and followed by the roundabout alternative and were the only alternatives that did not result in a fatal flaw for any of the criterion. The traffic signal fully addressed the respective criterion in four of the measures (i.e., operations, pedestrian/bicycle, expected cost and safety), and partially addressed the criterion in the remaining measure (i.e., property impact). However, the traffic signal option requires a separate left turn lane for each approach to allow for the intersection to meet the current mobility target during the peak hours through 2040.

The roundabout would result in more significant property impacts and a higher expected construction cost compared to the traffic signal alternative. This is mainly caused by the high posted speed and slopes approaching the intersection requiring special design considerations such as longer splitter islands or reversing curves approaching the roundabout to transition the roadside environment from higher to lower speeds. This will also impact adjacent parcels and would require significant right-of-way acquisition to allow for the construction of the roundabout and associated

¹⁰ CMF ID: 323 and CMF ID: 324, Federal Highway Administration, CMFClearinghouse.org.

¹¹ CMF ID: 206, Federal Highway Administration, CMFClearinghouse.org.

approaches. However, the roundabout fully addressed the respective criterion in three of the measures (i.e., operations, pedestrian/bicycle, and safety).

The two-way stop alternative results in a fatal flaw for the operations criterion, as shown in Table 10, and would be expected to result in significant delays for people at the intersection. This alternative will also require the provision of a pedestrian hybrid beacon on Highway 211 at the Dubarko Road crossing to address the pedestrian and bicycle crossing deficiency given the posted speed and traffic volume at this location.

TABLE 10: IMPROVEMENT OPTION EVALUATION SUMMARY

IMPROVEMENT OPTION	OPERATIONS	PEDESTRIAN /BICYCLE	PROPERTY IMPACT	EXPECTED COST	SAFETY	OVERALL RANK
TWO-WAY STOP CONTROL	FF	○	●	●	○	FF
TRAFFIC SIGNAL	●	●	◐	●	●	1
ROUNDBABOUT	●	●	○	○	●	2

Notes: ● = Option meets or fully addresses the criterion; ◐ = Option somewhat addresses the criterion; ○ = Option does not meet or negatively impacts the criterion; FF= Option results in a fatal flaw for the criterion.

INTERSECTION RECOMMENDATIONS

Overall, the Highway 211 and Dubarko Road intersection was identified as exceeding the mobility target in 2026 and this substandard condition is expected to get progressively worse through 2040 both without and with planned eastward extension of Dubarko Road from Meadow Avenue to US 26 (Sandy TSP Project D20). The traffic signal was the highest-ranking improvement alternative and is recommended at the Highway 211 and Dubarko Road intersection. The intersection is forecasted to be substandard and meet warrants by 2030. It is recommended to include modified configurations for the eastbound and westbound, and northbound and southbound approaches, to include a left turn lane and shared through/right-turn lane on each.

Based on the criteria for left-turn phasing in the ODOT Traffic Signal Policy and Guidelines, the left-turn from Highway 211 to Dubarko Road at the proposed new traffic signal was assumed to operate with protected-permissive left-turn phasing. The left-turn movements from the Dubarko Road approaches to Highway 211 will also have an exclusive lane but will operate with a permissive left-turn that will operate together under a single phase with the through movement and right-turns.

Table 11 provides a summary of peak hour operations with the recommendations during the 2030 and 2040 scenarios. The results show that the traffic signal at the intersection is needed by 2030, and that improvement can initially occur without or with the left turn lanes to allow the intersection to meet the LOS mobility target during the 2030 peak hours. Although the intersection is expected to operate with a v/c at or above 1.0 during both peak hours, despite meeting the LOS mobility target. However, those turn lanes are needed at the intersection before 2040 for the intersection to meet the mobility target during the 2040 peak hours.

TURN POCKET LENGTHS

The 95th percentile (reasonable worst-case) queues for the 2040 peak hours were estimated using the above improvement recommendations for the Highway 211 and Dubarko Road intersection. Storage lengths are recommended as follows:

- Northbound left turn pocket from Highway 211 to Dubarko Road built to provide 100 feet of storage.
- Southbound left turn pocket from Highway 211 to Dubarko Road built to provide 100 feet of storage.
- Eastbound left turn pocket from Dubarko Road to Highway 211 built to provide 100 feet of storage.
- Westbound left turn pocket from Dubarko Road to Highway 211 built to provide 125 feet of storage.

TABLE 11: HIGHWAY 211 AND DUBARKO ROAD OPERATIONS WITH RECOMMENDED IMPROVEMENTS

INTERSECTION CONTROL	AM PEAK HOUR			PM PEAK HOUR		
	LOS	DELAY	V/C	LOS	DELAY	V/C
2030 PEAK HOURS (WITHOUT THE DUBARKO ROAD EXTENSION)						
TWO-WAY STOP CONTROL, WITH A LEFT TURN LANE AND SHARED THROUGH/RIGHT-TURN LANE ON EACH APPROACH	A/C	8/19	0.09/ 0.12	A/ E	9/49	0.25/ 0.35
TRAFFIC SIGNAL, EXISTING CONFIGURATION*	C	29	1.23	D	47	0.97
TRAFFIC SIGNAL, WITH A LEFT TURN LANE AND SHARED THROUGH/RIGHT-TURN LANE ON EACH APPROACH	B	11	0.39	B	11	0.45
2040 PEAK HOURS (WITHOUT THE DUBARKO ROAD EXTENSION)						
TRAFFIC SIGNAL, EXISTING CONFIGURATION*	F	82	2.29	F	96	1.61
TRAFFIC SIGNAL, WITH A LEFT TURN LANE AND SHARED THROUGH/RIGHT-TURN LANE ON EACH APPROACH	C	21	0.61	B	14	0.64
2040 PEAK HOURS (WITH THE DUBARKO ROAD EXTENSION)						
TRAFFIC SIGNAL, EXISTING CONFIGURATION*	F	143	2.14	F	161	6.54
TRAFFIC SIGNAL, WITH A LEFT TURN LANE AND SHARED THROUGH/RIGHT-TURN LANE ON EACH APPROACH	B	15	0.60	B	16	0.61

Note: Mobility target is LOS D for traffic signals and two-way stop control intersections. Intersection operations are reported for the entire intersection at traffic signals, and for the worst major/minor turn movement at two-way stop control intersections.

* Existing configuration includes a shared left turn/through lane and a right-turn lane on the southbound, eastbound and westbound approaches, and a shared left turn/through/right turn lane on the northbound approach.

The downhill slopes approaching the intersection could make it prone to slippery driving conditions during the winter season, especially as drivers attempt to stop. The potential challenging conditions for drivers would be expected to occur for any type of traffic control installed at the intersection, including a traffic signal or roundabout. Some options that have been implemented to help detect, warn drivers, or control snow and ice in other areas are summarized below. These could be implemented at the intersection to help alleviate some of the challenges for drivers during the winter season.

- **Icy road warning system:** Icy road warning systems detect when conditions are favorable for ice to form on approaching roadways and then activate LED-enhanced warning alerts that are programmed to flash during icy conditions, prompting drivers to slow down and take caution.
- **“Rest in Red” technology for traffic signals:** Traffic signals with “rest in red” technology can display red lights in all directions, turning green only when sensors detect an approaching vehicle. This system is designed to curb speeding by triggering a red light if a driver is speeding over a set limit, however, it could potentially be applied in a similar way by using the detected vehicle speeds on the downhill slopes approaching the intersection during icy conditions. If the speed is over a limit to stop safely given the conditions, it could trigger a red light on the conflicting approaches. This system requires installation of smart detection technology and upgraded signal controllers.
- **Heated pavement:** Heated pavement for roadways uses embedded electric cables, hydronic tubing, or conductive concrete to maintain surface temperatures above freezing, automatically melting snow and ice to enhance safety. These systems are primarily used for critical infrastructure but come with high installation and operational costs.

SUMMARY OF INTERSECTION RECOMMENDATIONS

A summary of the recommendations at the Highway 211 and Dubarko Road intersection are provided below and shown in Figure 3. The intersection operations are substandard today and they will get progressively worse by 2030, therefore no interim improvements are recommended. The results show that the traffic signal at the intersection is needed by 2030, and that improvement should occur with the left turn lanes to allow the intersection to meet the mobility target during the 2040 peak hours.

- **Provide a traffic signal.**
 - The intersection is expected to meet the traffic signal warrant installation requirements by 2030.
- **Provide an exclusive left turn lane for each approach to the intersection.**
 - Each approach is recommended to include separate left and through/right-turn lanes on each.

FIGURE 3: SUMMARY OF HIGHWAY 211 AND DUBARKO ROAD INTERSECTION RECOMMENDATIONS



APPENDIX

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SECTION 1: COLLISION ANALYSIS

General & Site Information	
Agency/Company:	DKS Associates
Date:	3/20/2026
Project Name:	Sandy Intersection Control Evaluation

Intersection Crash Data						
Intersection	Intersection Type	Year				
		2019	2020	2021	2022	2023
Highway 211--Dubarko Rd	Urban 4ST	6	5	3	8	4
						Total
						26

Intersection Population Type Crash Rate				
Average Crash Rate per intersection type				
Intersection Pop. Type	Sum of Crashes	Sum of 5-year MEV	Avg Crash Rate for Ref Pop.	INT in Pop
Urban 4ST	26	19	1.4036	1

Critical Rate Calculation								
Intersection	AADT Entering Intersection	5-year MEV	Crash Total	Intersection Population Type	Intersection Crash Rate	Reference Population Crash Rate	Critical Rate	Over Critical
Highway 211--Dubarko Rd	10,150	18.5	26	Urban 4ST	1.40	APM Exhibit 4-1	0.41	Over

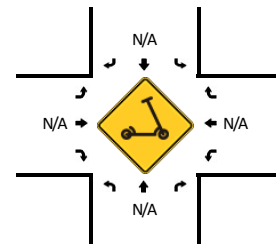
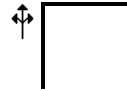
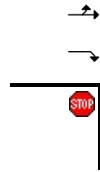
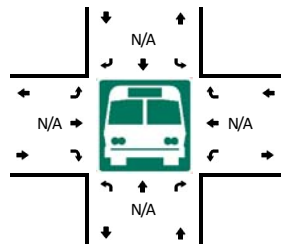
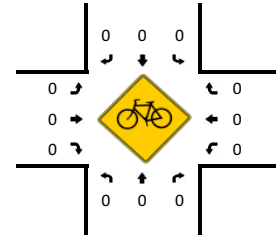
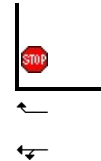
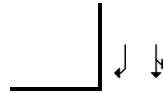
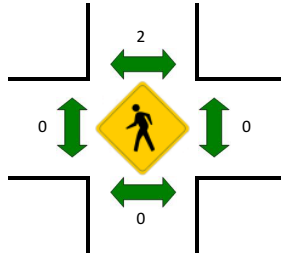
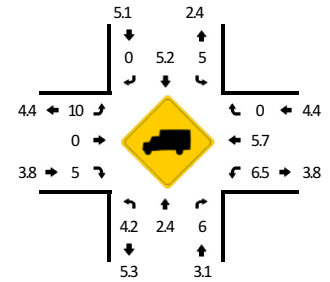
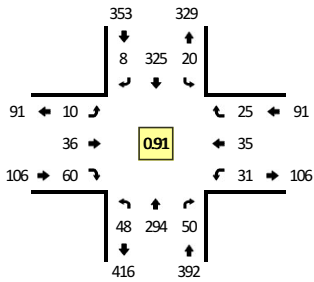
Study Intersection	Total Collisions	Observed Crash Rate (per MEV)	Critical Crash Rate (per MEV)	Over Critical Crash Rate
Highway 211--Dubarko Rd	26	1.40	0.41	No

SECTION 2: VOLUME DATA

LOCATION: Eagle Creek-Sandy Hwy No 172 -- Dubarko Rd
CITY/STATE: Sandy, OR

QC JOB #: 17379103
DATE: Tue, Dec 16 2025

Peak-Hour: 3:40 PM -- 4:40 PM
Peak 15-Min: 3:40 PM -- 3:55 PM



5-Min Count Period Beginning At	Eagle Creek-Sandy Hwy No 172 (Northbound)				Eagle Creek-Sandy Hwy No 172 (Southbound)				Dubarko Rd (Eastbound)				Dubarko Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	10	2	0	1	5	0	0	0	0	2	0	1	0	1	0	22	
6:05 AM	1	13	1	0	0	8	0	0	0	1	2	0	4	1	6	0	37	
6:10 AM	0	11	0	0	0	7	0	0	0	0	1	0	1	0	2	0	22	
6:15 AM	0	8	0	0	0	3	0	0	0	0	1	0	3	0	2	0	17	
6:20 AM	1	12	2	0	0	5	0	0	0	0	1	0	7	0	4	0	32	
6:25 AM	2	7	0	0	0	9	0	0	0	0	3	0	0	1	4	0	26	
6:30 AM	0	5	0	0	0	4	0	0	0	0	1	0	3	0	1	0	14	
6:35 AM	1	10	1	0	0	11	0	0	1	0	2	0	2	1	4	0	33	
6:40 AM	1	14	0	0	0	6	0	0	0	0	3	0	0	1	6	0	31	
6:45 AM	2	18	1	0	1	12	0	0	2	0	1	0	2	4	4	0	47	
6:50 AM	0	17	4	0	1	11	0	0	1	1	2	0	5	1	4	0	47	
6:55 AM	0	17	1	0	0	11	0	0	2	0	3	0	3	3	2	0	42	370
7:00 AM	2	13	2	0	0	8	0	0	0	1	3	0	3	2	0	0	34	382
7:05 AM	2	23	1	0	2	7	2	0	0	1	2	0	4	3	6	0	53	398
7:10 AM	2	19	1	0	1	6	0	0	1	1	2	0	4	0	4	0	41	417
7:15 AM	3	19	0	0	1	9	0	0	0	1	6	0	3	3	2	0	47	447
7:20 AM	1	23	2	0	1	11	0	0	0	1	5	0	2	1	4	0	51	466
7:25 AM	0	19	0	0	0	10	0	0	0	0	4	0	2	6	5	0	46	486
7:30 AM	3	20	1	0	0	10	1	0	0	0	2	0	2	5	9	0	53	525
7:35 AM	1	31	2	0	1	14	0	0	2	0	4	0	3	2	5	0	65	557
7:40 AM	3	30	1	0	0	8	0	0	0	1	3	0	2	4	5	0	57	583
7:45 AM	2	25	3	0	1	8	0	0	1	0	2	0	4	5	6	0	57	593
7:50 AM	6	23	2	0	0	12	0	0	0	4	3	0	8	8	4	0	70	616
7:55 AM	1	28	2	0	2	15	0	0	0	1	3	0	2	3	1	0	58	632
8:00 AM	0	19	0	0	2	11	0	0	0	2	1	0	2	2	3	0	42	640
8:05 AM	2	16	1	0	1	14	0	0	0	3	2	0	3	0	5	0	47	634
8:10 AM	2	13	2	0	1	10	0	0	0	2	1	0	3	0	0	0	34	627
8:15 AM	0	11	2	0	0	19	0	0	0	1	2	0	3	3	2	0	43	623
8:20 AM	5	13	4	0	1	12	0	0	1	0	2	0	0	2	4	0	44	616
8:25 AM	4	22	1	0	0	10	0	0	1	2	0	0	6	1	1	0	48	618
8:30 AM	5	14	0	0	0	17	0	0	0	2	3	0	5	2	3	0	51	616
8:35 AM	1	29	1	0	0	18	0	0	1	2	3	0	4	6	1	0	66	617
8:40 AM	2	14	4	0	1	16	0	0	0	5	2	0	6	7	1	0	58	618
8:45 AM	3	20	1	0	0	10	0	0	3	1	2	0	3	1	1	0	45	606
8:50 AM	1	24	2	0	2	11	2	0	0	0	2	0	5	4	1	0	54	590
8:55 AM	2	24	1	0	2	14	0	0	0	1	1	0	2	1	2	0	50	582
9:00 AM	7	17	0	0	0	11	0	0	0	1	3	0	1	1	4	0	45	585
9:05 AM	2	16	0	0	3	12	0	0	0	2	1	0	1	3	1	0	41	57

5-Min Count Period Beginning At	Eagle Creek-Sandy Hwy No 172 (Northbound)				Eagle Creek-Sandy Hwy No 172 (Southbound)				Dubarko Rd (Eastbound)				Dubarko Rd (Westbound)				Total	Item # 1. Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:10 AM	0	19	1	0	0	13	0	0	1	1	2	0	3	1	0	0	41	586
9:15 AM	0	25	3	0	0	10	0	0	0	2	0	0	0	0	1	0	41	584
9:20 AM	4	23	0	0	0	13	0	0	0	2	0	0	1	3	1	0	47	587
9:25 AM	1	19	3	0	0	7	2	0	0	0	2	0	2	2	2	0	40	579
9:30 AM	2	15	1	0	0	8	0	0	0	2	0	0	0	2	1	0	31	559
9:35 AM	2	14	2	0	1	7	0	0	1	1	3	0	3	3	4	0	41	534
9:40 AM	3	20	2	0	0	8	0	0	0	1	2	0	2	0	3	0	41	517
9:45 AM	1	16	1	0	0	14	0	0	1	3	3	0	1	1	3	0	44	516
9:50 AM	3	17	3	0	2	9	0	0	1	1	0	0	3	2	1	0	42	504
9:55 AM	3	23	1	0	0	11	0	0	1	0	2	0	0	0	3	0	44	498
10:00 AM	1	11	2	0	0	14	0	0	0	3	6	0	2	3	2	0	44	497
10:05 AM	1	20	2	0	0	13	1	0	3	0	0	0	1	4	2	0	47	503
10:10 AM	3	18	1	0	1	12	0	0	0	1	0	0	0	1	1	0	38	500
10:15 AM	1	21	2	0	1	3	0	0	0	3	4	0	1	1	6	0	43	502
10:20 AM	4	17	0	0	1	14	0	0	0	1	2	0	0	2	0	0	41	496
10:25 AM	1	13	2	0	0	9	0	0	1	2	2	0	2	2	1	0	35	491
10:30 AM	2	17	1	0	2	15	0	0	0	1	1	0	2	1	1	0	43	503
10:35 AM	3	23	0	0	0	13	0	0	0	0	2	0	1	2	2	0	46	508
10:40 AM	2	13	2	0	0	19	0	0	1	0	0	0	0	2	2	0	41	508
10:45 AM	1	15	4	0	0	13	0	0	0	1	2	0	0	3	3	0	42	506
10:50 AM	3	15	1	0	3	17	1	0	0	2	0	0	3	4	4	0	53	517
10:55 AM	1	20	1	0	2	14	1	0	1	1	1	0	1	0	1	0	44	517
11:00 AM	1	12	2	0	1	13	0	0	1	2	3	0	0	2	3	0	40	513
11:05 AM	1	19	2	0	0	13	0	0	0	0	1	0	1	2	1	0	40	506
11:10 AM	1	20	5	0	2	19	0	0	0	1	1	0	1	1	1	0	52	520
11:15 AM	1	18	0	0	0	14	0	0	0	0	0	0	3	4	1	0	41	518
11:20 AM	2	9	1	0	0	11	1	0	1	2	0	0	1	2	1	0	31	508
11:25 AM	2	13	0	0	0	13	1	0	0	2	5	0	3	2	0	0	41	514
11:30 AM	2	15	3	0	2	15	0	0	1	1	3	0	2	4	0	0	48	519
11:35 AM	3	10	1	0	1	21	1	0	3	2	2	0	1	3	1	0	49	522
11:40 AM	1	14	1	0	2	14	0	0	2	1	4	0	4	1	3	0	47	528
11:45 AM	3	13	4	0	0	17	1	0	0	1	0	0	1	5	2	0	47	533
11:50 AM	2	17	0	0	1	15	1	0	1	0	3	0	3	2	2	0	47	527
11:55 AM	3	16	1	0	2	18	0	0	0	1	1	0	3	3	1	0	49	532
12:00 PM	3	18	3	0	1	15	1	0	0	3	6	0	0	2	3	0	55	547
12:05 PM	3	22	4	0	1	16	0	0	0	3	0	0	2	4	3	0	58	565
12:10 PM	4	15	5	0	1	13	0	0	0	1	1	0	2	2	4	0	48	561
12:15 PM	1	24	1	0	0	16	0	0	1	1	2	0	1	2	3	0	52	572
12:20 PM	6	15	2	0	3	16	4	0	1	6	5	0	0	0	3	0	61	602
12:25 PM	0	18	1	0	2	17	0	0	1	6	2	0	0	1	2	0	50	611
12:30 PM	0	13	0	0	2	22	0	0	0	1	0	0	3	2	4	0	47	610
12:35 PM	2	12	2	0	1	18	1	0	1	1	1	0	2	5	4	0	50	611
12:40 PM	5	10	1	0	2	16	0	0	0	3	2	0	2	3	2	0	46	610
12:45 PM	3	17	0	0	1	13	1	0	0	1	2	0	2	1	1	0	42	605
12:50 PM	5	16	2	0	0	13	0	0	0	0	2	0	4	6	1	0	49	607
12:55 PM	3	14	1	0	0	19	0	0	1	0	3	0	2	2	3	0	48	606
1:00 PM	1	6	2	0	0	24	0	0	1	1	2	0	4	1	3	0	45	596
1:05 PM	4	13	1	0	1	14	0	0	1	0	7	0	1	3	3	0	48	586
1:10 PM	1	19	2	0	1	21	1	0	0	1	1	0	2	1	2	0	52	590
1:15 PM	2	11	0	0	0	12	1	0	0	2	4	0	2	1	0	0	35	573
1:20 PM	2	20	4	0	0	14	1	0	1	1	2	0	0	2	1	0	48	560
1:25 PM	1	16	1	0	1	13	1	0	2	2	6	0	2	4	1	0	50	560
1:30 PM	0	14	1	0	3	11	0	0	1	2	0	0	3	2	1	0	38	551
1:35 PM	0	20	3	0	0	10	0	0	0	3	4	0	2	2	2	0	46	547
1:40 PM	0	14	1	0	1	22	1	0	0	1	3	0	1	5	0	0	49	550
1:45 PM	2	18	2	0	0	17	3	0	1	2	3	0	2	4	0	0	54	562
1:50 PM	0	11	5	0	0	13	0	0	0	0	0	0	4	1	0	0	34	547
1:55 PM	0	14	1	0	0	16	1	0	0	1	5	0	1	3	1	0	43	542
2:00 PM	2	14	2	0	0	9	0	0	2	1	4	0	4	1	2	0	41	538
2:05 PM	2	13	0	0	2	14	0	0	0	3	2	0	2	0	3	0	41	531
2:10 PM	6	21	1	0	1	21	2	0	1	4	3	0	2	1	1	0	64	543
2:15 PM	2	19	2	0	0	14	1	0	1	5	3	0	0	1	3	0	51	559
2:20 PM	5	22	1	0	1	22	3	0	0	3	3	0	1	3	0	0	64	575
2:25 PM	2	22	3	0	2	14	0	0	0	1	1	0	1	2	2	0	50	575
2:30 PM	0	11	3	0	0	17	1	0	1	3	2	0	6	1	0	0	45	582
2:35 PM	2	16	3	0	2	17	1	0	0	1	2	0	1	5	3	0	53	589
2:40 PM	4	15	2	0	2	17	1	0	2	0	0	0	3	3	3	0	52	592
2:45 PM	3	19	1	0	1	22	0	0	1	2	2	0	2	1	1	0	55	593
2:50 PM	3	29	5	0	0	18	2	0	0	3	4	0	1	3	0	0	68	627
2:55 PM	4	22	2	0	3	18	2	0	2	5	4	0	0	4	1	0	67	651
3:00 PM	2	14	4	0	3	23	1	0	0	3	3	0	3	6	4	0	66	676
3:05 PM	7	16	6	0	2	33	3	0	0	6	6	0	2	2	3	0	86	721
3:10 PM	0	17	4	0	0	24	0	0	1	5	6	0	5	1	2	0	65	722
3:15 PM	5	21	5	0	2	19	0	0	1	2	3	0	1	2	3	0	64	735
3:20 PM	1	15	4	0	2	27	0	0	0	2	6	0	4	3	1	0	65	736
3:25 PM	1	16	3	0	2	25	2	0	1	3	7	0	1	4	2	0	67	753
3:30 PM	1	19	3	0	2	33	1	0	0	2	2	0	1	6	0	0	70	778
3:35 PM	4	17	3	0	1	30	1	0	0	4	7	0	2	1	2	0	72	797
3:40 PM	9	32	8	0	1	27	1	0	0	0	8	0	2	2	0	0	90	835
3:45 PM	4	29	5	0	2	25	0	0	0	5	5	0	4	2	2	0	83	863
3:50 PM	6	33	5	0	1	25	1	0	2	4	3	0	3	2	2	0	87	882
3:55 PM	1	22	1	0	3	30	1	0	1	3	6	0	1	3	0	0	72	887
4:00 PM	4	19	3	0	0	32	1	0	2	3	3	0	5	5	1	0	78	899
4:05 PM	5	21	0	0	3	35	1	0	1	3	7	0	1	3	2	0	82	895
4:10 PM	3	34	5	0	2	29	0	0	0	3	2	0	1	2	4	0	85	915
4:15 PM	1	19	5	0	2	18	0	0	0	4	5	0	5	1	2	0	62	913
4:20 PM	3	30	4	0	2	23	0	0	0	2	2	0	1	4	2	0	73	921
4:25 PM	4	19	6	0	2	29	1	0	0	3	4	0	1	4	4	0	77	930

5-Min Count Period Beginning At	Eagle Creek-Sandy Hwy No 172 (Northbound)				Eagle Creek-Sandy Hwy No 172 (Southbound)				Dubarko Rd (Eastbound)				Dubarko Rd (Westbound)				Total	Item # 1.
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		Totals
4:30 PM	6	15	4	0	0	19	1	0	2	3	5	0	4	3	2	0	64	925
4:35 PM	2	21	4	0	2	33	1	0	2	3	10	0	3	4	4	0	89	942
4:40 PM	5	18	3	0	0	18	2	0	0	2	7	0	2	2	2	0	61	913
4:45 PM	3	26	3	0	0	28	1	0	0	4	8	0	3	0	3	0	79	909
4:50 PM	2	32	5	0	2	25	0	0	0	4	6	0	2	2	2	0	82	904
4:55 PM	3	17	5	0	4	24	0	0	0	4	2	0	0	3	2	0	64	896
5:00 PM	3	23	1	0	1	15	0	0	1	2	3	0	2	1	0	0	52	870
5:05 PM	3	15	4	0	1	35	3	0	0	3	6	0	3	2	0	0	75	863
5:10 PM	2	25	3	0	2	42	0	0	0	4	5	0	3	3	5	0	94	872
5:15 PM	3	28	9	0	2	30	0	0	1	2	5	0	4	1	5	0	90	900
5:20 PM	4	23	2	0	1	27	2	0	0	5	4	0	0	4	4	0	76	903
5:25 PM	4	21	0	0	1	27	0	0	0	4	2	0	1	1	1	0	62	888
5:30 PM	1	22	5	0	1	24	0	0	1	3	6	0	0	3	2	0	68	892
5:35 PM	5	13	4	0	2	21	0	0	0	3	5	0	2	2	5	0	62	865
5:40 PM	3	20	6	0	1	24	3	0	1	2	3	0	2	4	2	0	71	875
5:45 PM	2	9	5	0	0	16	1	0	0	6	7	0	2	3	2	0	53	849
5:50 PM	3	17	4	0	2	17	0	0	0	5	8	0	0	2	1	0	59	826
5:55 PM	4	14	2	0	1	18	0	0	0	3	3	0	2	3	1	0	51	813
6:00 PM	4	23	1	0	0	20	0	0	3	3	3	0	3	1	1	0	62	823
6:05 PM	6	10	3	0	1	25	1	0	0	2	3	0	5	2	1	0	59	807
6:10 PM	1	15	1	0	3	29	2	0	1	4	8	0	4	3	1	0	72	785
6:15 PM	2	14	3	0	2	25	0	0	0	3	1	0	1	1	1	0	53	748
6:20 PM	4	11	2	0	0	13	1	0	0	1	3	0	0	0	2	0	37	709
6:25 PM	1	12	0	0	3	17	1	0	0	5	5	0	3	0	0	0	47	694
6:30 PM	0	14	5	0	1	20	1	0	0	2	5	0	0	1	0	0	49	675
6:35 PM	1	10	1	0	1	20	1	0	2	3	2	0	0	4	1	0	46	659
6:40 PM	2	9	4	0	0	13	0	0	0	3	0	0	1	0	2	0	34	622
6:45 PM	2	9	2	0	1	17	0	0	1	3	2	0	1	2	3	0	43	612
6:50 PM	3	6	3	0	3	16	1	0	1	1	0	0	0	3	2	0	39	592
6:55 PM	1	7	2	0	3	12	1	0	1	0	2	0	1	1	2	0	33	574
7:00 PM	1	11	1	0	0	14	0	0	0	4	0	0	3	2	0	0	36	548
7:05 PM	0	10	0	0	1	18	0	0	0	1	1	0	1	1	0	0	33	522
7:10 PM	5	9	2	0	0	11	0	0	0	2	3	0	1	0	3	0	36	486
7:15 PM	2	18	2	0	0	14	2	0	1	4	4	0	1	2	3	0	53	486
7:20 PM	1	10	1	0	1	13	0	0	0	1	3	0	1	1	1	0	33	482
7:25 PM	0	5	2	0	2	11	0	0	0	2	2	0	1	0	0	0	25	460
7:30 PM	2	7	2	0	1	17	1	0	0	2	1	0	2	1	0	0	36	447
7:35 PM	0	6	1	0	2	8	0	0	0	3	3	0	3	2	1	0	29	430
7:40 PM	1	5	2	0	0	8	0	0	1	1	1	0	0	4	0	0	23	419
7:45 PM	1	2	1	0	0	8	0	0	0	1	2	0	0	1	0	0	16	392
7:50 PM	0	4	2	0	0	17	1	0	1	1	3	0	0	0	1	0	30	383
7:55 PM	1	12	0	0	2	6	0	0	0	2	1	0	0	1	1	0	26	376
8:00 PM	0	6	2	0	4	13	1	0	0	0	2	0	2	1	0	0	31	371
8:05 PM	1	8	2	0	1	14	0	0	0	3	1	0	1	2	1	0	34	372
8:10 PM	2	11	1	0	1	14	1	0	0	1	1	0	1	0	0	0	33	369
8:15 PM	0	2	0	0	1	11	1	0	1	1	1	0	0	0	1	0	19	335
8:20 PM	0	5	0	0	1	12	0	0	0	1	4	0	1	1	0	0	25	327
8:25 PM	2	9	0	0	1	4	0	0	0	1	0	0	0	4	0	0	21	323
8:30 PM	1	1	0	0	0	6	0	0	0	1	3	0	1	0	1	0	14	301
8:35 PM	1	5	0	0	1	12	1	0	0	3	1	0	1	0	0	0	25	297
8:40 PM	2	6	4	0	2	12	0	0	0	3	0	0	0	2	0	0	31	305
8:45 PM	0	6	1	0	0	9	0	0	0	0	0	0	1	1	0	0	18	307
8:50 PM	3	4	1	0	1	10	0	0	0	0	2	0	3	2	1	0	27	304
8:55 PM	1	4	1	0	1	12	0	0	0	3	2	0	2	1	0	0	27	305
9:00 PM	1	3	2	0	0	5	0	0	0	0	0	0	1	3	0	0	15	289
9:05 PM	3	7	1	0	3	4	0	0	0	1	2	0	0	0	0	0	21	276
9:10 PM	0	5	0	0	1	2	0	0	0	1	1	0	0	0	0	0	10	253
9:15 PM	0	3	0	0	1	9	0	0	0	0	0	0	0	1	0	0	14	248
9:20 PM	1	8	1	0	1	9	0	0	0	0	0	0	0	0	0	0	20	243
9:25 PM	0	2	1	0	2	8	0	0	0	1	2	0	0	1	0	0	17	239
9:30 PM	2	1	1	0	0	7	0	0	0	1	1	0	0	1	4	0	18	243
9:35 PM	0	3	1	0	0	5	0	0	0	1	0	0	0	1	1	0	12	230
9:40 PM	0	2	0	0	0	7	1	0	1	0	0	0	1	0	0	0	12	211
9:45 PM	0	4	0	0	1	3	0	0	0	0	1	0	0	2	0	0	11	204
9:50 PM	1	5	2	0	1	1	0	0	0	2	0	0	0	0	0	0	12	189
9:55 PM	0	1	0	0	0	5	0	0	0	1	1	0	0	0	0	0	8	170
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	376	72	0	16	308	8	0	8	36	64	0	36	24	16	0	1040	
Heavy Trucks	8	12	4		4	20	0		0	0	4		4	4	0		60	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
Comments:																		

Report generated on 12/22/2025 1:34 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4	41-50	4
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
12:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	41-50	1
12:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	31-40	1
01:00 AM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3	36-45	3
01:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	16-25	1
01:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
01:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
02:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	31-40	2
02:15 AM	0	0	0	0	2	1	1	0	0	0	0	0	0	0	4	31-40	3
02:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
02:45 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	26-35	2
03:00 AM	0	0	0	0	0	1	1	3	1	0	0	0	0	0	6	43-52	4
03:15 AM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	21-30	1
03:30 AM	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	41-50	3
03:45 AM	0	0	0	0	0	2	1	2	0	0	0	0	0	0	5	36-45	3
04:00 AM	0	0	0	0	1	1	1	1	2	0	0	0	0	0	6	46-55	3
04:15 AM	0	0	0	0	0	3	3	4	2	0	0	0	0	0	12	41-50	7
04:30 AM	0	0	0	1	0	5	1	6	0	0	0	0	0	0	13	41-50	7
04:45 AM	0	0	0	0	1	4	5	5	1	0	0	0	0	0	16	41-50	10
05:00 AM	0	0	0	0	1	3	15	4	1	0	0	0	0	0	24	41-50	19
05:15 AM	0	0	0	0	1	7	11	8	0	1	0	0	0	0	28	41-50	19
05:30 AM	0	0	0	1	2	6	11	12	3	1	0	0	0	0	36	41-50	23
05:45 AM	0	0	0	0	1	3	10	7	3	2	0	0	0	0	26	41-50	17
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 AM	0	0	0	0	3	4	13	17	3	1	0	0	0	0	41	41-50	30
06:15 AM	2	0	0	0	0	8	14	8	5	0	1	0	0	0	38	39-48	22
06:30 AM	0	0	0	1	4	7	17	11	1	1	0	0	0	0	42	41-50	28
06:45 AM	1	0	0	0	4	19	26	9	1	0	1	0	0	0	61	36-45	45
07:00 AM	0	0	0	1	9	17	20	12	2	0	0	0	0	0	61	36-45	37
07:15 AM	1	0	0	1	7	27	30	5	2	0	0	0	0	0	73	36-45	57
07:30 AM	0	0	0	2	4	33	41	16	1	0	0	0	0	0	97	36-45	74
07:45 AM	2	0	0	3	2	18	44	18	2	0	1	0	0	0	90	40-49	62
08:00 AM	0	0	0	0	1	7	28	19	2	0	0	0	0	0	57	41-50	47
08:15 AM	0	0	0	0	3	12	16	16	6	0	1	0	0	0	54	41-50	32
08:30 AM	1	0	0	1	4	9	25	14	6	0	0	0	0	0	60	41-50	39
08:45 AM	0	0	0	0	4	17	19	24	8	2	0	0	0	0	74	41-50	43
09:00 AM	4	0	0	0	2	3	20	21	9	1	0	0	0	0	60	41-50	41
09:15 AM	0	0	0	0	3	9	22	25	8	1	0	0	0	0	68	41-50	47
09:30 AM	0	0	0	1	1	11	21	15	6	0	0	1	0	0	56	41-50	36
09:45 AM	0	0	0	0	2	14	26	23	5	0	0	0	0	0	70	41-50	49
10:00 AM	2	0	0	1	3	9	19	19	5	0	0	0	0	0	58	41-50	38
10:15 AM	3	0	0	1	5	11	20	13	3	3	0	0	0	0	59	41-50	33
10:30 AM	3	0	1	1	1	10	18	14	4	1	0	0	0	0	53	41-50	32
10:45 AM	0	0	0	1	5	17	12	16	8	1	0	0	0	0	60	36-45	29
11:00 AM	2	0	0	0	0	5	21	20	8	2	0	0	0	0	58	41-50	41
11:15 AM	0	0	0	0	1	4	20	14	4	0	1	0	0	0	44	41-50	34
11:30 AM	0	0	0	0	1	10	19	18	0	0	0	0	0	0	48	41-50	37
11:45 AM	1	0	0	0	2	8	18	19	5	1	0	0	0	0	54	41-50	37
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 PM	0	0	0	0	1	9	22	23	10	0	0	0	0	0	65	41-50	45
12:15 PM	1	0	0	2	4	13	21	15	5	1	0	0	0	0	62	41-50	36
12:30 PM	0	0	0	0	2	9	19	12	3	3	1	0	0	0	49	41-50	31
12:45 PM	1	0	0	0	2	5	14	16	14	0	0	0	0	0	52	46-55	30
01:00 PM	1	0	0	0	2	5	17	13	8	1	0	0	0	0	47	41-50	30
01:15 PM	0	0	0	0	1	7	15	19	9	2	0	0	0	0	53	41-50	34
01:30 PM	1	0	0	0	0	5	20	17	5	2	0	0	0	0	50	41-50	37
01:45 PM	1	0	0	0	0	5	15	13	4	3	1	0	0	0	42	41-50	28
02:00 PM	2	0	0	0	1	12	15	22	5	0	0	0	0	0	57	41-50	37
02:15 PM	2	0	0	0	1	8	19	33	6	1	0	0	0	0	70	41-50	52
02:30 PM	0	0	0	2	3	2	12	23	7	1	0	0	0	0	50	41-50	35
02:45 PM	2	0	0	0	2	8	23	32	6	1	1	0	0	0	75	41-50	55
03:00 PM	2	0	0	0	0	9	19	21	8	0	0	0	0	0	59	41-50	40
03:15 PM	0	0	0	0	4	7	20	18	8	0	0	0	0	0	57	41-50	38
03:30 PM	4	0	0	0	0	3	25	25	9	3	0	0	0	1	70	41-50	50
03:45 PM	1	0	0	0	2	9	37	29	14	0	0	0	0	0	92	41-50	66
04:00 PM	2	0	0	0	2	6	40	21	7	3	0	0	0	0	81	41-50	61
04:15 PM	2	0	0	0	0	13	30	20	10	3	0	0	0	0	78	41-50	50
04:30 PM	3	0	0	0	1	14	28	11	4	4	1	0	0	0	66	36-45	42
04:45 PM	3	0	0	0	2	16	39	16	3	0	0	0	0	0	79	41-50	55
05:00 PM	0	0	0	0	6	22	21	14	1	0	0	0	0	1	65	36-45	43
05:15 PM	5	0	0	0	4	27	30	15	2	0	0	0	0	0	83	36-45	57
05:30 PM	6	0	0	0	4	8	30	11	1	0	0	0	1	0	61	41-50	41
05:45 PM	0	0	0	1	1	11	16	14	3	1	0	0	0	0	47	41-50	30
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 PM	1	0	0	1	0	9	28	10	4	0	0	0	0	0	53	41-50	38
06:15 PM	0	0	0	0	1	5	20	13	0	0	0	0	0	0	39	41-50	33
06:30 PM	1	0	0	1	1	9	15	9	2	0	0	0	1	0	39	39-48	24
06:45 PM	1	0	0	0	2	6	11	9	2	0	0	0	0	0	31	41-50	20
07:00 PM	1	0	0	1	2	8	15	3	2	0	0	0	0	0	32	36-45	23
07:15 PM	0	0	0	0	1	6	17	7	5	1	0	0	0	0	37	41-50	24
07:30 PM	0	0	0	0	1	6	5	7	0	1	0	0	0	0	20	41-50	12
07:45 PM	1	0	0	0	1	4	8	5	1	0	0	0	0	0	20	41-50	13
08:00 PM	1	0	0	1	0	5	11	5	2	1	0	0	0	0	26	36-45	16
08:15 PM	0	0	0	0	0	8	5	3	3	0	0	0	0	0	19	36-45	13
08:30 PM	0	0	0	0	2	1	5	4	0	0	0	0	0	0	12	41-50	9
08:45 PM	0	0	0	0	1	1	9	4	2	0	0	0	0	0	17	41-50	13
09:00 PM	0	0	0	0	1	3	5	5	0	0	0	0	0	0	14	41-50	10
09:15 PM	1	0	0	1	2	2	4	4	0	0	0	0	0	0	14	41-50	8
09:30 PM	0	0	0	0	2	1	5	2	0	0	0	0	0	0	10	41-50	7
09:45 PM	0	0	0	0	0	3	3	2	1	0	0	0	0	0	9	36-45	6
10:00 PM	0	0	0	0	0	1	8	4	1	0	0	0	0	0	14	41-50	12
10:15 PM	0	0	0	0	1	2	3	6	2	0	0	0	0	0	14	41-50	9
10:30 PM	0	0	0	0	0	3	4	0	0	0	0	0	0	0	7	36-45	7
10:45 PM	0	0	0	0	0	4	2	2	0	0	0	0	0	0	8	36-45	6
11:00 PM	0	0	0	0	0	0	0	3	2	0	0	0	0	0	5	46-55	5
11:15 PM	0	0	0	0	0	2	1	1	1	0	0	0	0	0	5	36-45	3
11:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	41-50	2
11:45 PM	0	0	0	0	1	0	1	1	0	0	0	0	0	0	3	41-50	2
Day Total	68	0	2	27	147	651	1330	1006	299	50	9	1	2	2	3594	41-50	2336
Percent	1.9%	0%	0.1%	0.8%	4.1%	18.1%	37%	28%	8.3%	1.4%	0.3%	0%	0.1%	0.1%			
AM Peak 15-min Vol	9:00 AM 4	12:00 AM 0	1:15 AM 1	7:45 AM 3	7:00 AM 9	7:30 AM 33	7:45 AM 44	9:15 AM 25	9:00 AM 9	10:15 AM 3	6:15 AM 1	9:30 AM 1	12:00 AM 0	12:00 AM 0	7:30 AM 97		
PM Peak 15-min Vol	5:30 PM 6	12:00 PM 0	12:00 PM 0	12:15 PM 2	5:00 PM 6	5:15 PM 27	4:00 PM 40	2:15 PM 33	12:45 PM 14	4:30 PM 4	12:30 PM 1	12:00 PM 0	5:30 PM 1	3:30 PM 1	3:45 PM 92		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total Percent	68 1.9%	0 0%	2 0.1%	27 0.8%	147 4.1%	651 18.1%	1330 37%	1006 28%	299 8.3%	50 1.4%	9 0.3%	1 0%	2 0.1%	2 0.1%	3594	41-50	2336
Cumulative Percent	1.9%	1.9%	1.9%	2.7%	6.8%	24.9%	61.9%	89.9%	98.2%	99.6%	99.9%	99.9%	99.9%	100%			
ADT 3594															85th Percentile: 49 MPH Mean Speed(Average): 43 MPH Median: 43 MPH Mode: 43 MPH		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
12:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
01:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
01:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
02:15 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
02:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	2	3	0	1	0	0	0	0	0	0	0	0	0	6
03:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:30 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
03:45 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	5
04:00 AM	0	3	1	0	2	0	0	0	0	0	0	0	0	0	6
04:15 AM	0	10	1	0	1	0	0	0	0	0	0	0	0	0	12
04:30 AM	0	9	3	0	1	0	0	0	0	0	0	0	0	0	13
04:45 AM	0	11	1	0	4	0	0	0	0	0	0	0	0	0	16
05:00 AM	0	16	4	0	3	0	0	0	0	1	0	0	0	0	24
05:15 AM	0	11	5	0	12	0	0	0	0	0	0	0	0	0	28
05:30 AM	0	17	7	0	10	0	0	0	1	1	0	0	0	0	36
05:45 AM	0	11	4	0	11	0	0	0	0	0	0	0	0	0	26
Day Total Percent															
ADT 3594															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06:00 AM	0	26	8	0	7	0	0	0	0	0	0	0	0	0	41
06:15 AM	0	26	4	0	6	0	0	0	0	0	0	0	0	2	38
06:30 AM	0	26	9	0	7	0	0	0	0	0	0	0	0	0	42
06:45 AM	0	30	13	0	16	1	0	0	0	0	0	0	0	1	61
07:00 AM	0	43	10	0	5	0	0	1	2	0	0	0	0	0	61
07:15 AM	0	45	15	1	9	0	0	2	0	0	0	0	0	1	73
07:30 AM	0	55	20	2	19	0	1	0	0	0	0	0	0	0	97
07:45 AM	0	59	20	0	8	1	0	0	0	0	0	0	0	2	90
08:00 AM	0	33	10	0	13	0	0	0	0	0	0	0	1	0	57
08:15 AM	0	34	10	1	6	1	0	2	0	0	0	0	0	0	54
08:30 AM	0	34	12	1	7	0	0	4	1	0	0	0	0	1	60
08:45 AM	0	41	15	0	14	0	0	3	0	0	0	0	1	0	74
09:00 AM	0	34	11	0	9	0	0	2	0	0	0	0	0	4	60
09:15 AM	0	35	16	3	10	1	0	1	2	0	0	0	0	0	68
09:30 AM	0	31	11	0	10	2	0	1	0	0	0	0	1	0	56
09:45 AM	0	50	12	0	6	1	0	1	0	0	0	0	0	0	70
10:00 AM	0	29	11	2	13	0	0	1	0	0	0	0	0	2	58
10:15 AM	0	28	13	0	14	0	0	0	0	1	0	0	0	3	59
10:30 AM	0	35	9	0	3	0	0	0	2	1	0	0	0	3	53
10:45 AM	0	40	12	0	8	0	0	0	0	0	0	0	0	0	60
11:00 AM	0	33	15	0	8	0	0	0	0	0	0	0	0	2	58
11:15 AM	0	28	6	0	9	0	0	1	0	0	0	0	0	0	44
11:30 AM	0	19	14	1	13	0	0	1	0	0	0	0	0	0	48
11:45 AM	0	28	14	0	10	0	0	0	1	0	0	0	0	1	54
Day Total															
Percent															
ADT 3594															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 PM	0	34	23	0	7	0	0	0	0	0	0	0	1	0	65
12:15 PM	0	41	11	0	8	0	0	0	1	0	0	0	0	1	62
12:30 PM	0	29	8	1	10	0	0	1	0	0	0	0	0	0	49
12:45 PM	0	37	6	1	7	0	0	0	0	0	0	0	0	1	52
01:00 PM	1	25	9	0	8	0	0	1	2	0	0	0	0	1	47
01:15 PM	0	27	14	0	12	0	0	0	0	0	0	0	0	0	53
01:30 PM	0	24	11	0	11	0	0	3	0	0	0	0	0	1	50
01:45 PM	0	31	7	0	2	0	0	1	0	0	0	0	0	1	42
02:00 PM	0	33	11	0	8	3	0	0	0	0	0	0	0	2	57
02:15 PM	0	38	15	0	13	0	0	2	0	0	0	0	0	2	70
02:30 PM	0	29	7	0	13	1	0	0	0	0	0	0	0	0	50
02:45 PM	0	43	19	1	10	0	0	0	0	0	0	0	0	2	75
03:00 PM	0	36	11	0	10	0	0	0	0	0	0	0	0	2	59
03:15 PM	0	33	15	2	7	0	0	0	0	0	0	0	0	0	57
03:30 PM	0	34	11	2	19	0	0	0	0	0	0	0	0	4	70
03:45 PM	0	60	19	0	12	0	0	0	0	0	0	0	0	1	92
04:00 PM	1	47	13	1	17	0	0	0	0	0	0	0	0	2	81
04:15 PM	0	41	16	1	18	0	0	0	0	0	0	0	0	2	78
04:30 PM	0	39	18	0	6	0	0	0	0	0	0	0	0	3	66
04:45 PM	0	45	18	0	12	0	0	1	0	0	0	0	0	3	79
05:00 PM	0	39	11	0	15	0	0	0	0	0	0	0	0	0	65
05:15 PM	0	40	20	0	17	0	0	1	0	0	0	0	0	5	83
05:30 PM	0	34	9	0	12	0	0	0	0	0	0	0	0	6	61
05:45 PM	0	29	11	0	7	0	0	0	0	0	0	0	0	0	47
Day Total															
Percent															
ADT 3594															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17575104**SPECIFIC LOCATION:****DIRECTION:** NB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
06:00 PM	0	33	15	0	3	0	0	1	0	0	0	0	0	1	53
06:15 PM	0	27	7	0	5	0	0	0	0	0	0	0	0	0	39
06:30 PM	0	26	7	0	5	0	0	0	0	0	0	0	0	1	39
06:45 PM	0	20	7	0	3	0	0	0	0	0	0	0	0	1	31
07:00 PM	0	18	4	0	9	0	0	0	0	0	0	0	0	1	32
07:15 PM	0	20	10	0	7	0	0	0	0	0	0	0	0	0	37
07:30 PM	0	15	2	0	3	0	0	0	0	0	0	0	0	0	20
07:45 PM	0	15	3	0	1	0	0	0	0	0	0	0	0	1	20
08:00 PM	0	18	5	0	2	0	0	0	0	0	0	0	0	1	26
08:15 PM	0	13	5	0	1	0	0	0	0	0	0	0	0	0	19
08:30 PM	0	10	0	0	2	0	0	0	0	0	0	0	0	0	12
08:45 PM	0	11	3	0	3	0	0	0	0	0	0	0	0	0	17
09:00 PM	0	10	3	0	1	0	0	0	0	0	0	0	0	0	14
09:15 PM	0	7	3	0	2	0	0	1	0	0	0	0	0	1	14
09:30 PM	0	4	4	0	2	0	0	0	0	0	0	0	0	0	10
09:45 PM	0	5	3	0	1	0	0	0	0	0	0	0	0	0	9
10:00 PM	0	9	3	0	2	0	0	0	0	0	0	0	0	0	14
10:15 PM	0	9	2	0	3	0	0	0	0	0	0	0	0	0	14
10:30 PM	0	3	2	0	2	0	0	0	0	0	0	0	0	0	7
10:45 PM	0	5	1	0	2	0	0	0	0	0	0	0	0	0	8
11:00 PM	0	2	2	0	1	0	0	0	0	0	0	0	0	0	5
11:15 PM	0	2	1	0	2	0	0	0	0	0	0	0	0	0	5
11:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
Day Total	2	2103	734	20	603	11	1	32	12	4	0	0	4	68	3594
Percent	0.1%	58.5%	20.4%	0.6%	16.8%	0.3%	0%	0.9%	0.3%	0.1%	0%	0%	0.1%	1.9%	
ADT 3594															
AM Peak 15-min Vol	12:00 AM	7:45 AM	7:30 AM	9:15 AM	7:30 AM	9:30 AM	7:30 AM	8:30 AM	7:00 AM	5:00 AM	12:00 AM	12:00 AM	8:00 AM	9:00 AM	7:30 AM
	0	59	20	3	19	2	1	4	2	1	0	0	1	4	97
PM Peak 15-min Vol	1:00 PM	3:45 PM	12:00 PM	3:15 PM	3:30 PM	2:00 PM	12:00 PM	1:30 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	5:30 PM	3:45 PM
	1	60	23	2	19	3	0	3	2	0	0	0	1	6	92

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd

QC JOB #: 17375104

SPECIFIC LOCATION:

DIRECTION: NB

CITY/STATE: Sandy, OR

DATE: Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
Grand Total	2	2103	734	20	603	11	1	32	12	4	0	0	4	68	3594
Percent	0.1%	58.5%	20.4%	0.6%	16.8%	0.3%	0%	0.9%	0.3%	0.1%	0%	0%	0.1%	1.9%	
ADT 3594															

Comments:

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

Type of report: Midblock Count - Volume Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd							QC JOB #: 17379104			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Sandy, OR							DATE: Dec 16 2025 - Dec 16 2025			
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM		4				4			4	
12:15 AM		0				0			0	
12:30 AM		1				1			1	
12:45 AM		1				1			1	
01:00 AM		3				3			3	
01:15 AM		2				2			2	
01:30 AM		0				0			0	
01:45 AM		0				0			0	
02:00 AM		2				2			2	
02:15 AM		4				4			4	
02:30 AM		0				0			0	
02:45 AM		4				4			4	
03:00 AM		6				6			6	
03:15 AM		2				2			2	
03:30 AM		3				3			3	
03:45 AM		5				5			5	
04:00 AM		6				6			6	
04:15 AM		12				12			12	
04:30 AM		13				13			13	
04:45 AM		16				16			16	
05:00 AM		24				24			24	
05:15 AM		28				28			28	
05:30 AM		36				36			36	
05:45 AM		26				26			26	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: NB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
06:00 AM		41				41			41		
06:15 AM		38				38			38		
06:30 AM		42				42			42		
06:45 AM		61				61			61		
07:00 AM		61				61			61		
07:15 AM		73				73			73		
07:30 AM		97				97			97		
07:45 AM		90				90			90		
08:00 AM		57				57			57		
08:15 AM		54				54			54		
08:30 AM		60				60			60		
08:45 AM		74				74			74		
09:00 AM		60				60			60		
09:15 AM		68				68			68		
09:30 AM		56				56			56		
09:45 AM		70				70			70		
10:00 AM		58				58			58		
10:15 AM		59				59			59		
10:30 AM		53				53			53		
10:45 AM		60				60			60		
11:00 AM		58				58			58		
11:15 AM		44				44			44		
11:30 AM		48				48			48		
11:45 AM		54				54			54		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: NB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
12:00 PM		65				65			65		
12:15 PM		62				62			62		
12:30 PM		49				49			49		
12:45 PM		52				52			52		
01:00 PM		47				47			47		
01:15 PM		53				53			53		
01:30 PM		50				50			50		
01:45 PM		42				42			42		
02:00 PM		57				57			57		
02:15 PM		70				70			70		
02:30 PM		50				50			50		
02:45 PM		75				75			75		
03:00 PM		59				59			59		
03:15 PM		57				57			57		
03:30 PM		70				70			70		
03:45 PM		92				92			92		
04:00 PM		81				81			81		
04:15 PM		78				78			78		
04:30 PM		66				66			66		
04:45 PM		79				79			79		
05:00 PM		65				65			65		
05:15 PM		83				83			83		
05:30 PM		61				61			61		
05:45 PM		47				47			47		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd									QC JOB #: 17379104	
SPECIFIC LOCATION:									DIRECTION: NB	
CITY/STATE: Sandy, OR									DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 PM		53				53			53	
06:15 PM		39				39			39	
06:30 PM		39				39			39	
06:45 PM		31				31			31	
07:00 PM		32				32			32	
07:15 PM		37				37			37	
07:30 PM		20				20			20	
07:45 PM		20				20			20	
08:00 PM		26				26			26	
08:15 PM		19				19			19	
08:30 PM		12				12			12	
08:45 PM		17				17			17	
09:00 PM		14				14			14	
09:15 PM		14				14			14	
09:30 PM		10				10			10	
09:45 PM		9				9			9	
10:00 PM		14				14			14	
10:15 PM		14				14			14	
10:30 PM		7				7			7	
10:45 PM		8				8			8	
11:00 PM		5				5			5	
11:15 PM		5				5			5	
11:30 PM		2				2			2	
11:45 PM		3				3			3	
Day Total		3594				3594			3594	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak 15-min Vol		7:30 AM 97				7:30 AM 97			7:30 AM 97	
PM Peak 15-min Vol		3:45 PM 92				3:45 PM 92			3:45 PM 92	
Comments:										

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	41-50	1
12:15 AM	0	0	0	0	0	0	1	4	1	0	0	0	0	0	6	45-54	5
12:30 AM	0	0	0	0	0	1	1	3	2	0	0	0	0	0	7	46-55	5
12:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	41-50	1
01:00 AM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	4	41-50	3
01:15 AM	0	0	0	0	1	1	1	1	0	0	0	0	0	0	4	31-40	2
01:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	36-45	2
01:45 AM	0	0	0	0	1	1	1	2	0	0	0	0	0	0	5	41-50	3
02:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	36-45	2
02:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	51-60	1
02:30 AM	0	0	0	0	1	0	1	0	1	0	0	0	0	0	3	26-35	1
02:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
03:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	36-45	1
03:15 AM	0	0	1	0	0	0	0	2	2	0	0	0	0	0	5	46-55	4
03:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	41-50	2
03:45 AM	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	46-55	3
04:00 AM	1	0	0	0	0	0	0	1	1	0	0	0	0	0	3	46-55	2
04:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	31-40	1
04:30 AM	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3	46-55	2
04:45 AM	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	41-50	3
05:00 AM	0	0	0	0	0	0	2	3	1	0	0	0	0	0	6	41-50	5
05:15 AM	0	0	0	0	0	1	1	6	2	0	0	0	0	0	10	46-55	8
05:30 AM	0	0	0	0	2	1	4	4	1	0	0	0	0	0	12	41-50	8
05:45 AM	0	0	0	0	0	0	2	7	5	0	0	0	0	0	14	46-55	12
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 AM	1	0	0	0	0	0	6	8	6	0	0	0	0	0	21	41-50	14
06:15 AM	0	0	0	0	0	2	6	3	4	0	0	0	0	0	15	41-50	9
06:30 AM	0	0	0	0	0	0	6	7	5	2	0	0	0	0	20	41-50	13
06:45 AM	2	0	0	0	0	3	3	17	10	1	0	0	0	0	36	46-55	27
07:00 AM	0	0	1	1	2	3	10	6	2	0	1	0	0	0	26	41-50	16
07:15 AM	0	0	0	0	4	4	9	11	3	0	0	0	0	0	31	41-50	20
07:30 AM	2	0	0	0	0	5	14	9	2	1	0	0	1	0	34	41-50	23
07:45 AM	4	0	0	0	0	4	12	15	2	0	0	0	0	0	37	41-50	27
08:00 AM	0	0	0	0	3	8	13	12	5	0	0	0	0	0	41	41-50	25
08:15 AM	1	0	0	0	4	7	15	15	0	0	0	0	0	0	42	41-50	30
08:30 AM	1	0	0	0	0	6	26	17	1	0	0	0	0	0	51	41-50	43
08:45 AM	0	0	0	0	3	10	10	10	5	1	1	0	0	0	40	36-45	20
09:00 AM	0	0	0	0	0	6	18	15	1	0	0	0	0	0	40	41-50	33
09:15 AM	2	0	0	0	1	4	5	13	8	0	0	0	0	0	33	46-55	21
09:30 AM	0	0	0	0	1	1	7	8	6	0	0	0	0	0	23	41-50	15
09:45 AM	0	0	0	0	0	2	13	15	7	0	0	0	0	0	37	41-50	28
10:00 AM	1	0	0	0	1	7	13	12	4	1	1	0	0	0	40	41-50	25
10:15 AM	1	0	0	0	1	5	9	12	0	0	0	0	0	0	28	41-50	21
10:30 AM	0	0	0	0	1	8	15	16	3	0	0	0	0	0	43	41-50	31
10:45 AM	0	0	0	0	2	13	17	17	2	1	0	0	0	0	52	41-50	34
11:00 AM	1	0	0	0	0	2	20	17	6	2	0	0	0	0	48	41-50	37
11:15 AM	0	0	0	0	1	8	17	9	3	0	1	0	0	0	39	41-50	26
11:30 AM	0	0	0	1	2	14	25	15	3	0	0	0	0	0	60	41-50	40
11:45 AM	1	0	0	0	0	7	23	20	4	0	0	0	0	0	55	41-50	43
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 PM	2	0	0	0	0	7	23	14	2	0	0	0	0	0	48	41-50	37
12:15 PM	1	0	0	0	1	8	19	21	7	0	1	0	0	0	58	41-50	40
12:30 PM	0	0	0	1	2	10	21	23	4	1	0	0	0	0	62	41-50	44
12:45 PM	2	0	0	0	2	2	15	18	5	2	0	0	0	0	46	41-50	33
01:00 PM	3	0	0	0	0	7	22	22	5	1	0	0	0	0	60	41-50	44
01:15 PM	1	0	0	0	0	3	14	11	10	3	1	0	0	0	43	41-50	25
01:30 PM	0	0	0	0	1	6	14	21	6	0	0	0	0	0	48	41-50	35
01:45 PM	2	0	0	0	0	2	17	17	6	4	0	0	0	0	48	41-50	34
02:00 PM	2	0	0	0	2	9	13	14	9	1	0	0	0	0	50	41-50	27
02:15 PM	1	0	0	0	0	3	25	23	5	1	0	0	0	0	58	41-50	48
02:30 PM	1	0	0	0	3	4	19	22	8	1	0	0	0	0	58	41-50	41
02:45 PM	0	0	0	0	0	8	21	27	7	1	0	0	0	0	64	41-50	48
03:00 PM	0	0	0	0	2	28	28	23	7	0	0	0	0	0	88	36-45	56
03:15 PM	1	0	0	0	1	3	34	25	10	2	0	0	0	0	76	41-50	59
03:30 PM	5	0	0	0	0	11	31	32	15	1	0	0	0	0	95	41-50	63
03:45 PM	1	0	0	0	5	17	36	22	9	1	0	0	0	0	91	41-50	58
04:00 PM	1	0	0	1	3	16	40	30	4	1	0	0	0	0	96	41-50	70
04:15 PM	3	0	0	0	0	7	34	26	2	2	0	0	0	0	74	41-50	60
04:30 PM	0	0	0	0	2	10	35	20	6	1	0	1	0	0	75	41-50	55
04:45 PM	5	0	0	1	3	7	28	33	5	2	0	0	0	0	84	41-50	61
05:00 PM	4	0	0	1	2	15	38	32	8	0	0	0	0	0	100	41-50	70
05:15 PM	2	0	0	0	0	8	41	26	10	2	0	0	0	0	89	41-50	67
05:30 PM	5	0	0	0	0	2	26	25	11	1	0	0	0	0	70	41-50	51
05:45 PM	0	0	0	0	0	2	20	20	13	2	0	1	0	0	58	41-50	40
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 PM	1	0	0	0	6	11	23	26	9	3	1	0	0	0	80	41-50	49
06:15 PM	2	0	0	0	0	4	22	27	4	2	1	0	0	0	62	41-50	49
06:30 PM	0	0	0	0	0	2	20	26	8	1	0	0	0	0	57	41-50	46
06:45 PM	1	0	0	0	0	11	13	21	8	1	0	0	0	0	55	41-50	34
07:00 PM	2	0	0	0	0	8	16	14	5	0	0	0	0	0	45	41-50	30
07:15 PM	1	0	0	0	3	3	22	8	5	1	0	0	0	0	43	41-50	30
07:30 PM	0	0	0	0	1	5	13	12	4	1	0	0	0	0	36	41-50	25
07:45 PM	1	0	0	0	1	3	12	15	2	1	0	0	0	0	35	41-50	27
08:00 PM	2	0	0	0	0	5	24	10	4	2	0	0	0	0	47	41-50	34
08:15 PM	0	0	0	0	0	4	12	9	3	4	0	0	0	0	32	41-50	21
08:30 PM	0	0	0	0	0	8	14	11	1	0	0	0	0	0	34	41-50	25
08:45 PM	0	0	0	0	0	3	14	13	3	0	0	0	0	0	33	41-50	27
09:00 PM	0	0	0	0	0	4	3	7	1	0	0	0	0	0	15	41-50	10
09:15 PM	0	0	0	0	1	4	10	10	3	0	1	1	0	0	30	41-50	20
09:30 PM	0	0	0	0	0	2	6	11	1	0	0	0	0	0	20	41-50	17
09:45 PM	0	0	0	0	1	2	4	4	0	0	0	0	0	0	11	41-50	8
10:00 PM	0	0	0	0	0	0	6	4	3	1	0	0	0	0	14	41-50	10
10:15 PM	0	0	0	0	0	0	6	4	3	0	0	0	0	0	13	41-50	10
10:30 PM	0	0	0	0	0	1	5	4	2	0	0	0	0	0	12	41-50	9
10:45 PM	0	0	0	0	0	1	3	3	0	1	0	0	0	0	8	41-50	6
11:00 PM	0	0	0	0	0	2	0	5	1	0	0	0	0	0	8	46-55	6
11:15 PM	0	0	0	0	0	1	1	2	1	1	0	0	0	0	6	46-55	3
11:30 PM	0	0	0	1	0	0	1	4	0	0	0	0	0	0	6	41-50	5
11:45 PM	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5	41-50	5
Day Total	70	0	2	7	73	416	1199	1141	356	60	9	4	1	0	3338	41-50	2340
Percent	2.1%	0%	0.1%	0.2%	2.2%	12.5%	35.9%	34.2%	10.7%	1.8%	0.3%	0.1%	0%	0%			
AM Peak 15-min Vol	7:45 AM 4	12:00 AM 0	3:15 AM 1	7:00 AM 1	7:15 AM 4	11:30 AM 14	8:30 AM 26	11:45 AM 20	6:45 AM 10	6:30 AM 2	7:00 AM 1	2:15 AM 1	7:30 AM 1	12:00 AM 0	11:30 AM 60		
PM Peak 15-min Vol	3:30 PM 5	12:00 PM 0	12:00 PM 0	12:30 PM 1	6:00 PM 6	3:00 PM 28	5:15 PM 41	4:45 PM 33	3:30 PM 15	1:45 PM 4	12:15 PM 1	4:30 PM 1	12:00 PM 0	12:00 PM 0	5:00 PM 100		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total Percent	70 2.1%	0 0%	2 0.1%	7 0.2%	73 2.2%	416 12.5%	1199 35.9%	1141 34.2%	356 10.7%	60 1.8%	9 0.3%	4 0.1%	1 0%	0 0%	3338	41-50	2340
Cumulative Percent	2.1%	2.1%	2.2%	2.4%	4.6%	17%	52.9%	87.1%	97.8%	99.6%	99.9%	100%	100%	100%			
ADT 3338															85th Percentile: 49 MPH Mean Speed(Average): 44 MPH Median: 44 MPH Mode: 43 MPH		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 AM	0	2	4	0	0	0	0	0	0	0	0	0	0	0	6
12:30 AM	0	4	2	1	0	0	0	0	0	0	0	0	0	0	7
12:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00 AM	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
01:15 AM	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4
01:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
01:45 AM	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
02:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
02:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
02:30 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
02:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:15 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	5
03:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
03:45 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
04:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	1	3
04:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
04:45 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
05:00 AM	0	1	2	0	3	0	0	0	0	0	0	0	0	0	6
05:15 AM	0	5	1	0	4	0	0	0	0	0	0	0	0	0	10
05:30 AM	0	10	0	0	2	0	0	0	0	0	0	0	0	0	12
05:45 AM	0	11	1	0	2	0	0	0	0	0	0	0	0	0	14
Day Total Percent															
ADT 3338															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06:00 AM	0	10	5	1	4	0	0	0	0	0	0	0	0	1	21
06:15 AM	0	9	0	1	5	0	0	0	0	0	0	0	0	0	15
06:30 AM	0	9	6	0	4	1	0	0	0	0	0	0	0	0	20
06:45 AM	0	21	7	0	5	0	0	1	0	0	0	0	0	2	36
07:00 AM	0	17	2	0	6	0	0	0	1	0	0	0	0	0	26
07:15 AM	0	18	4	1	7	1	0	0	0	0	0	0	0	0	31
07:30 AM	0	16	8	0	6	0	1	1	0	0	0	0	0	2	34
07:45 AM	0	18	5	0	8	1	0	1	0	0	0	0	0	4	37
08:00 AM	0	20	9	0	11	1	0	0	0	0	0	0	0	0	41
08:15 AM	0	18	11	6	5	0	0	1	0	0	0	0	0	1	42
08:30 AM	0	31	10	0	7	0	1	1	0	0	0	0	0	1	51
08:45 AM	0	15	14	2	8	0	0	1	0	0	0	0	0	0	40
09:00 AM	0	18	10	0	8	1	0	3	0	0	0	0	0	0	40
09:15 AM	0	18	7	0	6	0	0	0	0	0	0	0	0	2	33
09:30 AM	0	11	8	0	4	0	0	0	0	0	0	0	0	0	23
09:45 AM	0	25	3	0	7	0	0	1	0	1	0	0	0	0	37
10:00 AM	0	23	8	0	7	0	0	1	0	0	0	0	0	1	40
10:15 AM	1	10	8	0	8	0	0	0	0	0	0	0	0	1	28
10:30 AM	0	29	6	1	7	0	0	0	0	0	0	0	0	0	43
10:45 AM	0	30	11	0	10	0	0	1	0	0	0	0	0	0	52
11:00 AM	0	26	12	0	8	0	0	0	1	0	0	0	0	1	48
11:15 AM	0	26	5	0	8	0	0	0	0	0	0	0	0	0	39
11:30 AM	0	30	16	1	13	0	0	0	0	0	0	0	0	0	60
11:45 AM	0	33	11	0	8	0	0	0	2	0	0	0	0	1	55
Day Total															
Percent															
ADT 3338															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 PM	0	28	9	0	8	0	0	0	0	1	0	0	0	2	48
12:15 PM	0	36	12	1	7	0	0	1	0	0	0	0	0	1	58
12:30 PM	0	41	10	0	11	0	0	0	0	0	0	0	0	0	62
12:45 PM	0	26	8	1	8	0	0	1	0	0	0	0	0	2	46
01:00 PM	0	30	14	2	9	0	0	0	1	0	0	0	1	3	60
01:15 PM	0	21	12	0	8	0	0	0	0	1	0	0	0	1	43
01:30 PM	0	26	16	0	6	0	0	0	0	0	0	0	0	0	48
01:45 PM	0	26	15	0	4	0	0	1	0	0	0	0	0	2	48
02:00 PM	0	31	8	0	9	0	0	0	0	0	0	0	0	2	50
02:15 PM	0	30	12	0	14	0	0	0	1	0	0	0	0	1	58
02:30 PM	0	36	9	0	10	0	0	2	0	0	0	0	0	1	58
02:45 PM	0	37	15	2	7	1	0	2	0	0	0	0	0	0	64
03:00 PM	0	39	26	0	17	1	0	2	2	0	0	0	1	0	88
03:15 PM	0	43	18	1	12	0	0	1	0	0	0	0	0	1	76
03:30 PM	0	44	19	1	23	1	0	2	0	0	0	0	0	5	95
03:45 PM	0	55	19	3	12	0	0	1	0	0	0	0	0	1	91
04:00 PM	0	57	13	0	23	1	0	1	0	0	0	0	0	1	96
04:15 PM	0	36	19	1	15	0	0	0	0	0	0	0	0	3	74
04:30 PM	0	48	12	0	14	0	0	1	0	0	0	0	0	0	75
04:45 PM	0	44	19	1	12	0	0	3	0	0	0	0	0	5	84
05:00 PM	0	59	17	1	19	0	0	0	0	0	0	0	0	4	100
05:15 PM	0	58	14	0	14	0	0	1	0	0	0	0	0	2	89
05:30 PM	0	43	14	0	7	1	0	0	0	0	0	0	0	5	70
05:45 PM	0	35	12	0	11	0	0	0	0	0	0	0	0	0	58
Day Total															
Percent															
ADT 3338															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
06:00 PM	0	43	23	0	12	0	0	1	0	0	0	0	0	1	80
06:15 PM	0	44	11	0	5	0	0	0	0	0	0	0	0	2	62
06:30 PM	0	27	14	0	16	0	0	0	0	0	0	0	0	0	57
06:45 PM	0	35	13	0	6	0	0	0	0	0	0	0	0	1	55
07:00 PM	0	30	8	0	5	0	0	0	0	0	0	0	0	2	45
07:15 PM	0	32	2	0	8	0	0	0	0	0	0	0	0	1	43
07:30 PM	0	22	11	0	3	0	0	0	0	0	0	0	0	0	36
07:45 PM	0	21	8	0	5	0	0	0	0	0	0	0	0	1	35
08:00 PM	0	33	8	0	4	0	0	0	0	0	0	0	0	2	47
08:15 PM	0	21	6	0	5	0	0	0	0	0	0	0	0	0	32
08:30 PM	0	19	10	0	5	0	0	0	0	0	0	0	0	0	34
08:45 PM	0	21	4	0	8	0	0	0	0	0	0	0	0	0	33
09:00 PM	0	11	3	0	1	0	0	0	0	0	0	0	0	0	15
09:15 PM	0	16	9	0	5	0	0	0	0	0	0	0	0	0	30
09:30 PM	0	14	6	0	0	0	0	0	0	0	0	0	0	0	20
09:45 PM	0	8	2	0	1	0	0	0	0	0	0	0	0	0	11
10:00 PM	0	10	3	0	1	0	0	0	0	0	0	0	0	0	14
10:15 PM	0	8	4	0	1	0	0	0	0	0	0	0	0	0	13
10:30 PM	0	8	2	0	2	0	0	0	0	0	0	0	0	0	12
10:45 PM	0	4	1	0	3	0	0	0	0	0	0	0	0	0	8
11:00 PM	0	5	2	0	1	0	0	0	0	0	0	0	0	0	8
11:15 PM	0	2	3	0	1	0	0	0	0	0	0	0	0	0	6
11:30 PM	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
11:45 PM	0	2	1	0	2	0	0	0	0	0	0	0	0	0	5
Day Total	1	1907	703	31	569	10	2	32	8	3	0	0	2	70	3338
Percent	0%	57.1%	21.1%	0.9%	17%	0.3%	0.1%	1%	0.2%	0.1%	0%	0%	0.1%	2.1%	
ADT 3338															
AM Peak 15-min Vol	10:15 AM	11:45 AM	11:30 AM	8:15 AM	11:30 AM	6:30 AM	7:30 AM	9:00 AM	11:45 AM	9:45 AM	12:00 AM	12:00 AM	12:00 AM	7:45 AM	11:30 AM
	1	33	16	6	13	1	1	3	2	1	0	0	0	4	60
PM Peak 15-min Vol	12:00 PM	5:00 PM	3:00 PM	3:45 PM	3:30 PM	2:45 PM	12:00 PM	4:45 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM	1:00 PM	3:30 PM	5:00 PM
	0	59	26	3	23	1	0	3	2	1	0	0	1	5	100

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17375104**SPECIFIC LOCATION:****DIRECTION:** SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
Grand Total	1	1907	703	31	569	10	2	32	8	3	0	0	2	70	3338
Percent	0%	57.1%	21.1%	0.9%	17%	0.3%	0.1%	1%	0.2%	0.1%	0%	0%	0.1%	2.1%	
ADT 3338															

Comments:

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

Type of report: Midblock Count - Volume Data

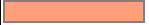
LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd							QC JOB #: 17379104			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Sandy, OR							DATE: Dec 16 2025 - Dec 16 2025			
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM		1				1			1	
12:15 AM		6				6			6	
12:30 AM		7				7			7	
12:45 AM		1				1			1	
01:00 AM		4				4			4	
01:15 AM		4				4			4	
01:30 AM		2				2			2	
01:45 AM		5				5			5	
02:00 AM		2				2			2	
02:15 AM		2				2			2	
02:30 AM		3				3			3	
02:45 AM		0				0			0	
03:00 AM		1				1			1	
03:15 AM		5				5			5	
03:30 AM		2				2			2	
03:45 AM		3				3			3	
04:00 AM		3				3			3	
04:15 AM		1				1			1	
04:30 AM		3				3			3	
04:45 AM		3				3			3	
05:00 AM		6				6			6	
05:15 AM		10				10			10	
05:30 AM		12				12			12	
05:45 AM		14				14			14	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
06:00 AM		21				21			21		
06:15 AM		15				15			15		
06:30 AM		20				20			20		
06:45 AM		36				36			36		
07:00 AM		26				26			26		
07:15 AM		31				31			31		
07:30 AM		34				34			34		
07:45 AM		37				37			37		
08:00 AM		41				41			41		
08:15 AM		42				42			42		
08:30 AM		51				51			51		
08:45 AM		40				40			40		
09:00 AM		40				40			40		
09:15 AM		33				33			33		
09:30 AM		23				23			23		
09:45 AM		37				37			37		
10:00 AM		40				40			40		
10:15 AM		28				28			28		
10:30 AM		43				43			43		
10:45 AM		52				52			52		
11:00 AM		48				48			48		
11:15 AM		39				39			39		
11:30 AM		60				60			60		
11:45 AM		55				55			55		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
12:00 PM		48				48			48		
12:15 PM		58				58			58		
12:30 PM		62				62			62		
12:45 PM		46				46			46		
01:00 PM		60				60			60		
01:15 PM		43				43			43		
01:30 PM		48				48			48		
01:45 PM		48				48			48		
02:00 PM		50				50			50		
02:15 PM		58				58			58		
02:30 PM		58				58			58		
02:45 PM		64				64			64		
03:00 PM		88				88			88		
03:15 PM		76				76			76		
03:30 PM		95				95			95		
03:45 PM		91				91			91		
04:00 PM		96				96			96		
04:15 PM		74				74			74		
04:30 PM		75				75			75		
04:45 PM		84				84			84		
05:00 PM		100				100			100		
05:15 PM		89				89			89		
05:30 PM		70				70			70		
05:45 PM		58				58			58		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
06:00 PM	80					80			80		
06:15 PM	62					62			62		
06:30 PM	57					57			57		
06:45 PM	55					55			55		
07:00 PM	45					45			45		
07:15 PM	43					43			43		
07:30 PM	36					36			36		
07:45 PM	35					35			35		
08:00 PM	47					47			47		
08:15 PM	32					32			32		
08:30 PM	34					34			34		
08:45 PM	33					33			33		
09:00 PM	15					15			15		
09:15 PM	30					30			30		
09:30 PM	20					20			20		
09:45 PM	11					11			11		
10:00 PM	14					14			14		
10:15 PM	13					13			13		
10:30 PM	12					12			12		
10:45 PM	8					8			8		
11:00 PM	8					8			8		
11:15 PM	6					6			6		
11:30 PM	6					6			6		
11:45 PM	5					5			5		
Day Total	3338					3338			3338		
% Weekday Average	100%										
% Week Average	100%					100%					
AM Peak 15-min Vol	11:30 AM 60					11:30 AM 60			11:30 AM 60		
PM Peak 15-min Vol	5:00 PM 100					5:00 PM 100			5:00 PM 100		
Comments:											

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB, SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5	41-50	5
12:15 AM	0	0	0	0	0	0	1	4	1	0	0	0	0	0	6	45-54	5
12:30 AM	0	0	0	0	0	1	1	4	2	0	0	0	0	0	8	46-55	6
12:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	31-40	1
01:00 AM	0	0	0	0	0	2	3	2	0	0	0	0	0	0	7	38-47	5
01:15 AM	0	0	1	0	1	2	1	1	0	0	0	0	0	0	6	36-45	3
01:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	36-45	2
01:45 AM	0	0	0	0	1	1	1	2	0	0	0	0	0	0	5	41-50	3
02:00 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	4	36-45	3
02:15 AM	0	0	0	0	2	1	1	0	0	1	0	1	0	0	6	31-40	3
02:30 AM	0	0	0	0	1	0	1	0	1	0	0	0	0	0	3	26-35	1
02:45 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	26-35	2
03:00 AM	0	0	0	0	0	1	2	3	1	0	0	0	0	0	7	41-50	5
03:15 AM	0	0	1	1	0	0	1	2	2	0	0	0	0	0	7	46-55	4
03:30 AM	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5	41-50	5
03:45 AM	0	0	0	0	0	2	1	3	2	0	0	0	0	0	8	46-55	5
04:00 AM	1	0	0	0	1	1	1	2	3	0	0	0	0	0	9	46-55	5
04:15 AM	0	0	0	0	0	4	3	4	2	0	0	0	0	0	13	40-49	7
04:30 AM	0	0	0	1	0	5	1	7	1	1	0	0	0	0	16	45-54	8
04:45 AM	0	0	0	0	1	4	6	7	1	0	0	0	0	0	19	41-50	13
05:00 AM	0	0	0	0	1	3	17	7	2	0	0	0	0	0	30	41-50	24
05:15 AM	0	0	0	0	1	8	12	14	2	1	0	0	0	0	38	41-50	26
05:30 AM	0	0	0	1	4	7	15	16	4	1	0	0	0	0	48	41-50	31
05:45 AM	0	0	0	0	1	3	12	14	8	2	0	0	0	0	40	41-50	26
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB, SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 AM	1	0	0	0	3	4	19	25	9	1	0	0	0	0	62	41-50	44
06:15 AM	2	0	0	0	0	10	20	11	9	0	1	0	0	0	53	41-50	31
06:30 AM	0	0	0	1	4	7	23	18	6	3	0	0	0	0	62	41-50	41
06:45 AM	3	0	0	0	4	22	29	26	11	1	1	0	0	0	97	41-50	55
07:00 AM	0	0	1	2	11	20	30	18	4	0	1	0	0	0	87	36-45	50
07:15 AM	1	0	0	1	11	31	39	16	5	0	0	0	0	0	104	36-45	70
07:30 AM	2	0	0	2	4	38	55	25	3	1	0	0	1	0	131	36-45	93
07:45 AM	6	0	0	3	2	22	56	33	4	0	1	0	0	0	127	41-50	89
08:00 AM	0	0	0	0	4	15	41	31	7	0	0	0	0	0	98	41-50	72
08:15 AM	1	0	0	0	7	19	31	31	6	0	1	0	0	0	96	41-50	62
08:30 AM	2	0	0	1	4	15	51	31	7	0	0	0	0	0	111	41-50	82
08:45 AM	0	0	0	0	7	27	29	34	13	3	1	0	0	0	114	41-50	63
09:00 AM	4	0	0	0	2	9	38	36	10	1	0	0	0	0	100	41-50	74
09:15 AM	2	0	0	0	4	13	27	38	16	1	0	0	0	0	101	41-50	65
09:30 AM	0	0	0	1	2	12	28	23	12	0	0	1	0	0	79	41-50	51
09:45 AM	0	0	0	0	2	16	39	38	12	0	0	0	0	0	107	41-50	77
10:00 AM	3	0	0	1	4	16	32	31	9	1	1	0	0	0	98	41-50	63
10:15 AM	4	0	0	1	6	16	29	25	3	3	0	0	0	0	87	41-50	54
10:30 AM	3	0	1	1	2	18	33	30	7	1	0	0	0	0	96	41-50	63
10:45 AM	0	0	0	1	7	30	29	33	10	2	0	0	0	0	112	41-50	62
11:00 AM	3	0	0	0	0	7	41	37	14	4	0	0	0	0	106	41-50	78
11:15 AM	0	0	0	0	2	12	37	23	7	0	2	0	0	0	83	41-50	60
11:30 AM	0	0	0	1	3	24	44	33	3	0	0	0	0	0	108	41-50	77
11:45 AM	2	0	0	0	2	15	41	39	9	1	0	0	0	0	109	41-50	80
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd															QC JOB #: 17379104		
SPECIFIC LOCATION:															DIRECTION: NB, SB		
CITY/STATE: Sandy, OR															DATE: Dec 16 2025		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 PM	2	0	0	0	1	16	45	37	12	0	0	0	0	0	113	41-50	82
12:15 PM	2	0	0	2	5	21	40	36	12	1	1	0	0	0	120	41-50	76
12:30 PM	0	0	0	1	4	19	40	35	7	4	1	0	0	0	111	41-50	75
12:45 PM	3	0	0	0	4	7	29	34	19	2	0	0	0	0	98	41-50	63
01:00 PM	4	0	0	0	2	12	39	35	13	2	0	0	0	0	107	41-50	74
01:15 PM	1	0	0	0	1	10	29	30	19	5	1	0	0	0	96	41-50	59
01:30 PM	1	0	0	0	1	11	34	38	11	2	0	0	0	0	98	41-50	72
01:45 PM	3	0	0	0	0	7	32	30	10	7	1	0	0	0	90	41-50	62
02:00 PM	4	0	0	0	3	21	28	36	14	1	0	0	0	0	107	41-50	64
02:15 PM	3	0	0	0	1	11	44	56	11	2	0	0	0	0	128	41-50	100
02:30 PM	1	0	0	2	6	6	31	45	15	2	0	0	0	0	108	41-50	76
02:45 PM	2	0	0	0	2	16	44	59	13	2	1	0	0	0	139	41-50	103
03:00 PM	2	0	0	0	2	37	47	44	15	0	0	0	0	0	147	41-50	91
03:15 PM	1	0	0	0	5	10	54	43	18	2	0	0	0	0	133	41-50	97
03:30 PM	9	0	0	0	0	14	56	57	24	4	0	0	0	1	165	41-50	113
03:45 PM	2	0	0	0	7	26	73	51	23	1	0	0	0	0	183	41-50	124
04:00 PM	3	0	0	1	5	22	80	51	11	4	0	0	0	0	177	41-50	131
04:15 PM	5	0	0	0	0	20	64	46	12	5	0	0	0	0	152	41-50	110
04:30 PM	3	0	0	0	3	24	63	31	10	5	1	1	0	0	141	41-50	94
04:45 PM	8	0	0	1	5	23	67	49	8	2	0	0	0	0	163	41-50	116
05:00 PM	4	0	0	1	8	37	59	46	9	0	0	0	0	1	165	41-50	105
05:15 PM	7	0	0	0	4	35	71	41	12	2	0	0	0	0	172	41-50	112
05:30 PM	11	0	0	0	4	10	56	36	12	1	0	0	1	0	131	41-50	92
05:45 PM	0	0	0	1	1	13	36	34	16	3	0	1	0	0	105	41-50	70
Day Total Percent																	
AM Peak 15-min Vol																	
PM Peak 15-min Vol																	
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Midblock Count - Speed Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
06:00 PM	2	0	0	1	6	20	51	36	13	3	1	0	0	0	133	41-50	87
06:15 PM	2	0	0	0	1	9	42	40	4	2	1	0	0	0	101	41-50	82
06:30 PM	1	0	0	1	1	11	35	35	10	1	0	0	1	0	96	41-50	70
06:45 PM	2	0	0	0	2	17	24	30	10	1	0	0	0	0	86	41-50	54
07:00 PM	3	0	0	1	2	16	31	17	7	0	0	0	0	0	77	41-50	48
07:15 PM	1	0	0	0	4	9	39	15	10	2	0	0	0	0	80	41-50	54
07:30 PM	0	0	0	0	2	11	18	19	4	2	0	0	0	0	56	41-50	37
07:45 PM	2	0	0	0	2	7	20	20	3	1	0	0	0	0	55	41-50	40
08:00 PM	3	0	0	1	0	10	35	15	6	3	0	0	0	0	73	41-50	50
08:15 PM	0	0	0	0	0	12	17	12	6	4	0	0	0	0	51	36-45	29
08:30 PM	0	0	0	0	2	9	19	15	1	0	0	0	0	0	46	41-50	34
08:45 PM	0	0	0	0	1	4	23	17	5	0	0	0	0	0	50	41-50	40
09:00 PM	0	0	0	0	1	7	8	12	1	0	0	0	0	0	29	41-50	20
09:15 PM	1	0	0	1	3	6	14	14	3	0	1	1	0	0	44	41-50	28
09:30 PM	0	0	0	0	2	3	11	13	1	0	0	0	0	0	30	41-50	24
09:45 PM	0	0	0	0	1	5	7	6	1	0	0	0	0	0	20	41-50	13
10:00 PM	0	0	0	0	0	1	14	8	4	1	0	0	0	0	28	41-50	22
10:15 PM	0	0	0	0	1	2	9	10	5	0	0	0	0	0	27	41-50	19
10:30 PM	0	0	0	0	0	4	9	4	2	0	0	0	0	0	19	39-48	13
10:45 PM	0	0	0	0	0	5	5	5	0	1	0	0	0	0	16	36-45	10
11:00 PM	0	0	0	0	0	2	0	8	3	0	0	0	0	0	13	46-55	11
11:15 PM	0	0	0	0	0	3	2	3	2	1	0	0	0	0	11	36-45	5
11:30 PM	0	0	0	1	0	0	2	5	0	0	0	0	0	0	8	41-50	7
11:45 PM	0	0	0	0	1	0	3	4	0	0	0	0	0	0	8	41-50	7
Day Total	138	0	4	34	220	1067	2529	2147	655	110	18	5	3	2	6932	41-50	4676
Percent	2%	0%	0.1%	0.5%	3.2%	15.4%	36.5%	31%	9.4%	1.6%	0.3%	0.1%	0%	0%			
AM Peak 15-min Vol	7:45 AM 6	12:00 AM 0	1:15 AM 1	7:45 AM 3	7:00 AM 11	7:30 AM 38	7:45 AM 56	11:45 AM 39	9:15 AM 16	11:00 AM 4	11:15 AM 2	2:15 AM 1	7:30 AM 1	12:00 AM 0	7:30 AM 131		
PM Peak 15-min Vol	5:30 PM 11	12:00 PM 0	12:00 PM 0	12:15 PM 2	5:00 PM 8	3:00 PM 37	4:00 PM 80	2:45 PM 59	3:30 PM 24	1:45 PM 7	12:15 PM 1	4:30 PM 1	5:30 PM 1	3:30 PM 1	3:45 PM 183		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17379104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total Percent	138 2%	0 0%	4 0.1%	34 0.5%	220 3.2%	1067 15.4%	2529 36.5%	2147 31%	655 9.4%	110 1.6%	18 0.3%	5 0.1%	3 0%	2 0%	6932	41-50	4676
Cumulative Percent	2%	2%	2%	2.5%	5.7%	21.1%	57.6%	88.6%	98%	99.6%	99.9%	99.9%	100%	100%			
ADT 6932															85th Percentile: 49 MPH Mean Speed(Average): 43 MPH Median: 43 MPH Mode: 43 MPH		
Comments:																	

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 AM	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
12:15 AM	0	2	4	0	0	0	0	0	0	0	0	0	0	0	6
12:30 AM	0	4	2	1	1	0	0	0	0	0	0	0	0	0	8
12:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
01:00 AM	0	4	1	0	2	0	0	0	0	0	0	0	0	0	7
01:15 AM	0	3	2	1	0	0	0	0	0	0	0	0	0	0	6
01:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
01:45 AM	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
02:00 AM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
02:15 AM	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
02:30 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
02:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	3	3	0	1	0	0	0	0	0	0	0	0	0	7
03:15 AM	0	3	2	0	2	0	0	0	0	0	0	0	0	0	7
03:30 AM	0	4	0	1	0	0	0	0	0	0	0	0	0	0	5
03:45 AM	0	5	1	0	2	0	0	0	0	0	0	0	0	0	8
04:00 AM	0	3	2	0	3	0	0	0	0	0	0	0	0	1	9
04:15 AM	0	11	1	0	1	0	0	0	0	0	0	0	0	0	13
04:30 AM	0	11	4	0	1	0	0	0	0	0	0	0	0	0	16
04:45 AM	0	12	2	0	5	0	0	0	0	0	0	0	0	0	19
05:00 AM	0	17	6	0	6	0	0	0	0	1	0	0	0	0	30
05:15 AM	0	16	6	0	16	0	0	0	0	0	0	0	0	0	38
05:30 AM	0	27	7	0	12	0	0	0	1	1	0	0	0	0	48
05:45 AM	0	22	5	0	13	0	0	0	0	0	0	0	0	0	40
Day Total Percent															
ADT 6932															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06:00 AM	0	36	13	1	11	0	0	0	0	0	0	0	0	1	62
06:15 AM	0	35	4	1	11	0	0	0	0	0	0	0	0	2	53
06:30 AM	0	35	15	0	11	1	0	0	0	0	0	0	0	0	62
06:45 AM	0	51	20	0	21	1	0	1	0	0	0	0	0	3	97
07:00 AM	0	60	12	0	11	0	0	1	3	0	0	0	0	0	87
07:15 AM	0	63	19	2	16	1	0	2	0	0	0	0	0	1	104
07:30 AM	0	71	28	2	25	0	2	1	0	0	0	0	0	2	131
07:45 AM	0	77	25	0	16	2	0	1	0	0	0	0	0	6	127
08:00 AM	0	53	19	0	24	1	0	0	0	0	0	0	1	0	98
08:15 AM	0	52	21	7	11	1	0	3	0	0	0	0	0	1	96
08:30 AM	0	65	22	1	14	0	1	5	1	0	0	0	0	2	111
08:45 AM	0	56	29	2	22	0	0	4	0	0	0	0	1	0	114
09:00 AM	0	52	21	0	17	1	0	5	0	0	0	0	0	4	100
09:15 AM	0	53	23	3	16	1	0	1	2	0	0	0	0	2	101
09:30 AM	0	42	19	0	14	2	0	1	0	0	0	0	1	0	79
09:45 AM	0	75	15	0	13	1	0	2	0	1	0	0	0	0	107
10:00 AM	0	52	19	2	20	0	0	2	0	0	0	0	0	3	98
10:15 AM	1	38	21	0	22	0	0	0	0	1	0	0	0	4	87
10:30 AM	0	64	15	1	10	0	0	0	2	1	0	0	0	3	96
10:45 AM	0	70	23	0	18	0	0	1	0	0	0	0	0	0	112
11:00 AM	0	59	27	0	16	0	0	0	1	0	0	0	0	3	106
11:15 AM	0	54	11	0	17	0	0	1	0	0	0	0	0	0	83
11:30 AM	0	49	30	2	26	0	0	1	0	0	0	0	0	0	108
11:45 AM	0	61	25	0	18	0	0	0	3	0	0	0	0	2	109
Day Total Percent															
ADT 6932															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
12:00 PM	0	62	32	0	15	0	0	0	0	1	0	0	1	2	113
12:15 PM	0	77	23	1	15	0	0	1	1	0	0	0	0	2	120
12:30 PM	0	70	18	1	21	0	0	1	0	0	0	0	0	0	111
12:45 PM	0	63	14	2	15	0	0	1	0	0	0	0	0	3	98
01:00 PM	1	55	23	2	17	0	0	1	3	0	0	0	1	4	107
01:15 PM	0	48	26	0	20	0	0	0	0	1	0	0	0	1	96
01:30 PM	0	50	27	0	17	0	0	3	0	0	0	0	0	1	98
01:45 PM	0	57	22	0	6	0	0	2	0	0	0	0	0	3	90
02:00 PM	0	64	19	0	17	3	0	0	0	0	0	0	0	4	107
02:15 PM	0	68	27	0	27	0	0	2	1	0	0	0	0	3	128
02:30 PM	0	65	16	0	23	1	0	2	0	0	0	0	0	1	108
02:45 PM	0	80	34	3	17	1	0	2	0	0	0	0	0	2	139
03:00 PM	0	75	37	0	27	1	0	2	2	0	0	0	1	2	147
03:15 PM	0	76	33	3	19	0	0	1	0	0	0	0	0	1	133
03:30 PM	0	78	30	3	42	1	0	2	0	0	0	0	0	9	165
03:45 PM	0	115	38	3	24	0	0	1	0	0	0	0	0	2	183
04:00 PM	1	104	26	1	40	1	0	1	0	0	0	0	0	3	177
04:15 PM	0	77	35	2	33	0	0	0	0	0	0	0	0	5	152
04:30 PM	0	87	30	0	20	0	0	1	0	0	0	0	0	3	141
04:45 PM	0	89	37	1	24	0	0	4	0	0	0	0	0	8	163
05:00 PM	0	98	28	1	34	0	0	0	0	0	0	0	0	4	165
05:15 PM	0	98	34	0	31	0	0	2	0	0	0	0	0	7	172
05:30 PM	0	77	23	0	19	1	0	0	0	0	0	0	0	11	131
05:45 PM	0	64	23	0	18	0	0	0	0	0	0	0	0	0	105
Day Total															
Percent															
ADT 6932															
AM Peak 15-min Vol															
PM Peak 15-min Vol															

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 1755104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
06:00 PM	0	76	38	0	15	0	0	2	0	0	0	0	0	2	133
06:15 PM	0	71	18	0	10	0	0	0	0	0	0	0	0	2	101
06:30 PM	0	53	21	0	21	0	0	0	0	0	0	0	0	1	96
06:45 PM	0	55	20	0	9	0	0	0	0	0	0	0	0	2	86
07:00 PM	0	48	12	0	14	0	0	0	0	0	0	0	0	3	77
07:15 PM	0	52	12	0	15	0	0	0	0	0	0	0	0	1	80
07:30 PM	0	37	13	0	6	0	0	0	0	0	0	0	0	0	56
07:45 PM	0	36	11	0	6	0	0	0	0	0	0	0	0	2	55
08:00 PM	0	51	13	0	6	0	0	0	0	0	0	0	0	3	73
08:15 PM	0	34	11	0	6	0	0	0	0	0	0	0	0	0	51
08:30 PM	0	29	10	0	7	0	0	0	0	0	0	0	0	0	46
08:45 PM	0	32	7	0	11	0	0	0	0	0	0	0	0	0	50
09:00 PM	0	21	6	0	2	0	0	0	0	0	0	0	0	0	29
09:15 PM	0	23	12	0	7	0	0	1	0	0	0	0	0	1	44
09:30 PM	0	18	10	0	2	0	0	0	0	0	0	0	0	0	30
09:45 PM	0	13	5	0	2	0	0	0	0	0	0	0	0	0	20
10:00 PM	0	19	6	0	3	0	0	0	0	0	0	0	0	0	28
10:15 PM	0	17	6	0	4	0	0	0	0	0	0	0	0	0	27
10:30 PM	0	11	4	0	4	0	0	0	0	0	0	0	0	0	19
10:45 PM	0	9	2	0	5	0	0	0	0	0	0	0	0	0	16
11:00 PM	0	7	4	0	2	0	0	0	0	0	0	0	0	0	13
11:15 PM	0	4	4	0	3	0	0	0	0	0	0	0	0	0	11
11:30 PM	0	5	3	0	0	0	0	0	0	0	0	0	0	0	8
11:45 PM	0	3	3	0	2	0	0	0	0	0	0	0	0	0	8
Day Total	3	4010	1437	51	1172	21	3	64	20	7	0	0	6	138	6932
Percent	0%	57.8%	20.7%	0.7%	16.9%	0.3%	0%	0.9%	0.3%	0.1%	0%	0%	0.1%	2%	
ADT 6932															
AM Peak 15-min Vol	10:15 AM 1	7:45 AM 77	11:30 AM 30	8:15 AM 7	11:30 AM 26	7:45 AM 2	7:30 AM 2	8:30 AM 5	7:00 AM 3	5:00 AM 1	12:00 AM 0	12:00 AM 0	8:00 AM 1	7:45 AM 6	7:30 AM 131
PM Peak 15-min Vol	1:00 PM 1	3:45 PM 115	3:45 PM 38	2:45 PM 3	3:30 PM 42	2:00 PM 3	12:00 PM 0	4:45 PM 4	1:00 PM 3	12:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 1	5:30 PM 11	3:45 PM 183

Comments:

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd**QC JOB #:** 17375104**SPECIFIC LOCATION:****DIRECTION:** NB, SB**CITY/STATE:** Sandy, OR**DATE:** Dec 16 2025

Start Time	Motorcycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total																														
Grand Total	3	4010	1437	51	1172	21	3	64	20	7	0	0	6	138	6932																														
Percent	0%	57.8%	20.7%	0.7%	16.9%	0.3%	0%	0.9%	0.3%	0.1%	0%	0%	0.1%	2%																															
ADT 6932	<table><tr><th>Vehicle Type</th><th>Percent</th></tr><tr><td>Motorcycles</td><td>0%</td></tr><tr><td>Cars & Trailers</td><td>57.8%</td></tr><tr><td>2 Axle Long</td><td>20.7%</td></tr><tr><td>Buses</td><td>0.7%</td></tr><tr><td>2 Axle 6 Tire</td><td>16.9%</td></tr><tr><td>3 Axle Single</td><td>0.3%</td></tr><tr><td>4 Axle Single</td><td>0%</td></tr><tr><td><5 Axl Double</td><td>0.9%</td></tr><tr><td>5 Axle Double</td><td>0.3%</td></tr><tr><td>>6 Axl Double</td><td>0.1%</td></tr><tr><td><6 Axl Multi</td><td>0%</td></tr><tr><td>6 Axle Multi</td><td>0%</td></tr><tr><td>>6 Axl Multi</td><td>0.1%</td></tr><tr><td>Not Classed</td><td>2%</td></tr></table>														Vehicle Type	Percent	Motorcycles	0%	Cars & Trailers	57.8%	2 Axle Long	20.7%	Buses	0.7%	2 Axle 6 Tire	16.9%	3 Axle Single	0.3%	4 Axle Single	0%	<5 Axl Double	0.9%	5 Axle Double	0.3%	>6 Axl Double	0.1%	<6 Axl Multi	0%	6 Axle Multi	0%	>6 Axl Multi	0.1%	Not Classed	2%	
	Vehicle Type	Percent																																											
Motorcycles	0%																																												
Cars & Trailers	57.8%																																												
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Buses	0.7%																																												
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3 Axle Single	0.3%																																												
4 Axle Single	0%																																												
<5 Axl Double	0.9%																																												
5 Axle Double	0.3%																																												
>6 Axl Double	0.1%																																												
<6 Axl Multi	0%																																												
6 Axle Multi	0%																																												
>6 Axl Multi	0.1%																																												
Not Classed	2%																																												

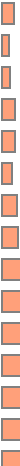
Comments:

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

TRUE DATA TO IMPROVE MOBILITY

Type of report: Midblock Count - Volume Data

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd							QC JOB #: 17379104			
SPECIFIC LOCATION:							DIRECTION: NB, SB			
CITY/STATE: Sandy, OR							DATE: Dec 16 2025 - Dec 16 2025			
Start Time	Mon 16 Dec 25	Tue 16 Dec 25	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM		5				5			5	
12:15 AM		6				6			6	
12:30 AM		8				8			8	
12:45 AM		2				2			2	
01:00 AM		7				7			7	
01:15 AM		6				6			6	
01:30 AM		2				2			2	
01:45 AM		5				5			5	
02:00 AM		4				4			4	
02:15 AM		6				6			6	
02:30 AM		3				3			3	
02:45 AM		4				4			4	
03:00 AM		7				7			7	
03:15 AM		7				7			7	
03:30 AM		5				5			5	
03:45 AM		8				8			8	
04:00 AM		9				9			9	
04:15 AM		13				13			13	
04:30 AM		16				16			16	
04:45 AM		19				19			19	
05:00 AM		30				30			30	
05:15 AM		38				38			38	
05:30 AM		48				48			48	
05:45 AM		40				40			40	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 12/22/2025 8:15 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: NB, SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
06:00 AM		62				62			62		
06:15 AM		53				53			53		
06:30 AM		62				62			62		
06:45 AM		97				97			97		
07:00 AM		87				87			87		
07:15 AM		104				104			104		
07:30 AM		131				131			131		
07:45 AM		127				127			127		
08:00 AM		98				98			98		
08:15 AM		96				96			96		
08:30 AM		111				111			111		
08:45 AM		114				114			114		
09:00 AM		100				100			100		
09:15 AM		101				101			101		
09:30 AM		79				79			79		
09:45 AM		107				107			107		
10:00 AM		98				98			98		
10:15 AM		87				87			87		
10:30 AM		96				96			96		
10:45 AM		112				112			112		
11:00 AM		106				106			106		
11:15 AM		83				83			83		
11:30 AM		108				108			108		
11:45 AM		109				109			109		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: NB, SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
12:00 PM	113					113			113		
12:15 PM	120					120			120		
12:30 PM	111					111			111		
12:45 PM	98					98			98		
01:00 PM	107					107			107		
01:15 PM	96					96			96		
01:30 PM	98					98			98		
01:45 PM	90					90			90		
02:00 PM	107					107			107		
02:15 PM	128					128			128		
02:30 PM	108					108			108		
02:45 PM	139					139			139		
03:00 PM	147					147			147		
03:15 PM	133					133			133		
03:30 PM	165					165			165		
03:45 PM	183					183			183		
04:00 PM	177					177			177		
04:15 PM	152					152			152		
04:30 PM	141					141			141		
04:45 PM	163					163			163		
05:00 PM	165					165			165		
05:15 PM	172					172			172		
05:30 PM	131					131			131		
05:45 PM	105					105			105		
Day Total											
% Weekday Average											
% Week Average											
AM Peak 15-min Vol											
PM Peak 15-min Vol											
Comments:											

LOCATION: Eagle Creek-Sandy Hwy No 172 north of Dubarko Rd										QC JOB #: 17379104	
SPECIFIC LOCATION:										DIRECTION: NB, SB	
CITY/STATE: Sandy, OR										DATE: Dec 16 2025 - Dec 16 2025	
Start Time	Mon 16 Dec 25	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile	
06:00 PM	133					133			133		
06:15 PM	101					101			101		
06:30 PM	96					96			96		
06:45 PM	86					86			86		
07:00 PM	77					77			77		
07:15 PM	80					80			80		
07:30 PM	56					56			56		
07:45 PM	55					55			55		
08:00 PM	73					73			73		
08:15 PM	51					51			51		
08:30 PM	46					46			46		
08:45 PM	50					50			50		
09:00 PM	29					29			29		
09:15 PM	44					44			44		
09:30 PM	30					30			30		
09:45 PM	20					20			20		
10:00 PM	28					28			28		
10:15 PM	27					27			27		
10:30 PM	19					19			19		
10:45 PM	16					16			16		
11:00 PM	13					13			13		
11:15 PM	11					11			11		
11:30 PM	8					8			8		
11:45 PM	8					8			8		
Day Total	6932					6932			6932		
% Weekday Average	100%										
% Week Average	100%					100%					
AM Peak 15-min Vol	7:30 AM 131					7:30 AM 131			7:30 AM 131		
PM Peak 15-min Vol	3:45 PM 183					3:45 PM 183			3:45 PM 183		
Comments:											

SECTION 3: SIGNAL WARRANT ANALYSIS

TRAFFIC SIGNAL WARRANT ANALYSIS

PROJECT LOCATION/CHARACTERISTICS

Major Street: Highway 211

Minor Street: Dubarko Rd

Number of lanes on each approach of Major Street: 1

Number of lanes on each approach of Minor Street: 1

85th percentile speed of major-street traffic $\geq$ 40 mph ☒

-or-

In built-up area of an isolated community of < 10,000 pop. ☐, then use Rural Requirements

Analysis Scenario (Year): Year 2030

Date of Analysis: 3/25/2026

SUMMARY OF RESULTS

WARRANT 1: Eight-Hour Vehicular Volume	☒	YES	☐	NO
WARRANT 2: Four-Hour Vehicular Volume	☐	YES	☒	NO
WARRANT 3: Peak Hour	☐	YES	☒	NO
WARRANT 7: Crash Experience	☒	YES	☐	NO

Other Outstanding Issues

Warrant 1: Eight-Hour Vehicular Volume

Condition A: 100% SATISFIED ☐ YES ☒ NO 80% SATISFIED ☐ YES ☒ NO 70% SATISFIED ☐ YES ☒ NO 56% SATISFIED Not Applicable
 Condition B: ☐ YES ☒ NO ☒ YES ☐ NO ☒ YES ☐ NO ☐ YES ☐ NO
 Conditions A & B: ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO

Condition A – Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1.....	1.....	500	400	350	280	150	120	105	84
2 or more...	1.....	600	480	420	336	150	120	105	84
2 or more...	2 or more...	600	480	420	336	200	160	140	112
1.....	2 or more...	500	400	350	280	200	160	140	112

Condition B – Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1.....	1.....	750	600	525	420	75	60	53	42
2 or more...	1.....	900	720	630	504	75	60	53	42
2 or more...	2 or more...	900	720	630	504	100	80	70	56
1.....	2 or more...	750	600	525	420	100	80	70	56

^a Basic minimum hourly volume.

^b Used for combination of Conditions A and B after adequate trial of other remedial measures.

^c May be used when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

^d May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

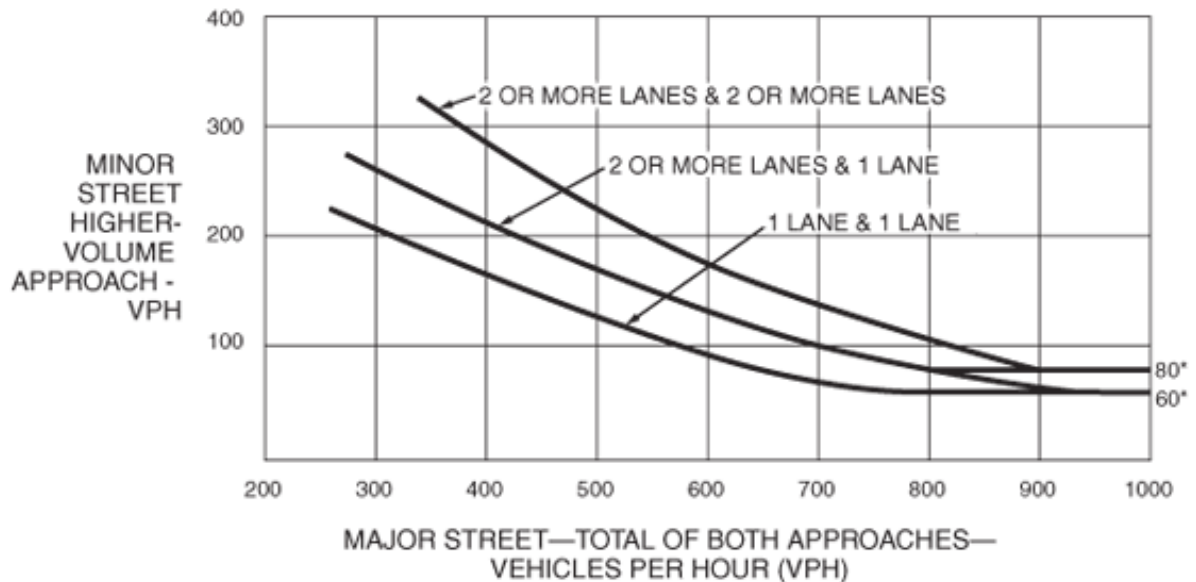
Warrant 1 Worksheet	Eight Highest Hours (1 st – 8 th)							
	1	2	3	4	5	6	7	8
Time Period (Hour)	4-5 PM	3-4 PM	5-6 PM	2-3 PM	7-8 AM	12-1 PM	8-9 AM	6-7 PM
Major Street (Both Approaches)	885	876	803	643	624	599	575	567
Minor Street (Highest Approach)	85	84	77	62	60	57	55	54

Warrant 2: Four-Hour Vehicular VolumeSATISFIED ☐ YES ☒ NO

Warrant 2 Worksheet	Approach Lanes		Four Highest Hours (1 st – 4 th)			
	1	2 or more	1	2	3	4
Time Period (Hour)			4-5 PM	3-4 PM	5-6 PM	2-3 PM
Major Street (Both Approaches)	X		885	876	803	643
Minor Street (Highest Approach)	X		85	84	77	62

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

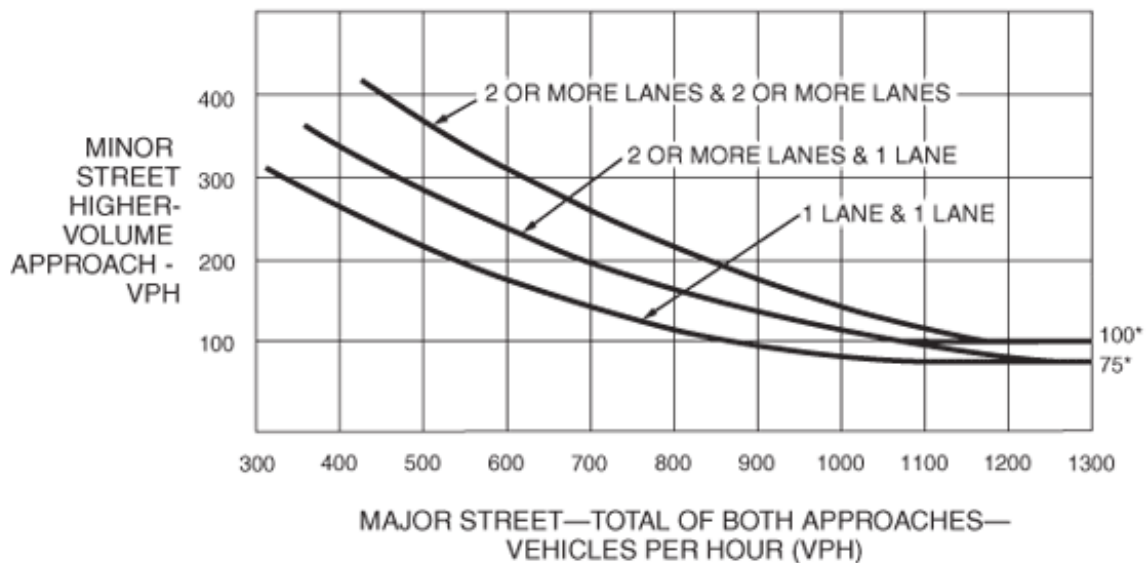
Warrant 3: Peak HourSATISFIED ☐ YES ☒ NO

Warrant 3 Worksheet	Approach Lanes		Peak Hour Volumes	
	1	2 or more	AM Peak	PM Peak
Time Period (Hour)			7am-8am	4pm-5pm
Major Street (Both Approaches)	X		624	885
Minor Street (Highest Approach)	X		60	85

REQUIREMENT	FULFILLED
The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; AND	Yes ☒ No ☐
The volume on the same minor-street approach (one direction only) equals or exceeds 75 vehicles per hour for one moving lane of traffic or 100 vehicles per hour for two moving lanes; AND	Yes ☒ No ☐
The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches, OR	Yes ☒ No ☐
The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach for 1 hour of an average day falls above the applicable curve.	Yes ☐ No ☒

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 7: Crash Experience100% SATISFIED ☒ YES ☐ NO

REQUIREMENTS	WARRANT	FULFILLED
ONE WARRANT SATISFIED	Warrant 1: 56% Eight-Hour Vehicular Volume (Conditions A and B); OR	Yes ☒ No ☐
	Warrant 4: 80 % Pedestrian Volume	
Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; AND		Yes ☒ No ☐
5 or more accidents susceptible to correction by traffic signal control occurring within a 12-month period and involving injury or property damage exceeding the applicable requirements for a reportable accident.		Yes ☒ No ☐

TRAFFIC SIGNAL WARRANT ANALYSIS

PROJECT LOCATION/CHARACTERISTICS

Major Street: Highway 211

Minor Street: Dubarko Rd

Number of lanes on each approach of Major Street: 1

Number of lanes on each approach of Minor Street: 1

85th percentile speed of major-street traffic $\geq$ 40 mph ☒

-or-

In built-up area of an isolated community of < 10,000 pop. ☐, then use Rural Requirements

Analysis Scenario (Year): Year 2040

Date of Analysis: 3/25/2026

SUMMARY OF RESULTS

WARRANT 1: Eight-Hour Vehicular Volume	☒	YES	☐	NO
WARRANT 2: Four-Hour Vehicular Volume	☒	YES	☐	NO
WARRANT 3: Peak Hour	☒	YES	☐	NO
WARRANT 7: Crash Experience	☒	YES	☐	NO

Other Outstanding Issues

Warrant 1: Eight-Hour Vehicular Volume

Condition A: 100% SATISFIED ☐ YES ☒ NO 80% SATISFIED ☐ YES ☒ NO 70% SATISFIED ☐ YES ☒ NO 56% SATISFIED Not Applicable
 Condition B: ☐ YES ☒ NO ☒ YES ☐ NO ☒ YES ☐ NO ☐ YES ☐ NO
 Conditions A & B: ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO

Condition A – Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1.....	1.....	500	400	350	280	150	120	105	84
2 or more...	1.....	600	480	420	336	150	120	105	84
2 or more...	2 or more...	600	480	420	336	200	160	140	112
1.....	2 or more...	500	400	350	280	200	160	140	112

Condition B – Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1.....	1.....	750	600	525	420	75	60	53	42
2 or more...	1.....	900	720	630	504	75	60	53	42
2 or more...	2 or more...	900	720	630	504	100	80	70	56
1.....	2 or more...	750	600	525	420	100	80	70	56

^a Basic minimum hourly volume.

^b Used for combination of Conditions A and B after adequate trial of other remedial measures.

^c May be used when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

^d May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

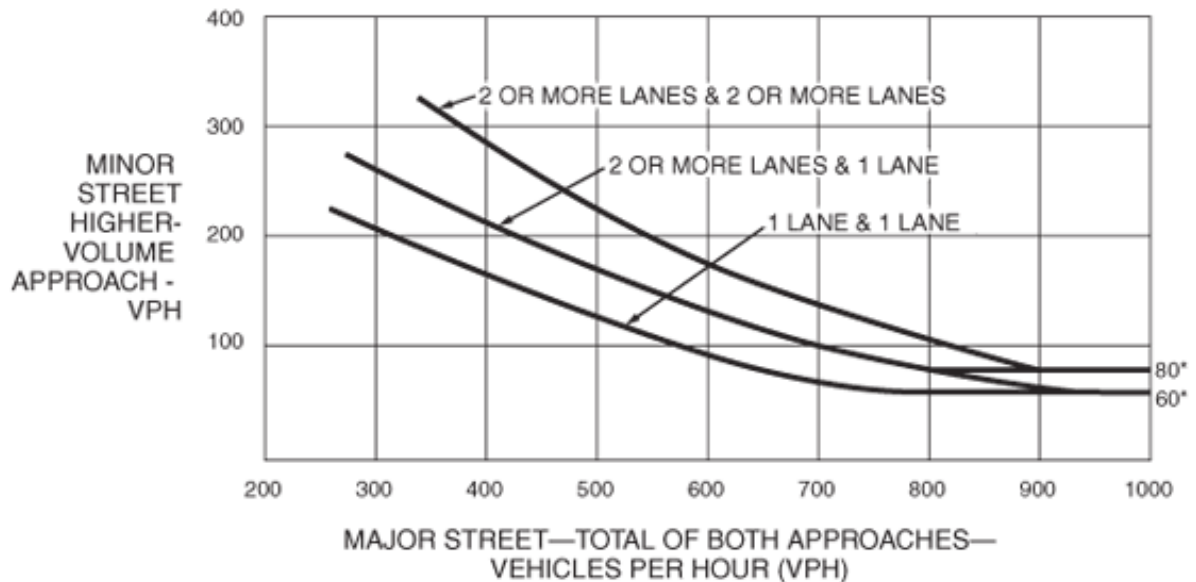
Warrant 1 Worksheet	Eight Highest Hours (1 st – 8 th)							
	1	2	3	4	5	6	7	8
Time Period (Hour)	4-5 PM	3-4 PM	5-6 PM	2-3 PM	7-8 AM	12-1 PM	8-9 AM	6-7 PM
Major Street (Both Approaches)	1110	1099	1007	806	783	751	721	711
Minor Street (Highest Approach)	115	114	104	84	81	78	75	74

Warrant 2: Four-Hour Vehicular VolumeSATISFIED ☒ YES ☐ NO

Warrant 2 Worksheet	Approach Lanes		Four Highest Hours (1 st – 4 th)			
	1	2 or more	1	2	3	4
Time Period (Hour)			4-5 PM	3-4 PM	5-6 PM	2-3 PM
Major Street (Both Approaches)	X		1110	1099	1007	806
Minor Street (Highest Approach)	X		115	114	104	84

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

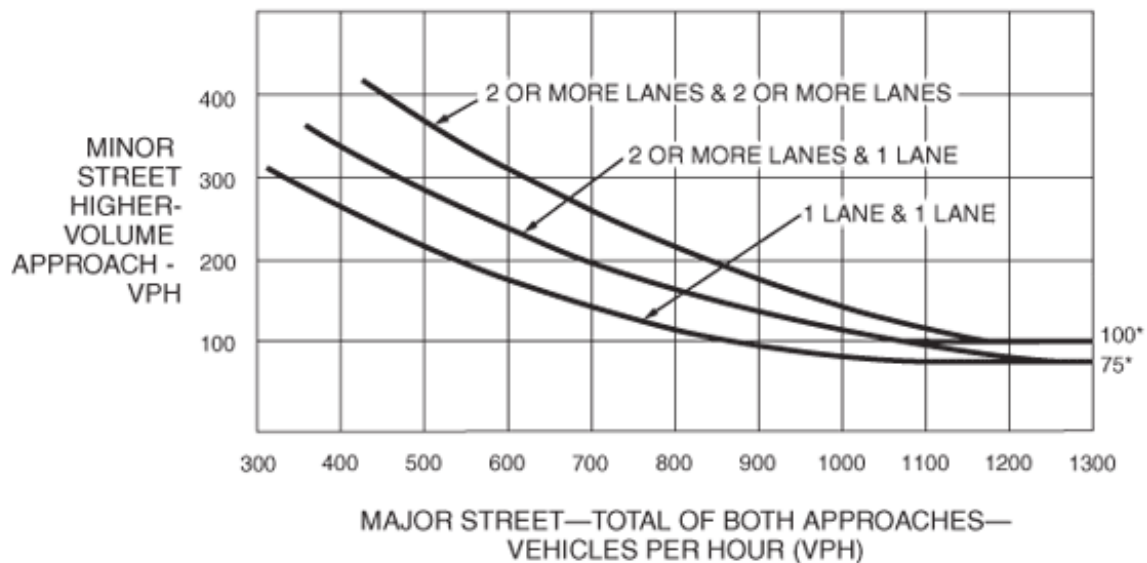
Warrant 3: Peak HourSATISFIED ☒ YES ☐ NO

Warrant 3 Worksheet	Approach Lanes		Peak Hour Volumes	
	1	2 or more	AM Peak	PM Peak
Time Period (Hour)			7am-8am	4pm-5pm
Major Street (Both Approaches)	X		783	1110
Minor Street (Highest Approach)	X		81	115

REQUIREMENT	FULFILLED
The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; AND	Yes ☒ No ☐
The volume on the same minor-street approach (one direction only) equals or exceeds 75 vehicles per hour for one moving lane of traffic or 100 vehicles per hour for two moving lanes; AND	Yes ☒ No ☐
The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches, OR	Yes ☒ No ☐
The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach for 1 hour of an average day falls above the applicable curve.	Yes ☐ No ☒

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

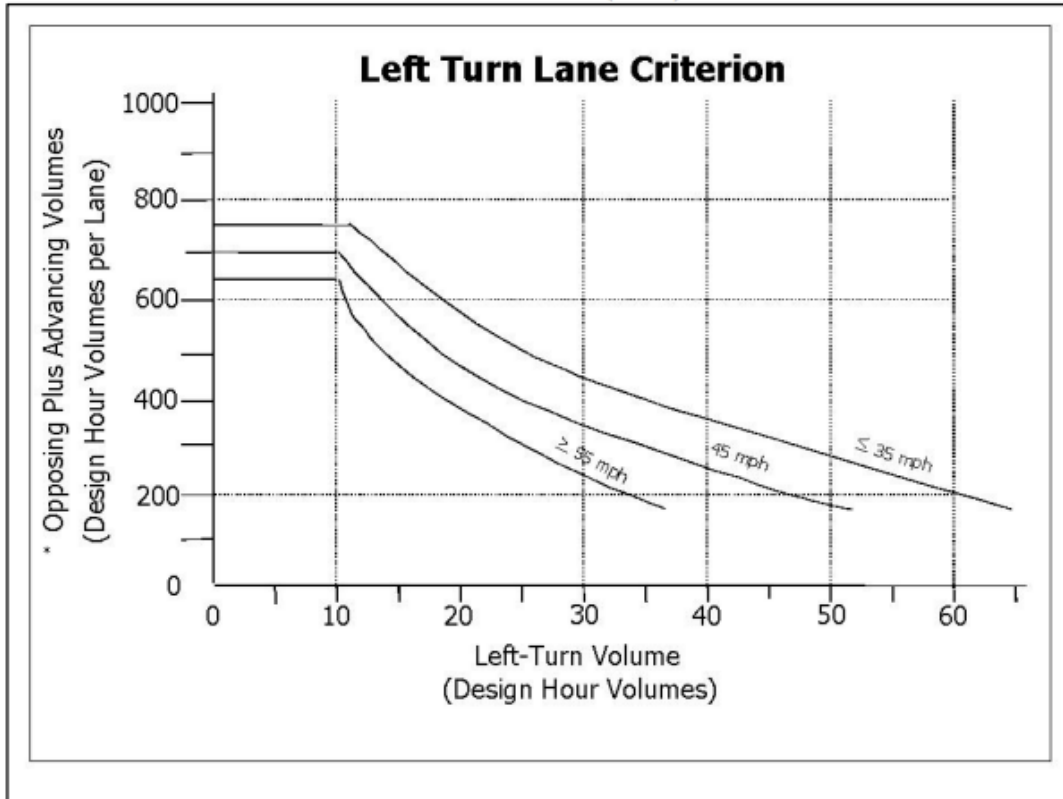


*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 7: Crash Experience100% SATISFIED ☒ YES ☐ NO

REQUIREMENTS	WARRANT	FULFILLED
ONE WARRANT SATISFIED	Warrant 1: 56% Eight-Hour Vehicular Volume (Conditions A and B); OR	Yes ☒ No ☐
	Warrant 4: 80 % Pedestrian Volume	
Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; AND		Yes ☒ No ☐
5 or more accidents susceptible to correction by traffic signal control occurring within a 12-month period and involving injury or property damage exceeding the applicable requirements for a reportable accident.		Yes ☒ No ☐

SECTION 4: TURN LANE EVALUATION

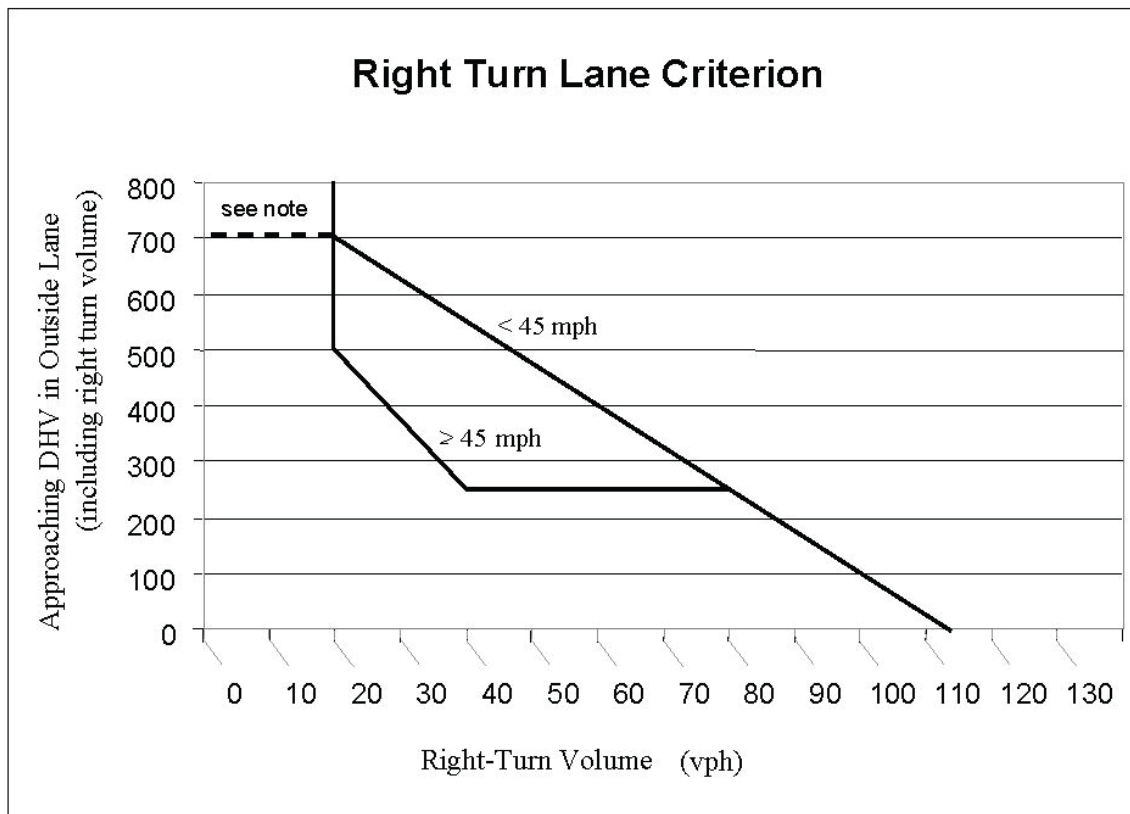


*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

Opposing left turns are not counted as opposing volumes

Left Turn Lane Criterion

Highway 211/ Dubarko Rd	Posted Speed	Advancing plus Opposing Volume	Left Turn Volume	Warrant Met
Northbound Left-Turn	45 mph			
2026 AM Peak Hour		475	25	Yes
2026 PM Peak Hour		780	50	Yes
Southbound Left-Turn	45 mph			
2026 AM Peak Hour		460	10	No
2026 PM Peak Hour		750	20	Yes



Right Turn Lane Criterion

Highway 211/ Dubarko Rd	Approaching Volume (outside lane)	Right Turn Volume	Major Street Speed	Warrant Met
Northbound Right-Turn				
AM Peak Hour	340	15	45 mph	No
PM Peak Hour	420	55		Yes

SECTION 5: PEDESTRIAN CROSSING EVALUATION

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

Version 1.2, revised 9/27/21

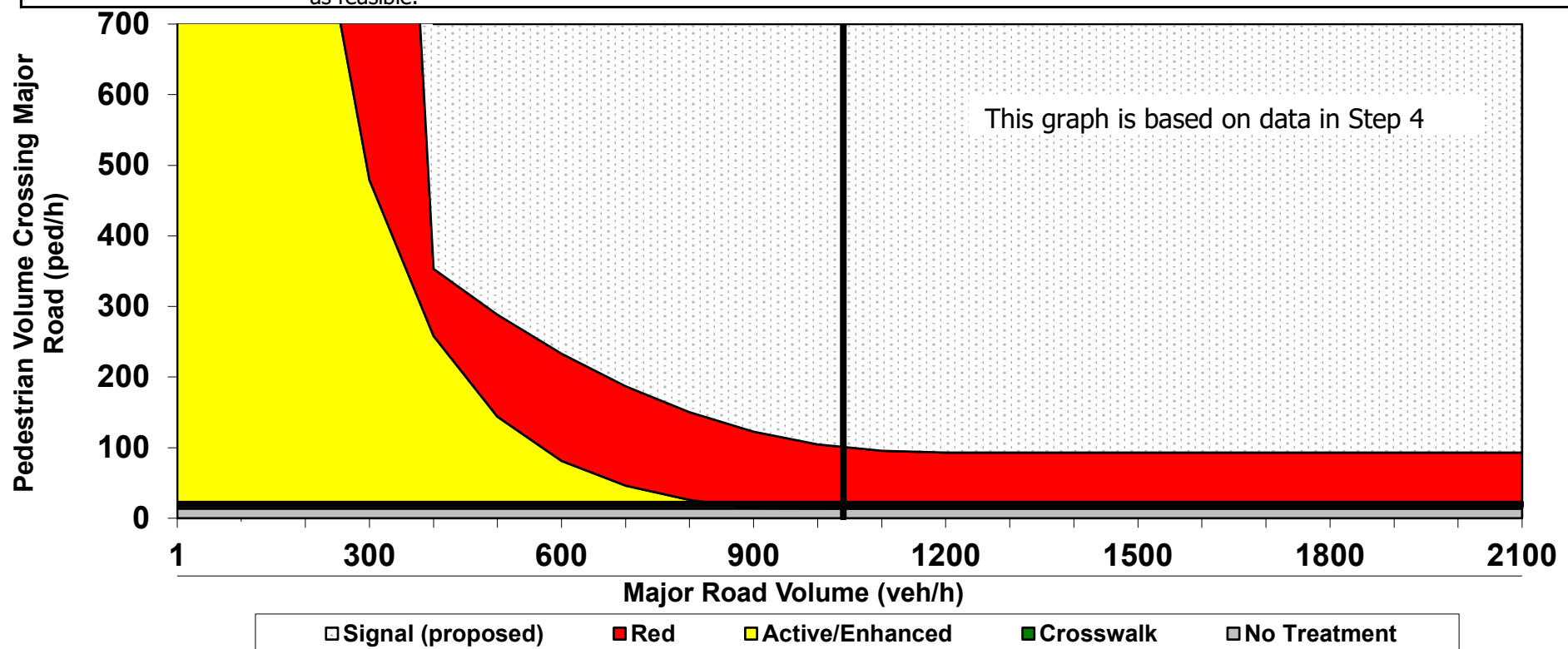
This spreadsheet reflects recommendations of TCRP Report 112/NCHRP Report 562 (Improving Pedestrian Safety at Unsignalized Intersections) and FHWA Report HRT-04-100 (Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations) along with Portland Bureau of Transportation practices. It is based on the TTI spreadsheet and adapted for PBOT use. Revisions are tracked in last tab.

Key

- Green fields are required and must be completed.
- Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).

Analyst and Site Information						
Analyst	DKS	Major Street	Highway 211			
Analysis Date	March 20, 2026	Minor Street or Location	Dubarko Road			
Data Date	March 1, 2026	Analysis Hour/Scenario	2040 p.m. peak hour without east Dubarko Road ext.			
Step 1: Select worksheet.						
Posted or statutory speed limit and 85% speed on the major street		Posted speed (mph)	1a-1	45		
		85% speed if available (mph)	1a-2			
Is the population of the surrounding area <10,000? (enter YES or NO)			1b	NO		
Primary lanes per direction:	☐ One lane per direction ☒ Two or more lanes in one direction		1c	2		
Median type:	☒ None ☐ TWLTL or painted median ☐ Raised median ☐ One-way street		1d	1		
Is crossing on a SRTS route or adjacent to a school, care facility, or other similar use?			1e	NO		
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?						
If bicycle crossings are a goal of the crossing improvement, estimate peak-hour bicycles crossing as pedestrians:			2a-1	5		
Peak-hour pedestrian volume (ped/h), V_p			2a-2	15		
Effective Peak-hour pedestrian volume including bicycles operating as pedestrians (ped/h), V_{p-eff}			2a	20		
Step 3: Does the crossing meet the peak-hour pedestrian warrant for a traffic signal or PHB?						
Major road volume, by direction (if available) during peak hour (veh/h), V_{maj-s}		Dir1/Dir2	495	545	3a	1,040
Full pedestrian crossing distance, from curb to curb (ft)			3a-2	50		
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant			3b	93		
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant, PHB warrant			3c	20		
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s? (enter YES or NO)			3d	NO		
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s, then reduce 3c by up to 50%.		% reduction for 3c (up to 50%)	3e			
		Reduced value for 3c signal warrant	3f	93		
Step 4: Estimate pedestrian delay.						
Crossing distance from curb to median refuge, if present (ft)						
Effective Pedestrian crossing distance, curb to curb or refuge (ft), L			4a	50		
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)			4b	3.5		
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)			4c	3		
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c			4d	17		
Major road peak-hr volume, total both directions OR portion being crossed if raised median island is present (vph), V_{maj-d}			4e	1,040		
Major road flow rate (veh/s), v			4f	0.41		
Average pedestrian delay (s/person), d_p			4g	2899		
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.			4h	16.1		
			4i			
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.						
Expected motorist compliance at pedestrian crossings in region: enter HIGH or LOW for compliance			5a	low		
NCHRP 562 Category:		2005 FHWA Report:	PBOT SOP:		Signal Warrant:	
RED		Enhancements Needed	RED		PHB warrant is met.	

Other considerations: Consider a lane reduction. Traffic slowing or calming should be included due to high posted speed. Consider access management as feasible.



This PBOT Ped crossing analysis tool is based on the original TTI spreadsheet and provides recommendations on crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment. This tool does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

SECTION 6: EXISTING YEAR CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	5	15	40	40	45	60	25	300	15	10	130	5
Future Vol, veh/h	5	15	40	40	45	60	25	300	15	10	130	5
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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	6	17	47	47	52	70	29	349	17	12	151	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	652	599	151	626	597	358	157	0	0	366	0	0
Stage 1	175	175	-	416	416	-	-	-	-	-	-	-
Stage 2	477	424	-	210	181	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	384	418	887	395	404	656	1423	-	-	1150	-	-
Stage 1	832	758	-	612	577	-	-	-	-	-	-	-
Stage 2	573	590	-	790	733	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	300	403	887	352	389	656	1423	-	-	1150	-	-
Mov Cap-2 Maneuver	300	403	-	352	389	-	-	-	-	-	-	-
Stage 1	810	750	-	596	562	-	-	-	-	-	-	-
Stage 2	452	575	-	723	725	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.3		15.3		0.6		0.6	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1423	-	-	371	887	371	656	1150	-	-
HCM Lane V/C Ratio	0.02	-	-	0.063	0.052	0.266	0.106	0.01	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	15.4	9.3	18.2	11.1	8.2	0	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.2	1.1	0.4	0	-	-

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	40	65	35	40	25	50	315	55	20	350	10
Future Vol, veh/h	10	40	65	35	40	25	50	315	55	20	350	10
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	11	44	71	38	44	27	55	346	60	22	385	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	953	945	385	978	926	378	396	0	0	406	0	0
Stage 1	429	429	-	486	486	-	-	-	-	-	-	-
Stage 2	524	516	-	492	440	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	231	264	656	226	265	673	1152	-	-	1137	-	-
Stage 1	589	587	-	555	544	-	-	-	-	-	-	-
Stage 2	522	538	-	551	571	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	178	242	656	162	242	672	1152	-	-	1137	-	-
Mov Cap-2 Maneuver	178	242	-	162	242	-	-	-	-	-	-	-
Stage 1	552	572	-	521	510	-	-	-	-	-	-	-
Stage 2	428	505	-	442	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.6	29.5	1	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1152	-	-	226	656	197	672	1137	-	-
HCM Lane V/C Ratio	0.048	-	-	0.243	0.109	0.418	0.041	0.019	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	26	11.2	35.8	10.6	8.2	0	-
HCM Lane LOS	A	A	-	D	B	E	B	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	0.9	0.4	1.9	0.1	0.1	-	-

SECTION 7: 2030 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION) CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	20	50	55	55	65	30	355	20	10	125	10
Future Vol, veh/h	10	20	50	55	55	65	30	355	20	10	125	10
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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	11	22	56	61	61	72	33	394	22	11	139	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	699	643	139	677	643	405	150	0	0	416	0	0
Stage 1	161	161	-	471	471	-	-	-	-	-	-	-
Stage 2	538	482	-	206	172	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	357	394	901	365	380	616	1431	-	-	1101	-	-
Stage 1	846	769	-	571	545	-	-	-	-	-	-	-
Stage 2	531	557	-	794	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	266	378	901	317	364	616	1431	-	-	1101	-	-
Mov Cap-2 Maneuver	266	378	-	317	364	-	-	-	-	-	-	-
Stage 1	821	761	-	554	529	-	-	-	-	-	-	-
Stage 2	402	540	-	715	732	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	12.2		17.8		0.6		0.6	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	331	901	339	616	1101	-	-
HCM Lane V/C Ratio	0.023	-	-	0.101	0.062	0.361	0.117	0.01	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	17.1	9.3	21.5	11.6	8.3	0	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.3	0.2	1.6	0.4	0	-	-

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	50	70	40	45	25	60	310	70	25	405	15
Future Vol, veh/h	15	50	70	40	45	25	60	310	70	25	405	15
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	16	55	77	44	49	27	66	341	77	27	445	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1051	1049	445	1085	1027	382	461	0	0	418	0	0
Stage 1	499	499	-	512	512	-	-	-	-	-	-	-
Stage 2	552	550	-	573	515	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	198	229	607	191	231	670	1090	-	-	1125	-	-
Stage 1	539	547	-	537	530	-	-	-	-	-	-	-
Stage 2	504	519	-	498	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	142	204	607	121	206	669	1090	-	-	1125	-	-
Mov Cap-2 Maneuver	142	204	-	121	206	-	-	-	-	-	-	-
Stage 1	496	529	-	494	488	-	-	-	-	-	-	-
Stage 2	399	477	-	377	511	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.5	47.5	1.2	0.5
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1090	-	-	185	607	155	669	1125	-	-
HCM Lane V/C Ratio	0.06	-	-	0.386	0.127	0.603	0.041	0.024	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	36.2	11.8	58.4	10.6	8.3	0	-
HCM Lane LOS	A	A	-	E	B	F	B	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	1.7	0.4	3.2	0.1	0.1	-	-

SECTION 8: 2040 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION) CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 14.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
Future Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	83	94	50	544	39	17	122	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	839	122	895	842	564	144	0	0	583	0	0
Stage 1	156	156	-	664	664	-	-	-	-	-	-	-
Stage 2	752	683	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	260	291	499	1438	-	-	953	-	-
Stage 1	851	772	-	448	445	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	151	283	921	199	271	499	1438	-	-	953	-	-
Mov Cap-2 Maneuver	151	283	-	199	271	-	-	-	-	-	-	-
Stage 1	807	757	-	425	422	-	-	-	-	-	-	-
Stage 2	250	428	-	647	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.3	51.7	0.6	0.9
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	207	921	225	499	953	-	-
HCM Lane V/C Ratio	0.035	-	-	0.322	0.097	0.84	0.189	0.017	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	30.4	9.3	70.6	13.9	8.8	0	-
HCM Lane LOS	A	A	-	D	A	F	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	1.3	0.3	6.5	0.7	0.1	-	-

HCM 6th TWSC
1: Hwy 211 & Dubarko Rd

Item # 1.

Intersection												
Int Delay, s/veh	62											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Future Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	77	93	60	66	33	99	324	121	49	593	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1325	1334	593	1376	1307	387	626	0	0	445	0	0
Stage 1	691	691	-	583	583	-	-	-	-	-	-	-
Stage 2	634	643	-	793	724	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	128	155	500	120	157	665	946	-	-	1099	-	-
Stage 1	422	449	-	491	492	-	-	-	-	-	-	-
Stage 2	454	472	-	376	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	61	124	500	~ 42	125	664	946	-	-	1099	-	-
Mov Cap-2 Maneuver	61	124	-	~ 42	125	-	-	-	-	-	-	-
Stage 1	362	418	-	421	422	-	-	-	-	-	-	-
Stage 2	312	405	-	232	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	106.7	\$ 473.1	1.7	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	98	500	64	664	1099	-	-
HCM Lane V/C Ratio	0.105	-	-	1.065	0.187	1.975	0.05	0.045	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	189.9	13.8	593.7	10.7	8.4	0	-
HCM Lane LOS	A	A	-	F	B	F	B	A	A	-
HCM 95th %tile Q (veh)	0.3	-	-	6.7	0.7	11.8	0.2	0.1	-	-

Notes										
~: Volume exceeds capacity		\$: Delay exceeds 300s								
+: Computation Not Defined		*: All major volume in platoon								

2040 P.M. Peak Hour
No-Build

Page 1

SECTION 9: 2040 BUILD (WITH THE DUBARKO ROAD EXTENSION) CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 28.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	35	80	95	145	85	45	420	105	15	110	20
Future Vol, veh/h	25	35	80	95	145	85	45	420	105	15	110	20
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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	161	94	50	467	117	17	122	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	909	840	122	857	804	526	144	0	0	584	0	0
Stage 1	156	156	-	626	626	-	-	-	-	-	-	-
Stage 2	753	684	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	276	306	525	1438	-	-	952	-	-
Stage 1	851	772	-	470	463	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	111	283	921	211	285	525	1438	-	-	952	-	-
Mov Cap-2 Maneuver	111	283	-	211	285	-	-	-	-	-	-	-
Stage 1	807	757	-	446	439	-	-	-	-	-	-	-
Stage 2	199	428	-	647	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	21.9	91.3	0.6	0.9
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	172	921	250	525	952	-	-
HCM Lane V/C Ratio	0.035	-	-	0.388	0.097	1.067	0.18	0.018	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	38.6	9.3	118.9	13.4	8.8	0	-
HCM Lane LOS	A	A	-	E	A	F	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	1.7	0.3	11.1	0.7	0.1	-	-

HCM 6th TWSC
1: Hwy 211 & Dubarko Rd

Item # 1.

Intersection												
Int Delay, s/veh	35.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔			↔	↔
Traffic Vol, veh/h	25	140	85	125	60	30	90	295	110	45	470	30
Future Vol, veh/h	25	140	85	125	60	30	90	295	110	45	470	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	154	93	137	66	33	99	324	121	49	516	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1248	1257	516	1337	1230	387	549	0	0	445	0	0
Stage 1	614	614	-	583	583	-	-	-	-	-	-	-
Stage 2	634	643	-	754	647	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	144	173	553	~ 128	174	665	1011	-	-	1099	-	-
Stage 1	466	486	-	491	492	-	-	-	-	-	-	-
Stage 2	454	472	-	395	460	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	75	~ 140	553	-	141	664	1011	-	-	1099	-	-
Mov Cap-2 Maneuver	75	~ 140	-	-	141	-	-	-	-	-	-	-
Stage 1	404	454	-	426	427	-	-	-	-	-	-	-
Stage 2	316	410	-	203	430	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	209.6		1.6	0.7
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1011	-	-	124	553	-	-	1099	-	-
HCM Lane V/C Ratio	0.098	-	-	1.462	0.169	-	-	0.045	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	\$ 311	12.8	-	-	8.4	0	-
HCM Lane LOS	A	A	-	F	B	-	-	A	A	-
HCM 95th %tile Q (veh)	0.3	-	-	12.6	0.6	-	-	0.1	-	-

Notes										
~: Volume exceeds capacity		\$: Delay exceeds 300s								
+: Computation Not Defined		*: All major volume in platoon								

2040 P.M. Peak Hour
Build with planned extensions

SECTION 10: 2040 INTERSECTION CONTROL EVALUATION CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 14.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
Future Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	83	94	50	544	39	17	122	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	839	122	895	842	564	144	0	0	583	0	0
Stage 1	156	156	-	664	664	-	-	-	-	-	-	-
Stage 2	752	683	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	260	291	499	1438	-	-	953	-	-
Stage 1	851	772	-	448	445	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	151	283	921	199	271	499	1438	-	-	953	-	-
Mov Cap-2 Maneuver	151	283	-	199	271	-	-	-	-	-	-	-
Stage 1	807	757	-	425	422	-	-	-	-	-	-	-
Stage 2	250	428	-	647	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.3	51.7	0.6	0.9
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	207	921	225	499	953	-	-
HCM Lane V/C Ratio	0.035	-	-	0.322	0.097	0.84	0.189	0.017	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	30.4	9.3	70.6	13.9	8.8	0	-
HCM Lane LOS	A	A	-	D	A	F	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	1.3	0.3	6.5	0.7	0.1	-	-

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 62

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔			↔	↔
Traffic Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Future Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	77	93	60	66	33	99	324	121	49	593	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1325	1334	593	1376	1307	387	626	0	0	445	0	0
Stage 1	691	691	-	583	583	-	-	-	-	-	-	-
Stage 2	634	643	-	793	724	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	128	155	500	120	157	665	946	-	-	1099	-	-
Stage 1	422	449	-	491	492	-	-	-	-	-	-	-
Stage 2	454	472	-	376	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	61	124	500	~ 42	125	664	946	-	-	1099	-	-
Mov Cap-2 Maneuver	61	124	-	~ 42	125	-	-	-	-	-	-	-
Stage 1	362	418	-	421	422	-	-	-	-	-	-	-
Stage 2	312	405	-	232	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	106.7	\$ 473.1	1.7	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	98	500	64	664	1099	-	-
HCM Lane V/C Ratio	0.105	-	-	1.065	0.187	1.975	0.05	0.045	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	189.9	13.8	593.7	10.7	8.4	0	-
HCM Lane LOS	A	A	-	F	B	F	B	A	A	-
HCM 95th %tile Q (veh)	0.3	-	-	6.7	0.7	11.8	0.2	0.1	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

2040 P.M. Peak Hour
 No-Build

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 14

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
Future Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
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	-	-	125	-	-	125	150	-	-	150	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	83	94	50	544	39	17	122	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	839	122	895	842	564	144	0	0	583	0	0
Stage 1	156	156	-	664	664	-	-	-	-	-	-	-
Stage 2	752	683	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	260	291	499	1438	-	-	953	-	-
Stage 1	851	772	-	448	445	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	154	288	921	203	276	499	1438	-	-	953	-	-
Mov Cap-2 Maneuver	154	288	-	203	276	-	-	-	-	-	-	-
Stage 1	821	758	-	432	429	-	-	-	-	-	-	-
Stage 2	255	436	-	648	722	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.1	49	0.6	0.9
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	211	921	230	499	953	-	-
HCM Lane V/C Ratio	0.035	-	-	0.316	0.097	0.821	0.189	0.017	-	-
HCM Ctrl Dly (s/v)	7.6	-	-	29.8	9.3	66.5	13.9	8.8	-	-
HCM Lane LOS	A	-	-	D	A	F	B	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	1.3	0.3	6.2	0.7	0.1	-	-

2040 A.M. Peak Hour
without extension, NB/SB LT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 51.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Future Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	150	-	-	150	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	77	93	60	66	33	99	324	121	49	593	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1325	1334	593	1376	1307	387	626	0	0	445	0	0
Stage 1	691	691	-	583	583	-	-	-	-	-	-	-
Stage 2	634	643	-	793	724	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	128	155	500	120	157	665	946	-	-	1099	-	-
Stage 1	422	449	-	491	492	-	-	-	-	-	-	-
Stage 2	454	472	-	376	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	67	133	500	~ 48	134	664	946	-	-	1099	-	-
Mov Cap-2 Maneuver	67	133	-	~ 48	134	-	-	-	-	-	-	-
Stage 1	378	429	-	439	440	-	-	-	-	-	-	-
Stage 2	328	422	-	240	406	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	90.1	\$ 388	1.7	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	106	500	72	664	1099	-	-
HCM Lane V/C Ratio	0.105	-	-	0.985	0.187	1.755	0.05	0.045	-	-
HCM Ctrl Dly (s/v)	9.2	-	-	158.3	13.8	\$ 486.4	10.7	8.4	-	-
HCM Lane LOS	A	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q (veh)	0.3	-	-	6.2	0.7	11.1	0.2	0.1	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

2040 P.M. Peak Hour
 without extension, NB/SB LT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 13.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
Future Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
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	-	-	125	-	-	125	-	-	150	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	83	94	50	544	39	17	122	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	839	122	875	822	544	144	0	0	583	0	0
Stage 1	156	156	-	644	644	-	-	-	-	-	-	-
Stage 2	752	683	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	269	299	513	1438	-	-	953	-	-
Stage 1	851	772	-	460	454	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	154	283	921	206	278	513	1438	-	-	953	-	-
Mov Cap-2 Maneuver	154	283	-	206	278	-	-	-	-	-	-	-
Stage 1	807	757	-	436	430	-	-	-	-	-	-	-
Stage 2	253	428	-	647	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.1	47.3	0.6	0.9
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	210	921	233	513	953	-	-
HCM Lane V/C Ratio	0.035	-	-	0.317	0.097	0.811	0.184	0.017	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	29.9	9.3	64.2	13.6	8.8	0	-
HCM Lane LOS	A	A	-	D	A	F	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	1.3	0.3	6.1	0.7	0.1	-	-

2040 A.M. Peak Hour
without extension, NB RT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 52.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Future Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	-	-	125	-	-	125	-	-	150	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	77	93	60	66	33	99	324	121	49	593	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1325	1334	593	1315	1246	326	626	0	0	445	0	0
Stage 1	691	691	-	522	522	-	-	-	-	-	-	-
Stage 2	634	643	-	793	724	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	128	155	500	132	171	720	946	-	-	1099	-	-
Stage 1	422	449	-	531	524	-	-	-	-	-	-	-
Stage 2	454	472	-	376	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	65	124	500	~ 47	137	719	946	-	-	1099	-	-
Mov Cap-2 Maneuver	65	124	-	~ 47	137	-	-	-	-	-	-	-
Stage 1	362	418	-	456	450	-	-	-	-	-	-	-
Stage 2	317	405	-	232	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	102.2	\$ 387.9	1.7	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	100	500	72	719	1099	-	-
HCM Lane V/C Ratio	0.105	-	-	1.044	0.187	1.755	0.046	0.045	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	181.3	13.8	\$ 486.4	10.2	8.4	0	-
HCM Lane LOS	A	A	-	F	B	F	B	A	A	-
HCM 95th %tile Q (veh)	0.3	-	-	6.5	0.7	11.1	0.1	0.1	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

2040 P.M. Peak Hour
 without extension, NB RT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
Future Vol, veh/h	25	35	80	95	75	85	45	490	35	15	110	20
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	125	-	-	125	-	-	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	28	39	89	106	83	94	50	544	39	17	122	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	839	122	895	842	564	144	0	0	583	0	0
Stage 1	156	156	-	664	664	-	-	-	-	-	-	-
Stage 2	752	683	-	231	178	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	258	304	921	260	291	499	1438	-	-	953	-	-
Stage 1	851	772	-	448	445	-	-	-	-	-	-	-
Stage 2	405	452	-	770	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	151	283	921	199	271	499	1438	-	-	953	-	-
Mov Cap-2 Maneuver	151	283	-	199	271	-	-	-	-	-	-	-
Stage 1	807	757	-	425	422	-	-	-	-	-	-	-
Stage 2	250	428	-	647	721	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	17.3		31		0.6		0.9					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1438	-	-	151	546	199	358	953	-	-		
HCM Lane V/C Ratio	0.035	-	-	0.184	0.234	0.53	0.497	0.017	-	-		
HCM Ctrl Dly (s/v)	7.6	0	-	34.1	13.6	41.9	24.6	8.8	0	-		
HCM Lane LOS	A	A	-	D	B	E	C	A	A	-		
HCM 95th %tile Q (veh)	0.1	-	-	0.6	0.9	2.7	2.6	0.1	-	-		

2040 A.M. Peak Hour
without extension, EB/WB LT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 30.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Future Vol, veh/h	25	70	85	55	60	30	90	295	110	45	540	30
Conflicting Peds, #/hr	2	0	0	0	0	2	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	125	-	-	125	-	-	-	-	-	-	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	27	77	93	60	66	33	99	324	121	49	593	33

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1325	1334	593	1376	1307	387	626	0	0	445	0	0
Stage 1	691	691	-	583	583	-	-	-	-	-	-	-
Stage 2	634	643	-	793	724	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	128	155	500	120	157	665	946	-	-	1099	-	-
Stage 1	422	449	-	491	492	-	-	-	-	-	-	-
Stage 2	454	472	-	376	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	61	124	500	~ 42	125	664	946	-	-	1099	-	-
Mov Cap-2 Maneuver	61	124	-	~ 42	125	-	-	-	-	-	-	-
Stage 1	362	418	-	421	422	-	-	-	-	-	-	-
Stage 2	312	405	-	232	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	73.7	200.8	1.7	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	61	211	42	171	1099	-	-
HCM Lane V/C Ratio	0.105	-	-	0.45	0.807	1.439	0.578	0.045	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	105.4	68.6	\$ 445	51.5	8.4	0	-
HCM Lane LOS	A	A	-	F	F	F	F	A	A	-
HCM 95th %tile Q (veh)	0.3	-	-	1.7	5.8	6.1	3.1	0.1	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

2040 P.M. Peak Hour
 without extension, EB/WB LT Lane

MOVEMENT SUMMARY

 **Site: [2 (4)] Hwy 211--Dubarko Rd_2040AMpeak_w/o ext**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]		[Total HV]					[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Highway 211															
3	L2	All MCs	50	2.0	50	2.0	0.520	8.2	LOS A	4.0	102.0	0.38	0.16	0.38	31.3
8	T1	All MCs	544	4.0	544	4.0	0.520	8.4	LOS A	4.0	102.0	0.38	0.16	0.38	31.9
18	R2	All MCs	39	2.0	39	2.0	0.520	8.2	LOS A	4.0	102.0	0.38	0.16	0.38	31.7
Approach			633	3.7	633	3.7	0.520	8.3	LOS A	4.0	102.0	0.38	0.16	0.38	31.8
East: Dubarko Rd															
1	L2	All MCs	106	3.0	106	3.0	0.460	11.7	LOS B	2.5	66.5	0.73	0.73	1.00	28.8
6	T1	All MCs	83	11.0	83	11.0	0.460	13.2	LOS B	2.5	66.5	0.73	0.73	1.00	29.2
16	R2	All MCs	94	16.0	94	16.0	0.460	14.3	LOS B	2.5	66.5	0.73	0.73	1.00	28.8
Approach			283	9.7	283	9.7	0.460	12.9	LOS B	2.5	66.5	0.73	0.73	1.00	28.9
North: Highway 211															
7	L2	All MCs	17	10.0	17	10.0	0.161	5.5	LOS A	0.7	18.2	0.41	0.26	0.41	32.5
4	T1	All MCs	122	4.0	122	4.0	0.161	4.9	LOS A	0.7	18.2	0.41	0.26	0.41	33.3
14	R2	All MCs	22	12.0	22	12.0	0.161	5.6	LOS A	0.7	18.2	0.41	0.26	0.41	32.9
Approach			161	5.7	161	5.7	0.161	5.1	LOS A	0.7	18.2	0.41	0.26	0.41	33.2
West: Dubarko Rd Ext															
5	L2	All MCs	28	0.0	28	0.0	0.151	4.6	LOS A	0.7	17.1	0.41	0.26	0.41	32.7
2	T1	All MCs	39	0.0	39	0.0	0.151	4.6	LOS A	0.7	17.1	0.41	0.26	0.41	33.3
12	R2	All MCs	89	5.0	89	5.0	0.151	5.0	LOS A	0.7	17.1	0.41	0.26	0.41	32.9
Approach			156	2.9	156	2.9	0.151	4.9	LOS A	0.7	17.1	0.41	0.26	0.41	33.0
All Vehicles			1233	5.2	1233	5.2	0.520	8.5	LOS A	4.0	102.0	0.47	0.32	0.53	31.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglach M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: L:\All-DKS\PD\X-Drive\Projects\2022\202071-000 (Sandy On-Call Services)\Task 020_Hwy 211-Dubarko\Analysis\Roundabout\Sandy.sipx

MOVEMENT SUMMARY

 **Site: [2 (3)] Hwy 211--Dubarko Rd_2040PMpeak_w/o ext**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]		[Total HV]					[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Highway 211															
3	L2	All MCs	99	4.0	99	4.0	0.480	8.4	LOS A	3.2	82.4	0.48	0.25	0.48	31.0
8	T1	All MCs	324	2.0	324	2.0	0.480	8.2	LOS A	3.2	82.4	0.48	0.25	0.48	31.7
18	R2	All MCs	121	6.0	121	6.0	0.480	8.6	LOS A	3.2	82.4	0.48	0.25	0.48	31.3
Approach			544	3.3	544	3.3	0.480	8.3	LOS A	3.2	82.4	0.48	0.25	0.48	31.5
East: Dubarko Rd															
1	L2	All MCs	60	6.0	60	6.0	0.198	6.7	LOS A	0.8	21.4	0.55	0.43	0.55	31.3
6	T1	All MCs	66	6.0	66	6.0	0.198	6.7	LOS A	0.8	21.4	0.55	0.43	0.55	32.0
16	R2	All MCs	33	0.0	33	0.0	0.198	5.9	LOS A	0.8	21.4	0.55	0.43	0.55	31.8
Approach			159	4.8	159	4.8	0.198	6.5	LOS A	0.8	21.4	0.55	0.43	0.55	31.7
North: Highway 211															
7	L2	All MCs	49	5.0	49	5.0	0.658	13.0	LOS B	8.4	218.1	0.73	0.58	1.00	29.4
4	T1	All MCs	593	5.0	593	5.0	0.658	13.0	LOS B	8.4	218.1	0.73	0.58	1.00	29.9
14	R2	All MCs	33	0.0	33	0.0	0.658	12.4	LOS B	8.4	218.1	0.73	0.58	1.00	29.8
Approach			676	4.8	676	4.8	0.658	12.9	LOS B	8.4	218.1	0.73	0.58	1.00	29.9
West: Dubarko Rd Ext															
5	L2	All MCs	27	10.0	27	10.0	0.325	11.8	LOS B	1.4	36.2	0.69	0.64	0.75	30.1
2	T1	All MCs	77	0.0	77	0.0	0.325	9.5	LOS A	1.4	36.2	0.69	0.64	0.75	30.9
12	R2	All MCs	93	5.0	93	5.0	0.325	10.6	LOS B	1.4	36.2	0.69	0.64	0.75	30.6
Approach			198	3.8	198	3.8	0.325	10.3	LOS B	1.4	36.2	0.69	0.64	0.75	30.7
All Vehicles			1577	4.1	1577	4.1	0.658	10.4	LOS B	8.4	218.1	0.62	0.46	0.74	30.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglach M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: L:\AI-DKS\PDIX-Drive\Projects\2022\P22071-000 (Sandy On-Call Services)\Task 020_Hwy 211-Dubarko\Analysis\Roundabout\Sandy.sipx

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	69	68	418	76	35	381	58	631	45	26	189	172
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.42	0.43	0.43	0.11	0.12	0.12
Sat Flow, veh/h	0	238	1466	0	123	1335	136	1476	106	212	1521	1383
Grp Volume(v), veh/h	67	0	89	189	0	94	633	0	0	139	0	22
Grp Sat Flow(s),veh/h/ln	238	0	1466	123	0	1335	1718	0	0	1733	0	1383
Q Serve(g_s), s	0.0	0.0	3.4	0.0	0.0	4.0	24.6	0.0	0.0	5.6	0.0	1.0
Cycle Q Clear(g_c), s	21.0	0.0	3.4	21.0	0.0	4.0	24.6	0.0	0.0	5.6	0.0	1.0
Prop In Lane	0.42		1.00	0.56		1.00	0.08		0.06	0.12		1.00
Lane Grp Cap(c), veh/h	137	0	418	111	0	381	735	0	0	216	0	172
V/C Ratio(X)	0.49	0.00	0.21	1.70	0.00	0.25	0.86	0.00	0.00	0.64	0.00	0.13
Avail Cap(c_a), veh/h	137	0	418	111	0	381	886	0	0	447	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	20.0	30.5	0.0	20.3	19.1	0.0	0.0	30.7	0.0	28.7
Incr Delay (d2), s/veh	2.0	0.0	0.2	349.9	0.0	0.2	9.2	0.0	0.0	6.7	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.1	12.8	0.0	1.2	10.3	0.0	0.0	2.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.8	0.0	20.2	380.4	0.0	20.5	28.4	0.0	0.0	37.5	0.0	29.4
LnGrp LOS	C		C	F		C	C			D		C
Approach Vol, veh/h	156			283			633			161		
Approach Delay, s/veh	21.8			260.9			28.4			36.4		
Approach LOS	C			F			C			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	35.5			25.0			13.2			25.0		
Change Period (Y+Rc), s	4.8			4.0			4.8			4.0		
Max Green Setting (Gmax), s	37.2			21.0			18.2			21.0		
Max Q Clear Time (g_c+I1), s	26.6			23.0			7.6			23.0		
Green Ext Time (p_c), s	4.1			0.0			0.7			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	81.9											
HCM 6th LOS	F											

2040 A.M. Peak Hour
without extension, Traffic Signal

Page 1

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	50	109	341	59	42	354	92	302	113	44	531	508
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.29	0.30	0.30	0.32	0.33	0.33
Sat Flow, veh/h	0	468	1460	0	180	1519	307	1006	376	132	1592	1525
Grp Volume(v), veh/h	104	0	93	126	0	33	544	0	0	642	0	33
Grp Sat Flow(s),veh/h/ln	468	0	1460	180	0	1519	1689	0	0	1723	0	1525
Q Serve(g_s), s	0.0	0.0	4.7	0.0	0.0	1.5	27.0	0.0	0.0	30.0	0.0	1.3
Cycle Q Clear(g_c), s	21.0	0.0	4.7	21.0	0.0	1.5	27.0	0.0	0.0	30.0	0.0	1.3
Prop In Lane	0.26		1.00	0.48		1.00	0.18		0.22	0.08		1.00
Lane Grp Cap(c), veh/h	160	0	341	101	0	354	507	0	0	574	0	508
V/C Ratio(X)	0.65	0.00	0.27	1.25	0.00	0.09	1.07	0.00	0.00	1.12	0.00	0.06
Avail Cap(c_a), veh/h	160	0	341	101	0	354	507	0	0	574	0	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	28.2	36.7	0.0	27.0	31.6	0.0	0.0	30.0	0.0	20.4
Incr Delay (d2), s/veh	8.3	0.0	0.3	170.5	0.0	0.1	61.2	0.0	0.0	74.2	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.6	7.0	0.0	0.6	18.9	0.0	0.0	23.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.7	0.0	28.6	207.2	0.0	27.1	92.8	0.0	0.0	104.2	0.0	20.6
LnGrp LOS	D		C	F		C	F			F		C
Approach Vol, veh/h		197			159			544			675	
Approach Delay, s/veh		33.4			169.8			92.8			100.1	
Approach LOS		C			F			F			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		25.0		34.0		25.0				
Change Period (Y+Rc), s		4.8		4.0		4.8		4.0				
Max Green Setting (Gmax), s		26.2		21.0		29.2		21.0				
Max Q Clear Time (g_c+I1), s		29.0		23.0		32.0		23.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			96.3									
HCM 6th LOS			F									

2040 P.M. Peak Hour
without extension, Traffic Signal

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	72	71	520	80	37	474	650	674	48	279	601	108
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.06	0.42	0.42	0.06	0.42	0.42
Sat Flow, veh/h	0	200	1466	0	103	1335	1688	1608	115	1581	1438	259
Grp Volume(v), veh/h	67	0	89	189	0	94	50	0	583	17	0	144
Grp Sat Flow(s),veh/h/ln	200	0	1466	103	0	1335	1688	0	1723	1581	0	1697
Q Serve(g_s), s	0.0	0.0	2.9	0.0	0.0	3.4	1.2	0.0	20.9	0.4	0.0	3.8
Cycle Q Clear(g_c), s	25.0	0.0	2.9	25.0	0.0	3.4	1.2	0.0	20.9	0.4	0.0	3.8
Prop In Lane	0.42		1.00	0.56		1.00	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	144	0	520	116	0	474	650	0	722	279	0	710
V/C Ratio(X)	0.47	0.00	0.17	1.62	0.00	0.20	0.08	0.00	0.81	0.06	0.00	0.20
Avail Cap(c_a), veh/h	144	0	520	116	0	474	650	0	1198	281	0	1180
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	0.0	15.6	27.6	0.0	15.8	10.6	0.0	18.0	13.4	0.0	13.0
Incr Delay (d2), s/veh	1.7	0.0	0.1	316.9	0.0	0.2	0.0	0.0	4.6	0.1	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.9	12.2	0.0	1.0	0.4	0.0	8.0	0.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.5	0.0	15.7	344.5	0.0	15.9	10.6	0.0	22.6	13.5	0.0	13.3
LnGrp LOS	C		B	F		B	B		C	B		B
Approach Vol, veh/h	156				283				633		161	
Approach Delay, s/veh	17.8				235.4				21.6		13.4	
Approach LOS	B				F				C		B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	33.5		29.0	8.0	33.5		29.0				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	48.2		25.0	4.0	48.2		25.0				
Max Q Clear Time (g_c+I1), s	2.4	22.9		27.0	3.2	5.8		27.0				
Green Ext Time (p_c), s	0.0	5.8		0.0	0.0	1.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	69.1											
HCM 6th LOS	E											

2040 A.M. Peak Hour
without extension, Traffic Signal_NB/SB LT Lane

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	68	147	459	80	56	478	298	579	216	422	737	41
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.05	0.47	0.47	0.04	0.45	0.45
Sat Flow, veh/h	0	468	1461	0	180	1521	1661	1230	459	1647	1623	90
Grp Volume(v), veh/h	104	0	93	126	0	33	99	0	445	49	0	626
Grp Sat Flow(s),veh/h/ln	469	0	1461	180	0	1521	1661	0	1689	1647	0	1714
Q Serve(g_s), s	0.0	0.0	3.1	0.0	0.0	1.0	2.1	0.0	12.7	1.1	0.0	21.0
Cycle Q Clear(g_c), s	21.0	0.0	3.1	21.0	0.0	1.0	2.1	0.0	12.7	1.1	0.0	21.0
Prop In Lane	0.26		1.00	0.48		1.00	1.00		0.27	1.00		0.05
Lane Grp Cap(c), veh/h	215	0	459	136	0	478	298	0	795	422	0	778
V/C Ratio(X)	0.48	0.00	0.20	0.93	0.00	0.07	0.33	0.00	0.56	0.12	0.00	0.80
Avail Cap(c_a), veh/h	215	0	459	136	0	478	360	0	1339	461	0	1307
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	16.8	24.5	0.0	16.1	12.9	0.0	12.7	10.5	0.0	15.7
Incr Delay (d2), s/veh	1.2	0.0	0.2	54.8	0.0	0.0	0.5	0.0	1.3	0.1	0.0	4.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.0	4.0	0.0	0.3	0.7	0.0	4.2	0.3	0.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.7	0.0	16.9	79.3	0.0	16.1	13.3	0.0	14.0	10.5	0.0	19.9
LnGrp LOS	B		B	E		B	B		B	B		B
Approach Vol, veh/h		197			159			544			675	
Approach Delay, s/veh		18.4			66.2			13.9			19.2	
Approach LOS		B			E			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	35.5		25.0	7.5	34.3		25.0				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	52.2		21.0	6.0	50.2		21.0				
Max Q Clear Time (g_c+I1), s	3.1	14.7		23.0	4.1	23.0		23.0				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	6.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.0									
HCM 6th LOS			C									

2040 P.M. Peak Hour
without extension, Traffic Signal_NB/SB LT Lane

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HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	226	94	214	277	136	154	64	699	50	29	206	187
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.46	0.47	0.47	0.12	0.14	0.14
Sat Flow, veh/h	1262	487	1112	1288	704	798	136	1476	106	212	1521	1383
Grp Volume(v), veh/h	28	0	128	106	0	177	633	0	0	139	0	22
Grp Sat Flow(s),veh/h/ln	1262	0	1600	1288	0	1502	1718	0	0	1733	0	1383
Q Serve(g_s), s	1.3	0.0	4.2	4.7	0.0	6.5	18.6	0.0	0.0	4.6	0.0	0.8
Cycle Q Clear(g_c), s	7.8	0.0	4.2	9.0	0.0	6.5	18.6	0.0	0.0	4.6	0.0	0.8
Prop In Lane	1.00		0.70	1.00		0.53	0.08		0.06	0.12		1.00
Lane Grp Cap(c), veh/h	226	0	308	277	0	290	813	0	0	234	0	187
V/C Ratio(X)	0.12	0.00	0.42	0.38	0.00	0.61	0.78	0.00	0.00	0.59	0.00	0.12
Avail Cap(c_a), veh/h	422	0	557	477	0	522	1645	0	0	551	0	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	21.4	25.3	0.0	22.3	13.3	0.0	0.0	24.6	0.0	22.9
Incr Delay (d2), s/veh	0.2	0.0	0.7	0.6	0.0	1.6	3.5	0.0	0.0	5.0	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.5	1.4	0.0	2.3	6.3	0.0	0.0	2.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.0	0.0	22.0	26.0	0.0	23.8	16.8	0.0	0.0	29.6	0.0	23.5
LnGrp LOS	C		C	C		C	B			C		C
Approach Vol, veh/h	156					283		633		161		
Approach Delay, s/veh	22.8					24.6		16.8		28.8		
Approach LOS	C					C		B		C		
Timer - Assigned Phs	2		4			6		8				
Phs Duration (G+Y+Rc), s	32.6		15.6			12.2		15.6				
Change Period (Y+Rc), s	4.8		4.0			4.8		4.0				
Max Green Setting (Gmax), s	57.0		21.0			18.4		21.0				
Max Q Clear Time (g_c+I1), s	20.6		9.8			6.6		11.0				
Green Ext Time (p_c), s	7.2		0.3			0.8		0.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.9									
HCM 6th LOS			C									

2040 A.M. Peak Hour
without extension, Traffic Signal_EB/WB LT Lane

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	208	124	149	152	180	90	103	337	126	51	614	588
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.33	0.33	0.33	0.38	0.39	0.39
Sat Flow, veh/h	1243	740	893	1206	1077	538	307	1006	376	132	1592	1525
Grp Volume(v), veh/h	27	0	170	60	0	99	544	0	0	642	0	33
Grp Sat Flow(s),veh/h/ln	1243	0	1633	1206	0	1615	1689	0	0	1723	0	1525
Q Serve(g_s), s	2.1	0.0	10.3	5.2	0.0	5.8	33.8	0.0	0.0	39.0	0.0	1.5
Cycle Q Clear(g_c), s	7.9	0.0	10.3	15.5	0.0	5.8	33.8	0.0	0.0	39.0	0.0	1.5
Prop In Lane	1.00		0.55	1.00		0.33	0.18		0.22	0.08		1.00
Lane Grp Cap(c), veh/h	208	0	273	152	0	270	566	0	0	664	0	588
V/C Ratio(X)	0.13	0.00	0.62	0.39	0.00	0.37	0.96	0.00	0.00	0.97	0.00	0.06
Avail Cap(c_a), veh/h	244	0	321	188	0	317	566	0	0	664	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	41.4	48.6	0.0	39.5	34.9	0.0	0.0	32.2	0.0	20.6
Incr Delay (d2), s/veh	0.2	0.0	2.3	1.2	0.0	0.6	28.7	0.0	0.0	27.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	4.3	1.6	0.0	2.3	17.7	0.0	0.0	20.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.2	0.0	43.6	49.8	0.0	40.1	63.6	0.0	0.0	59.2	0.0	20.7
LnGrp LOS	D		D	D		D	E			E		C
Approach Vol, veh/h		197			159			544			675	
Approach Delay, s/veh		43.6			43.8			63.6			57.3	
Approach LOS		D			D			E			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.8		21.9		45.2		21.9				
Change Period (Y+Rc), s		4.8		4.0		4.8		4.0				
Max Green Setting (Gmax), s		35.0		21.0		40.4		21.0				
Max Q Clear Time (g_c+I1), s		35.8		12.3		41.0		17.5				
Green Ext Time (p_c), s		0.0		0.4		0.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				56.4								
HCM 6th LOS				E								

2040 P.M. Peak Hour
without extension, Traffic Signal_EB/WB LT Lane

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	283	100	229	333	145	164	786	724	52	408	639	115
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.09	0.45	0.45	0.08	0.44	0.44
Sat Flow, veh/h	1262	487	1112	1288	704	798	1688	1608	115	1581	1438	259
Grp Volume(v), veh/h	28	0	128	106	0	177	50	0	583	17	0	144
Grp Sat Flow(s),veh/h/ln	1262	0	1600	1288	0	1502	1688	0	1723	1581	0	1697
Q Serve(g_s), s	0.9	0.0	3.2	3.5	0.0	4.9	0.7	0.0	12.8	0.2	0.0	2.4
Cycle Q Clear(g_c), s	5.8	0.0	3.2	6.7	0.0	4.9	0.7	0.0	12.8	0.2	0.0	2.4
Prop In Lane	1.00		0.70	1.00		0.53	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	283	0	329	333	0	309	786	0	776	408	0	754
V/C Ratio(X)	0.10	0.00	0.39	0.32	0.00	0.57	0.06	0.00	0.75	0.04	0.00	0.19
Avail Cap(c_a), veh/h	603	0	735	660	0	690	786	0	1244	418	0	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	15.7	18.6	0.0	16.4	5.6	0.0	10.4	7.3	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.4	0.0	1.2	0.0	0.0	3.1	0.0	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.1	1.0	0.0	1.6	0.1	0.0	3.9	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.1	0.0	16.2	19.0	0.0	17.6	5.6	0.0	13.6	7.4	0.0	8.0
LnGrp LOS	B		B	B		B	A		B	A		A
Approach Vol, veh/h		156			283			633			161	
Approach Delay, s/veh		16.7			18.1			13.0			7.9	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	24.6		13.4	8.0	24.3		13.4				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.2	14.8		7.8	2.7	4.4		8.7				
Green Ext Time (p_c), s	0.0	4.9		0.4	0.0	1.1		0.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			14.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	328	144	174	273	210	105	410	579	216	539	764	42
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.47	0.47	0.08	0.47	0.47
Sat Flow, veh/h	1244	740	894	1207	1077	539	1661	1230	459	1647	1623	90
Grp Volume(v), veh/h	27	0	170	60	0	99	99	0	445	49	0	626
Grp Sat Flow(s),veh/h/ln	1244	0	1634	1207	0	1616	1661	0	1689	1647	0	1714
Q Serve(g_s), s	0.9	0.0	4.5	2.2	0.0	2.5	1.4	0.0	9.1	0.7	0.0	14.6
Cycle Q Clear(g_c), s	3.4	0.0	4.5	6.7	0.0	2.5	1.4	0.0	9.1	0.7	0.0	14.6
Prop In Lane	1.00		0.55	1.00		0.33	1.00		0.27	1.00		0.05
Lane Grp Cap(c), veh/h	328	0	318	273	0	315	410	0	795	539	0	806
V/C Ratio(X)	0.08	0.00	0.53	0.22	0.00	0.31	0.24	0.00	0.56	0.09	0.00	0.78
Avail Cap(c_a), veh/h	632	0	718	568	0	710	410	0	1166	539	0	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	17.3	20.3	0.0	16.5	8.0	0.0	9.1	6.2	0.0	10.6
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.3	0.0	0.4	0.2	0.0	1.3	0.1	0.0	3.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.6	0.6	0.0	0.9	0.3	0.0	2.5	0.1	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.1	0.0	18.3	20.6	0.0	16.9	8.2	0.0	10.4	6.2	0.0	14.3
LnGrp LOS	B		B	C		B	A		B	A		B
Approach Vol, veh/h		197			159			544			675	
Approach Delay, s/veh		18.3			18.3			10.0			13.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	26.5		13.3	8.0	26.5		13.3				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.7	11.1		6.5	3.4	16.6		8.7				
Green Ext Time (p_c), s	0.0	3.9		0.5	0.0	5.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			13.5									
HCM 6th LOS			B									

2040 P.M. Peak Hour
without extension, Traffic Signal_All LT Lane

SECTION 11: RECOMMENDED IMPROVEMENTS CAPACITY ANALYSIS

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	20	50	55	55	65	30	355	20	10	125	10
Future Vol, veh/h	10	20	50	55	55	65	30	355	20	10	125	10
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	125	-	-	125	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	3	11	16	2	4	2	10	4	12
Mvmt Flow	11	22	56	61	61	72	33	394	22	11	139	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	705	649	145	677	643	405	150	0	0	416	0	0
Stage 1	167	167	-	471	471	-	-	-	-	-	-	-
Stage 2	538	482	-	206	172	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.13	6.61	6.36	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.527	4.099	3.444	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	354	391	894	365	380	616	1431	-	-	1101	-	-
Stage 1	840	764	-	571	545	-	-	-	-	-	-	-
Stage 2	531	557	-	794	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	266	378	894	319	367	616	1431	-	-	1101	-	-
Mov Cap-2 Maneuver	266	378	-	319	367	-	-	-	-	-	-	-
Stage 1	821	756	-	558	532	-	-	-	-	-	-	-
Stage 2	405	544	-	716	733	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	12.4		16.7		0.6		0.6	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	266	643	319	470	1101	-	-
HCM Lane V/C Ratio	0.023	-	-	0.042	0.121	0.192	0.284	0.01	-	-
HCM Ctrl Dly (s/v)	7.6	-	-	19.1	11.4	18.9	15.7	8.3	-	-
HCM Lane LOS	A	-	-	C	B	C	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0.4	0.7	1.2	0	-	-

2030 A.M. Peak Hour
without extension, All LT Lane

HCM 6th TWSC

1: Hwy 211 & Dubarko Rd

Intersection

Int Delay, s/veh 6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	50	70	40	45	25	60	310	70	25	405	15
Future Vol, veh/h	15	50	70	40	45	25	60	310	70	25	405	15
Conflicting Peds, #/hr	2	0	0	0	0	2	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	125	-	-	125	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	10	0	5	6	6	0	4	2	6	5	5	0
Mvmt Flow	16	55	77	44	49	27	66	341	77	27	445	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1059	1057	453	1085	1027	382	461	0	0	418	0	0
Stage 1	507	507	-	512	512	-	-	-	-	-	-	-
Stage 2	552	550	-	573	515	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.5	6.25	7.16	6.56	6.2	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.5	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.345	3.554	4.054	3.3	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	195	227	601	191	231	670	1090	-	-	1125	-	-
Stage 1	534	543	-	537	530	-	-	-	-	-	-	-
Stage 2	504	519	-	498	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	208	601	125	212	669	1090	-	-	1125	-	-
Mov Cap-2 Maneuver	144	208	-	125	212	-	-	-	-	-	-	-
Stage 1	501	530	-	504	498	-	-	-	-	-	-	-
Stage 2	408	487	-	380	515	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.7	32.2	1.2	0.5
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1090	-	-	144	336	125	280	1125	-	-
HCM Lane V/C Ratio	0.06	-	-	0.114	0.392	0.352	0.275	0.024	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	33.2	22.5	48.7	22.7	8.3	-	-
HCM Lane LOS	A	-	-	D	C	E	C	A	-	-
HCM 95th %tile Q (veh)	0.2	-	-	0.4	1.8	1.4	1.1	0.1	-	-

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	50	55	55	65	30	355	20	10	125	10
Future Volume (veh/h)	10	20	50	55	55	65	30	355	20	10	125	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	11	22	56	61	61	72	33	394	22	11	139	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	77	114	489	87	53	445	43	511	29	18	222	191
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.34	0.34	0.13	0.14	0.14
Sat Flow, veh/h	1	340	1466	2	159	1335	127	1511	84	127	1610	1383
Grp Volume(v), veh/h	33	0	56	122	0	72	449	0	0	150	0	11
Grp Sat Flow(s),veh/h/ln	342	0	1466	162	0	1335	1722	0	0	1737	0	1383
Q Serve(g_s), s	0.0	0.0	1.7	0.1	0.0	2.4	14.7	0.0	0.0	5.1	0.0	0.4
Cycle Q Clear(g_c), s	21.0	0.0	1.7	21.0	0.0	2.4	14.7	0.0	0.0	5.1	0.0	0.4
Prop In Lane	0.33		1.00	0.50		1.00	0.07		0.05	0.07		1.00
Lane Grp Cap(c), veh/h	190	0	489	140	0	445	582	0	0	240	0	191
V/C Ratio(X)	0.17	0.00	0.11	0.87	0.00	0.16	0.77	0.00	0.00	0.63	0.00	0.06
Avail Cap(c_a), veh/h	190	0	489	140	0	445	1037	0	0	527	0	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	14.5	22.9	0.0	14.8	18.7	0.0	0.0	25.6	0.0	23.6
Incr Delay (d2), s/veh	0.3	0.0	0.1	40.8	0.0	0.1	4.6	0.0	0.0	5.6	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	3.4	0.0	0.7	5.7	0.0	0.0	2.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.9	0.0	14.6	63.7	0.0	14.9	23.3	0.0	0.0	31.3	0.0	23.9
LnGrp LOS	B		B	E		B	C			C		C
Approach Vol, veh/h	89				194		449				161	
Approach Delay, s/veh	15.5				45.6		23.3				30.8	
Approach LOS	B				D		C				C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	25.3		25.0		12.7		25.0					
Change Period (Y+Rc), s	4.8		4.0		4.8		4.0					
Max Green Setting (Gmax), s	37.1		21.0		18.3		21.0					
Max Q Clear Time (g_c+I1), s	16.7		23.0		7.1		23.0					
Green Ext Time (p_c), s	3.8		0.0		0.8		0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			28.7									
HCM 6th LOS			C									

2030 A.M. Peak Hour
with extension, Traffic Signal

Page 1

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	50	70	40	45	25	60	310	70	25	405	15
Future Volume (veh/h)	15	50	70	40	45	25	60	310	70	25	405	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	16	55	77	44	49	27	66	341	77	27	445	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	51	133	354	61	44	368	73	379	86	30	496	465
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.31	0.31	0.31	0.30	0.30	0.30
Sat Flow, veh/h	0	549	1460	0	182	1519	233	1206	272	99	1626	1525
Grp Volume(v), veh/h	71	0	77	93	0	27	484	0	0	472	0	16
Grp Sat Flow(s),veh/h/ln	550	0	1460	182	0	1519	1711	0	0	1725	0	1525
Q Serve(g_s), s	0.0	0.0	3.7	0.0	0.0	1.2	23.4	0.0	0.0	22.7	0.0	0.6
Cycle Q Clear(g_c), s	21.0	0.0	3.7	21.0	0.0	1.2	23.4	0.0	0.0	22.7	0.0	0.6
Prop In Lane	0.23		1.00	0.47		1.00	0.14		0.16	0.06		1.00
Lane Grp Cap(c), veh/h	184	0	354	105	0	368	538	0	0	526	0	465
V/C Ratio(X)	0.39	0.00	0.22	0.88	0.00	0.07	0.90	0.00	0.00	0.90	0.00	0.03
Avail Cap(c_a), veh/h	184	0	354	105	0	368	573	0	0	557	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	26.3	33.9	0.0	25.3	28.5	0.0	0.0	28.9	0.0	21.2
Incr Delay (d2), s/veh	1.0	0.0	0.2	52.0	0.0	0.1	17.9	0.0	0.0	18.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.3	3.5	0.0	0.4	11.6	0.0	0.0	11.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.1	0.0	26.5	85.9	0.0	25.4	46.3	0.0	0.0	46.9	0.0	21.2
LnGrp LOS	C		C	F		C	D			D		C
Approach Vol, veh/h	148				120		484				488	
Approach Delay, s/veh	27.3				72.3		46.3				46.0	
Approach LOS	C				E		D				D	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	31.3		25.0		30.4		25.0					
Change Period (Y+Rc), s	4.8		4.0		4.8		4.0					
Max Green Setting (Gmax), s	28.2		21.0		27.2		21.0					
Max Q Clear Time (g_c+I1), s	25.4		23.0		24.7		23.0					
Green Ext Time (p_c), s	1.0		0.0		0.9		0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			46.5									
HCM 6th LOS			D									

2030 P.M. Peak Hour
with extension, Traffic Signal

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	50	55	55	65	30	355	20	10	125	10
Future Volume (veh/h)	10	20	50	55	55	65	30	355	20	10	125	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	11	22	56	61	61	72	33	394	22	11	139	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	305	67	171	359	103	122	781	636	36	535	591	47
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.12	0.39	0.39	0.10	0.37	0.37
Sat Flow, veh/h	1313	450	1144	1348	688	812	1688	1636	91	1581	1595	126
Grp Volume(v), veh/h	11	0	78	61	0	133	33	0	416	11	0	150
Grp Sat Flow(s),veh/h/ln	1313	0	1594	1348	0	1499	1688	0	1727	1581	0	1721
Q Serve(g_s), s	0.3	0.0	1.5	1.4	0.0	2.8	0.4	0.0	6.4	0.1	0.0	2.0
Cycle Q Clear(g_c), s	3.0	0.0	1.5	2.9	0.0	2.8	0.4	0.0	6.4	0.1	0.0	2.0
Prop In Lane	1.00		0.72	1.00		0.54	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	305	0	239	359	0	224	781	0	672	535	0	638
V/C Ratio(X)	0.04	0.00	0.33	0.17	0.00	0.59	0.04	0.00	0.62	0.02	0.00	0.24
Avail Cap(c_a), veh/h	938	0	1007	1010	0	948	784	0	1715	567	0	1709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	12.6	13.9	0.0	13.2	4.9	0.0	8.2	5.6	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.2	0.0	1.9	0.0	0.0	2.0	0.0	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.4	0.0	0.8	0.1	0.0	1.6	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.6	0.0	13.2	14.1	0.0	15.0	4.9	0.0	10.2	5.7	0.0	7.6
LnGrp LOS	B		B	B		B	A		B	A		A
Approach Vol, veh/h		89			194			449			161	
Approach Delay, s/veh		13.4			14.7			9.8			7.5	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	16.9		9.0	7.9	16.3		9.0				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.1	8.4		5.0	2.4	4.0		4.9				
Green Ext Time (p_c), s	0.0	3.7		0.2	0.0	1.1		0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.8									
HCM 6th LOS			B									

2030 A.M. Peak Hour
with extension, Traffic Signal_All LT Lane

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	50	70	40	45	20	60	310	70	25	405	15
Future Volume (veh/h)	15	50	70	40	45	20	60	310	70	25	405	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	16	55	77	44	49	22	66	341	77	27	445	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	356	112	156	308	185	83	527	565	128	556	670	24
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.11	0.40	0.40	0.11	0.40	0.40
Sat Flow, veh/h	1274	676	947	1248	1119	502	1661	1399	316	1647	1659	60
Grp Volume(v), veh/h	16	0	132	44	0	71	66	0	418	27	0	461
Grp Sat Flow(s),veh/h/ln	1274	0	1623	1248	0	1622	1661	0	1715	1647	0	1719
Q Serve(g_s), s	0.4	0.0	2.7	1.2	0.0	1.4	0.8	0.0	7.1	0.3	0.0	8.1
Cycle Q Clear(g_c), s	1.8	0.0	2.7	4.0	0.0	1.4	0.8	0.0	7.1	0.3	0.0	8.1
Prop In Lane	1.00		0.58	1.00		0.31	1.00		0.18	1.00		0.03
Lane Grp Cap(c), veh/h	356	0	268	308	0	268	527	0	692	556	0	694
V/C Ratio(X)	0.04	0.00	0.49	0.14	0.00	0.27	0.13	0.00	0.60	0.05	0.00	0.66
Avail Cap(c_a), veh/h	867	0	919	809	0	918	528	0	1526	557	0	1530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	14.1	15.9	0.0	13.5	6.0	0.0	8.7	5.6	0.0	9.0
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.2	0.0	0.4	0.1	0.0	1.8	0.0	0.0	2.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.9	0.3	0.0	0.5	0.1	0.0	1.9	0.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.3	0.0	15.1	16.0	0.0	13.9	6.1	0.0	10.5	5.6	0.0	11.3
LnGrp LOS	B		B	B		B	A		B	A		B
Approach Vol, veh/h		148			115			484			488	
Approach Delay, s/veh		15.0			14.7			9.9			11.0	
Approach LOS		B			B			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	19.0		10.1	8.0	19.0		10.1				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.3	9.1		4.7	2.8	10.1		6.0				
Green Ext Time (p_c), s	0.0	3.7		0.4	0.0	4.1		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			11.4									
HCM 6th LOS			B									

2030 P.M. Peak Hour
with extension, Traffic Signal_All LT Lane

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	69	68	418	76	35	381	58	631	45	26	189	172
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.42	0.43	0.43	0.11	0.12	0.12
Sat Flow, veh/h	0	238	1466	0	123	1335	136	1476	106	212	1521	1383
Grp Volume(v), veh/h	67	0	89	189	0	94	633	0	0	139	0	22
Grp Sat Flow(s),veh/h/ln	238	0	1466	123	0	1335	1718	0	0	1733	0	1383
Q Serve(g_s), s	0.0	0.0	3.4	0.0	0.0	4.0	24.6	0.0	0.0	5.6	0.0	1.0
Cycle Q Clear(g_c), s	21.0	0.0	3.4	21.0	0.0	4.0	24.6	0.0	0.0	5.6	0.0	1.0
Prop In Lane	0.42		1.00	0.56		1.00	0.08		0.06	0.12		1.00
Lane Grp Cap(c), veh/h	137	0	418	111	0	381	735	0	0	216	0	172
V/C Ratio(X)	0.49	0.00	0.21	1.70	0.00	0.25	0.86	0.00	0.00	0.64	0.00	0.13
Avail Cap(c_a), veh/h	137	0	418	111	0	381	886	0	0	447	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	20.0	30.5	0.0	20.3	19.1	0.0	0.0	30.7	0.0	28.7
Incr Delay (d2), s/veh	2.0	0.0	0.2	349.9	0.0	0.2	9.2	0.0	0.0	6.7	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.1	12.8	0.0	1.2	10.3	0.0	0.0	2.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.8	0.0	20.2	380.4	0.0	20.5	28.4	0.0	0.0	37.5	0.0	29.4
LnGrp LOS	C		C	F		C	C			D		C
Approach Vol, veh/h	156				283		633		161			
Approach Delay, s/veh	21.8				260.9		28.4		36.4			
Approach LOS	C				F		C		D			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	35.5		25.0		13.2		25.0					
Change Period (Y+Rc), s	4.8		4.0		4.8		4.0					
Max Green Setting (Gmax), s	37.2		21.0		18.2		21.0					
Max Q Clear Time (g_c+I1), s	26.6		23.0		7.6		23.0					
Green Ext Time (p_c), s	4.1		0.0		0.7		0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			81.9									
HCM 6th LOS			F									

2040 A.M. Peak Hour
without extension, Traffic Signal

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HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	50	109	341	59	42	354	92	302	113	44	531	508
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.29	0.30	0.30	0.32	0.33	0.33
Sat Flow, veh/h	0	468	1460	0	180	1519	307	1006	376	132	1592	1525
Grp Volume(v), veh/h	104	0	93	126	0	33	544	0	0	642	0	33
Grp Sat Flow(s),veh/h/ln	468	0	1460	180	0	1519	1689	0	0	1723	0	1525
Q Serve(g_s), s	0.0	0.0	4.7	0.0	0.0	1.5	27.0	0.0	0.0	30.0	0.0	1.3
Cycle Q Clear(g_c), s	21.0	0.0	4.7	21.0	0.0	1.5	27.0	0.0	0.0	30.0	0.0	1.3
Prop In Lane	0.26		1.00	0.48		1.00	0.18		0.22	0.08		1.00
Lane Grp Cap(c), veh/h	160	0	341	101	0	354	507	0	0	574	0	508
V/C Ratio(X)	0.65	0.00	0.27	1.25	0.00	0.09	1.07	0.00	0.00	1.12	0.00	0.06
Avail Cap(c_a), veh/h	160	0	341	101	0	354	507	0	0	574	0	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	28.2	36.7	0.0	27.0	31.6	0.0	0.0	30.0	0.0	20.4
Incr Delay (d2), s/veh	8.3	0.0	0.3	170.5	0.0	0.1	61.2	0.0	0.0	74.2	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.6	7.0	0.0	0.6	18.9	0.0	0.0	23.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.7	0.0	28.6	207.2	0.0	27.1	92.8	0.0	0.0	104.2	0.0	20.6
LnGrp LOS	D		C	F		C	F			F		C
Approach Vol, veh/h	197		159				544			675		
Approach Delay, s/veh	33.4		169.8				92.8			100.1		
Approach LOS	C		F				F			F		
Timer - Assigned Phs	2		4				6			8		
Phs Duration (G+Y+Rc), s	31.0		25.0				34.0			25.0		
Change Period (Y+Rc), s	4.8		4.0				4.8			4.0		
Max Green Setting (Gmax), s	26.2		21.0				29.2			21.0		
Max Q Clear Time (g_c+I1), s	29.0		23.0				32.0			23.0		
Green Ext Time (p_c), s	0.0		0.0				0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	96.3											
HCM 6th LOS	F											

2040 P.M. Peak Hour
without extension, Traffic Signal

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HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Future Volume (veh/h)	25	35	80	95	75	85	45	490	35	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	83	94	50	544	39	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	283	100	229	333	145	164	786	724	52	408	639	115
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.09	0.45	0.45	0.08	0.44	0.44
Sat Flow, veh/h	1262	487	1112	1288	704	798	1688	1608	115	1581	1438	259
Grp Volume(v), veh/h	28	0	128	106	0	177	50	0	583	17	0	144
Grp Sat Flow(s),veh/h/ln	1262	0	1600	1288	0	1502	1688	0	1723	1581	0	1697
Q Serve(g_s), s	0.9	0.0	3.2	3.5	0.0	4.9	0.7	0.0	12.8	0.2	0.0	2.4
Cycle Q Clear(g_c), s	5.8	0.0	3.2	6.7	0.0	4.9	0.7	0.0	12.8	0.2	0.0	2.4
Prop In Lane	1.00		0.70	1.00		0.53	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	283	0	329	333	0	309	786	0	776	408	0	754
V/C Ratio(X)	0.10	0.00	0.39	0.32	0.00	0.57	0.06	0.00	0.75	0.04	0.00	0.19
Avail Cap(c_a), veh/h	603	0	735	660	0	690	786	0	1244	418	0	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	15.7	18.6	0.0	16.4	5.6	0.0	10.4	7.3	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.4	0.0	1.2	0.0	0.0	3.1	0.0	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.1	1.0	0.0	1.6	0.1	0.0	3.9	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.1	0.0	16.2	19.0	0.0	17.6	5.6	0.0	13.6	7.4	0.0	8.0
LnGrp LOS	B		B	B		B	A		B	A		A
Approach Vol, veh/h		156			283			633			161	
Approach Delay, s/veh		16.7			18.1			13.0			7.9	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	24.6		13.4	8.0	24.3		13.4				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.2	14.8		7.8	2.7	4.4		8.7				
Green Ext Time (p_c), s	0.0	4.9		0.4	0.0	1.1		0.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			14.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Future Volume (veh/h)	25	70	85	55	60	30	90	295	110	45	540	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	77	93	60	66	33	99	324	121	49	593	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	328	144	174	273	210	105	410	579	216	539	764	42
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.47	0.47	0.08	0.47	0.47
Sat Flow, veh/h	1244	740	894	1207	1077	539	1661	1230	459	1647	1623	90
Grp Volume(v), veh/h	27	0	170	60	0	99	99	0	445	49	0	626
Grp Sat Flow(s),veh/h/ln	1244	0	1634	1207	0	1616	1661	0	1689	1647	0	1714
Q Serve(g_s), s	0.9	0.0	4.5	2.2	0.0	2.5	1.4	0.0	9.1	0.7	0.0	14.6
Cycle Q Clear(g_c), s	3.4	0.0	4.5	6.7	0.0	2.5	1.4	0.0	9.1	0.7	0.0	14.6
Prop In Lane	1.00		0.55	1.00		0.33	1.00		0.27	1.00		0.05
Lane Grp Cap(c), veh/h	328	0	318	273	0	315	410	0	795	539	0	806
V/C Ratio(X)	0.08	0.00	0.53	0.22	0.00	0.31	0.24	0.00	0.56	0.09	0.00	0.78
Avail Cap(c_a), veh/h	632	0	718	568	0	710	410	0	1166	539	0	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	17.3	20.3	0.0	16.5	8.0	0.0	9.1	6.2	0.0	10.6
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.3	0.0	0.4	0.2	0.0	1.3	0.1	0.0	3.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.6	0.6	0.0	0.9	0.3	0.0	2.5	0.1	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.1	0.0	18.3	20.6	0.0	16.9	8.2	0.0	10.4	6.2	0.0	14.3
LnGrp LOS	B		B	C		B	A		B	A		B
Approach Vol, veh/h		197			159			544			675	
Approach Delay, s/veh		18.3			18.3			10.0			13.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	26.5		13.3	8.0	26.5		13.3				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.7	11.1		6.5	3.4	16.6		8.7				
Green Ext Time (p_c), s	0.0	3.9		0.5	0.0	5.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			13.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	145	85	45	420	105	15	110	20
Future Volume (veh/h)	25	35	80	95	145	85	45	420	105	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	161	94	50	467	117	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	69	67	413	68	54	376	57	536	134	26	189	171
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.42	0.43	0.43	0.11	0.12	0.12
Sat Flow, veh/h	0	238	1466	0	193	1335	133	1238	310	212	1521	1383
Grp Volume(v), veh/h	67	0	89	267	0	94	634	0	0	139	0	22
Grp Sat Flow(s),veh/h/ln	238	0	1466	193	0	1335	1681	0	0	1733	0	1383
Q Serve(g_s), s	0.0	0.0	3.5	0.0	0.0	4.1	25.6	0.0	0.0	5.7	0.0	1.1
Cycle Q Clear(g_c), s	21.0	0.0	3.5	21.0	0.0	4.1	25.6	0.0	0.0	5.7	0.0	1.1
Prop In Lane	0.42		1.00	0.40		1.00	0.08		0.18	0.12		1.00
Lane Grp Cap(c), veh/h	136	0	413	122	0	376	728	0	0	215	0	171
V/C Ratio(X)	0.49	0.00	0.22	2.19	0.00	0.25	0.87	0.00	0.00	0.65	0.00	0.13
Avail Cap(c_a), veh/h	136	0	413	122	0	376	858	0	0	442	0	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	20.4	28.4	0.0	20.7	19.3	0.0	0.0	31.1	0.0	29.0
Incr Delay (d2), s/veh	2.1	0.0	0.2	561.4	0.0	0.3	10.2	0.0	0.0	6.8	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.2	21.2	0.0	1.2	10.6	0.0	0.0	2.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.2	0.0	20.6	589.9	0.0	20.9	29.5	0.0	0.0	37.9	0.0	29.8
LnGrp LOS	C		C	F		C	C			D		C
Approach Vol, veh/h	156			361			634			161		
Approach Delay, s/veh	22.2			441.7			29.5			36.8		
Approach LOS	C			F			C			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	36.3			25.0			13.2			25.0		
Change Period (Y+Rc), s	4.8			4.0			4.8			4.0		
Max Green Setting (Gmax), s	37.2			21.0			18.2			21.0		
Max Q Clear Time (g_c+I1), s	27.6			23.0			7.7			23.0		
Green Ext Time (p_c), s	3.9			0.0			0.7			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				142.9								
HCM 6th LOS				F								

2040 A.M. Peak Hour
with extension, Traffic Signal

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HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	140	85	125	60	30	90	295	110	45	470	30
Future Volume (veh/h)	25	140	85	125	60	30	90	295	110	45	470	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	154	93	137	66	33	99	324	121	49	516	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	46	176	341	67	9	354	96	313	117	48	507	492
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.30	0.31	0.31	0.31	0.32	0.32
Sat Flow, veh/h	0	754	1460	0	40	1519	307	1006	376	149	1573	1525
Grp Volume(v), veh/h	181	0	93	203	0	33	544	0	0	565	0	33
Grp Sat Flow(s),veh/h/ln	754	0	1460	40	0	1519	1689	0	0	1722	0	1525
Q Serve(g_s), s	0.0	0.0	4.7	0.0	0.0	1.5	28.0	0.0	0.0	29.0	0.0	1.3
Cycle Q Clear(g_c), s	21.0	0.0	4.7	21.0	0.0	1.5	28.0	0.0	0.0	29.0	0.0	1.3
Prop In Lane	0.15		1.00	0.67		1.00	0.18		0.22	0.09		1.00
Lane Grp Cap(c), veh/h	222	0	341	76	0	354	525	0	0	555	0	492
V/C Ratio(X)	0.82	0.00	0.27	2.66	0.00	0.09	1.04	0.00	0.00	1.02	0.00	0.07
Avail Cap(c_a), veh/h	222	0	341	76	0	354	525	0	0	555	0	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	28.2	42.5	0.0	27.0	31.1	0.0	0.0	30.5	0.0	21.1
Incr Delay (d2), s/veh	20.0	0.0	0.3	782.7	0.0	0.1	48.7	0.0	0.0	42.8	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	1.6	18.3	0.0	0.6	17.7	0.0	0.0	17.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.2	0.0	28.6	825.1	0.0	27.1	79.8	0.0	0.0	73.4	0.0	21.3
LnGrp LOS	D		C	F		C	F			F		C
Approach Vol, veh/h	274				236		544		598			
Approach Delay, s/veh	42.9				713.5		79.8		70.5			
Approach LOS	D				F		E		E			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	32.0		25.0		33.0		25.0					
Change Period (Y+Rc), s	4.8		4.0		4.8		4.0					
Max Green Setting (Gmax), s	27.2		21.0		28.2		21.0					
Max Q Clear Time (g_c+l1), s	30.0		23.0		31.0		23.0					
Green Ext Time (p_c), s	0.0		0.0		0.0		0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			160.8									
HCM 6th LOS			F									

2040 P.M. Peak Hour
with extension, Traffic Signal

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HCM 6th Signalized Intersection Summary

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	80	95	145	85	45	420	105	15	110	20
Future Volume (veh/h)	25	35	80	95	145	85	45	420	105	15	110	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1730	1758	1646	1575	1772	1744	1772	1660	1744	1632
Adj Flow Rate, veh/h	28	39	89	106	161	94	50	467	117	17	122	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	5	3	11	16	2	4	2	10	4	12
Cap, veh/h	232	109	249	351	218	127	771	606	152	385	640	115
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.08	0.45	0.45	0.08	0.45	0.45
Sat Flow, veh/h	1175	487	1112	1288	974	569	1688	1346	337	1581	1438	259
Grp Volume(v), veh/h	28	0	128	106	0	255	50	0	584	17	0	144
Grp Sat Flow(s),veh/h/ln	1175	0	1600	1288	0	1543	1688	0	1683	1581	0	1697
Q Serve(g_s), s	1.1	0.0	3.3	3.7	0.0	7.4	0.7	0.0	14.1	0.3	0.0	2.5
Cycle Q Clear(g_c), s	8.5	0.0	3.3	6.9	0.0	7.4	0.7	0.0	14.1	0.3	0.0	2.5
Prop In Lane	1.00		0.70	1.00		0.37	1.00		0.20	1.00		0.15
Lane Grp Cap(c), veh/h	232	0	358	351	0	346	771	0	757	385	0	755
V/C Ratio(X)	0.12	0.00	0.36	0.30	0.00	0.74	0.06	0.00	0.77	0.04	0.00	0.19
Avail Cap(c_a), veh/h	479	0	695	621	0	670	771	0	1149	393	0	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	15.8	18.7	0.0	17.4	6.0	0.0	11.2	8.0	0.0	8.1
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.4	0.0	2.3	0.0	0.0	3.6	0.0	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.1	1.0	0.0	2.5	0.2	0.0	4.4	0.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.6	0.0	16.3	19.1	0.0	19.7	6.0	0.0	14.8	8.0	0.0	8.4
LnGrp LOS	C		B	B		B	A		B	A		A
Approach Vol, veh/h		156			361			634			161	
Approach Delay, s/veh		17.2			19.6			14.2			8.4	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	25.8		14.8	8.0	25.5		14.8				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+I1), s	2.3	16.1		10.5	2.7	4.5		9.4				
Green Ext Time (p_c), s	0.0	4.8		0.3	0.0	1.1		0.9				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			15.3									
HCM 6th LOS			B									

2040 A.M. Peak Hour
with extension, Traffic Signal_All LT Lane

HCM 6th Signalized Intersection Summary

Item # 1.

1: Hwy 211 & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	140	85	125	60	30	90	295	110	45	470	30
Future Volume (veh/h)	25	140	85	125	60	30	90	295	110	45	470	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1660	1800	1730	1716	1716	1800	1744	1772	1716	1730	1730	1800
Adj Flow Rate, veh/h	27	154	93	137	66	33	99	324	121	49	516	33
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	0	5	6	6	0	4	2	6	5	5	0
Cap, veh/h	435	301	182	321	309	155	364	506	189	436	662	42
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.08	0.41	0.41	0.08	0.41	0.41
Sat Flow, veh/h	1245	1050	634	1126	1078	539	1661	1230	459	1647	1608	103
Grp Volume(v), veh/h	27	0	247	137	0	99	99	0	445	49	0	549
Grp Sat Flow(s),veh/h/ln	1245	0	1683	1126	0	1617	1661	0	1689	1647	0	1711
Q Serve(g_s), s	0.9	0.0	6.5	6.2	0.0	2.5	1.8	0.0	11.2	0.9	0.0	14.8
Cycle Q Clear(g_c), s	3.4	0.0	6.5	12.7	0.0	2.5	1.8	0.0	11.2	0.9	0.0	14.8
Prop In Lane	1.00		0.38	1.00		0.33	1.00		0.27	1.00		0.06
Lane Grp Cap(c), veh/h	435	0	483	321	0	464	364	0	696	436	0	705
V/C Ratio(X)	0.06	0.00	0.51	0.43	0.00	0.21	0.27	0.00	0.64	0.11	0.00	0.78
Avail Cap(c_a), veh/h	570	0	665	442	0	639	364	0	1049	436	0	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	15.8	21.1	0.0	14.4	10.2	0.0	12.5	8.9	0.0	13.5
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.7	0.0	0.2	0.3	0.0	2.1	0.1	0.0	4.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.3	1.5	0.0	0.8	0.5	0.0	3.6	0.2	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.7	0.0	16.4	21.8	0.0	14.6	10.5	0.0	14.6	9.0	0.0	17.7
LnGrp LOS	B		B	C		B	B		B	A		B
Approach Vol, veh/h	274				236			544			598	
Approach Delay, s/veh	16.4				18.8			13.8			17.0	
Approach LOS	B				B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	25.9		19.3	8.0	25.9		19.3				
Change Period (Y+Rc), s	4.0	4.8		4.0	4.0	4.8		4.0				
Max Green Setting (Gmax), s	4.0	32.2		21.0	4.0	32.2		21.0				
Max Q Clear Time (g_c+l1), s	2.9	13.2		8.5	3.8	16.8		14.7				
Green Ext Time (p_c), s	0.0	3.8		0.7	0.0	4.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	16.1											
HCM 6th LOS	B											

2040 P.M. Peak Hour
with extension, Traffic Signal_All LT Lane

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SECTION 12: INTERSECTION QUEUING REPORT WITH RECOMMENDED IMPROVEMENTS

Queuing and Blocking Report
with extension, Traffic Signal All LT Lane

Item # 1.

07/23/2026

Intersection: 1: Hwy 211 & Dubarko Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	92	200	148	104	170	276	113	297
Average Queue (ft)	20	89	68	37	46	89	21	128
95th Queue (ft)	59	156	124	81	95	187	62	238
Link Distance (ft)		659		1344		1343		1247
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)						0		1
Queuing Penalty (veh)						0		0

2040 P.M. Peak Hour

SimTraffic Report
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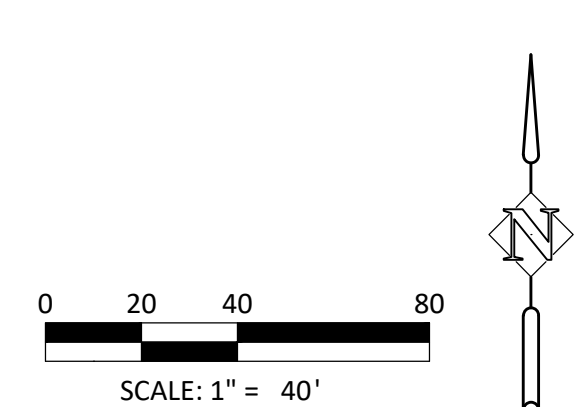
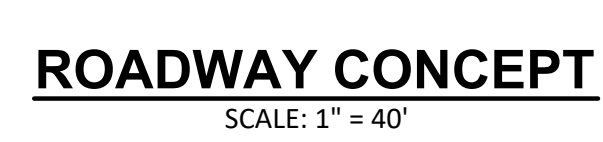
SECTION 13: CAPACITY ANALYSIS (HCM) RESULTS

ID	Software/Method	Intersection	Control Type	Mobility Target	LOS	Delay	V/C Ratio	Over Target	Critical Movement	Scenario
1	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/C	8/18	0.10/0.27	FALSE	SB/WB	2026 AM Peak
3	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/E	8/36	0.29/0.42	TRUE	NB/WB	2026 PM Peak
11	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/C	8/22	0.09/0.36	FALSE	SB/WB	2030 AM Peak
13	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/58	0.31/0.60	TRUE	NB/WB	2030 PM Peak
21	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/71	0.09/0.84	TRUE	SB/WB	2040 AM Peak
23	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/594	0.37/1.98	TRUE	NB/WB	2040 PM Peak
31	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/119	0.09/1.07	TRUE	SB/WB	2040 AM Peak with planned extensions
33	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/311	0.36/1.46	TRUE	NB/EB	2040 PM Peak with planned extensions
41	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/67	0.07/0.82	TRUE	SB/WB	2040 AM Peak, NB/SB LT Lane
42	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/486	0.26/1.76	TRUE	NB/WB	2040 PM Peak, NB/SB LT Lane
43	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/64	0.09/0.81	TRUE	SB/WB	2040 AM Peak, NB RT Lane
44	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/486	0.30/1.76	TRUE	NB/WB	2040 PM Peak, NB RT Lane
45	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/E	9/42	0.09/0.53	TRUE	SB/WB	2040 AM Peak, EB/WB LT Lane
46	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/F	9/445	0.37/1.44	TRUE	NB/WB	2040 PM Peak, EB/WB LT Lane
47	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	F	82	2.29	TRUE	N/A	2040 AM Peak, Traffic Signal
48	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	F	96	1.61	TRUE	N/A	2040 PM Peak, Traffic Signal
49	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	E	69	2.52	TRUE	N/A	2040 AM Peak, Traffic Signal, NB/SB LT Lane
50	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	C	22	1.30	FALSE	N/A	2040 PM Peak, Traffic Signal, NB/SB LT Lane
51	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	C	21	0.64	FALSE	N/A	2040 AM Peak, Traffic Signal, EB/WB LT Lane
52	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	E	56	0.90	TRUE	N/A	2040 PM Peak, Traffic Signal, EB/WB LT Lane
53	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	C	21	0.61	FALSE	N/A	2040 AM Peak, Traffic Signal, All LT Lane
54	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	B	14	0.64	FALSE	N/A	2040 PM Peak, Traffic Signal, All LT Lane
55	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/C	8/19	0.09/0.12	FALSE	SB/EB	2030 AM Peak, All LT Lane
56	Synchro HCM 6th Stop Control	Hwy 211 & Dubarko Rd	TWSC	LOS D	A/E	9/49	0.25/0.35	TRUE	NB/WB	2030 PM Peak, All LT Lane
57	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	F	143	2.14	TRUE	N/A	2040 AM Peak with planned extensions, Traffic Signal
58	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	F	161	6.54	TRUE	N/A	2040 PM Peak with planned extensions, Traffic Signal
59	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	B	15	0.60	FALSE	N/A	2040 AM Peak with planned extensions, Traffic Signal, All LT Lane
60	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	B	16	0.61	FALSE	N/A	2040 PM Peak with planned extensions, Traffic Signal, All LT Lane
61	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	C	29	1.23	FALSE	N/A	2030 AM Peak, Traffic Signal
62	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	D	47	0.97	FALSE	N/A	2030 PM Peak, Traffic Signal
63	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	B	11	0.39	FALSE	N/A	2030 AM Peak, Traffic Signal, All LT Lane
64	Synchro HCM 6th Signal	Hwy 211 & Dubarko Rd	Signal	LOS D	B	11	0.45	FALSE	N/A	2030 PM Peak, Traffic Signal, All LT Lane

Intersection ID and Name	use dropdown	Control Type	1	3	4	5	6	7	8	9	10	11	12	13	14	Outputs	NB	SB	CB	WB
1: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	1: Hwy 211 & Dubarbo Rd V/C	0.24	0.10	0.06	0.27
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	1: Hwy 211 & Dubarbo Rd Delay	7.60	8.20	15.45	18.28
		Mvmt Flow	6	17	47	47	52	70	20	349	17	12	151	0	0	1: Hwy 211 & Dubarbo Rd LOS	A	A	C	C
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	4.6			
		Minor (or AWSC) V/C	0.06	0.05	0.03	0.07	0.11	0.04	0.24	0.22	0.22	0.10	0.09	0.09	0.09					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.02	-	-	0.06	0.05	0.27	0.11	0.01	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	7.6	0.0	-	13.4	9.3	18.2	11.1	8.2	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	C	B	A	C	B	A	A	-	-	0					
3: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	3: Hwy 211 & Dubarbo Rd V/C	0.29	0.25	0.24	0.42
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	3: Hwy 211 & Dubarbo Rd Delay	7.60	8.30	15.45	18.28
		Mvmt Flow	11	44	71	38	44	27	55	346	60	22	305	11	0	3: Hwy 211 & Dubarbo Rd LOS	A	A	D	E
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	5.5			
		Minor (or AWSC) V/C	0.03	0.04	0.04	0.04	0.04	0.24	0.24	0.24	0.23	0.23	0.01	0.01	0.01					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.05	-	-	0.24	0.11	0.42	0.04	0.02	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	8.2	0.0	-	26.0	12.2	35.8	10.6	8.2	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
11: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	11: Hwy 211 & Dubarbo Rd V/C	0.27	0.09	0.10	0.36
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	11: Hwy 211 & Dubarbo Rd Delay	7.60	8.30	15.45	18.28
		Mvmt Flow	11	22	56	61	61	72	33	394	22	11	119	11	0	11: Hwy 211 & Dubarbo Rd LOS	A	A	C	C
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	5.5			
		Minor (or AWSC) V/C	0.01	0.01	0.03	0.04	0.04	0.27	0.24	0.24	0.09	0.09	0.01	0.01	0.01					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.02	-	-	0.10	0.06	0.36	0.12	0.01	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	7.6	0.0	-	27.1	9.3	21.5	11.6	8.3	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
13: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	13: Hwy 211 & Dubarbo Rd V/C	0.31	0.29	0.30	0.60
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	13: Hwy 211 & Dubarbo Rd Delay	7.60	8.30	15.45	18.28
		Mvmt Flow	16	55	77	44	55	27	66	341	77	27	445	16	0	13: Hwy 211 & Dubarbo Rd LOS	A	A	E	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	8.1			
		Minor (or AWSC) V/C	0.03	0.05	0.02	0.31	0.25	0.25	0.25	0.25	0.25	0.26	0.01	0.01	0.01					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.02	-	-	0.10	0.06	0.36	0.12	0.01	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	7.6	0.0	-	27.1	9.3	21.5	11.6	8.3	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
21: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	21: Hwy 211 & Dubarbo Rd V/C	0.38	0.09	0.32	0.84
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	21: Hwy 211 & Dubarbo Rd Delay	7.60	8.80	30.40	70.60
		Mvmt Flow	28	39	89	106	101	84	50	444	39	17	122	22	0	21: Hwy 211 & Dubarbo Rd LOS	A	A	D	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	14.6			
		Minor (or AWSC) V/C	0.02	0.05	0.04	0.05	0.06	0.38	0.34	0.34	0.09	0.07	0.01	0.01	0.01					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.04	-	-	0.39	0.10	0.84	0.19	0.02	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	8.5	0.0	-	36.2	11.8	58.4	10.6	8.3	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
23: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	23: Hwy 211 & Dubarbo Rd V/C	0.37	0.39	1.07	1.98
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	23: Hwy 211 & Dubarbo Rd Delay	7.60	8.40	181.30	293.70
		Mvmt Flow	27	77	93	93	60	55	33	324	121	49	593	27	0	23: Hwy 211 & Dubarbo Rd LOS	A	A	F	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	62			
		Minor (or AWSC) V/C	0.05	0.05	0.05	0.04	0.02	0.37	0.26	0.26	0.39	0.35	0.02	0.02	0.02					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.11	-	-	1.07	0.39	1.98	0.05	0.05	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	9.2	0.0	-	189.9	13.8	593.7	10.7	8.4	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	F	B	A	A	-	-	-	0					
31: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	31: Hwy 211 & Dubarbo Rd V/C	0.38	0.09	0.30	1.07
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	31: Hwy 211 & Dubarbo Rd Delay	7.60	8.80	30.40	70.60
		Mvmt Flow	28	39	89	106	101	84	50	444	39	17	122	22	0	31: Hwy 211 & Dubarbo Rd LOS	A	A	E	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	28.1			
		Minor (or AWSC) V/C	0.02	0.05	0.04	0.05	0.06	0.38	0.34	0.34	0.09	0.07	0.01	0.01	0.01					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.04	-	-	0.39	0.10	1.07	0.18	0.02	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	7.6	0.0	-	36.2	11.8	58.4	10.6	8.3	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
33: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	33: Hwy 211 & Dubarbo Rd V/C	0.36	0.35	1.46	0.90
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	33: Hwy 211 & Dubarbo Rd Delay	7.60	8.40	181.30	293.70
		Mvmt Flow	27	154	93	137	66	33	99	324	121	49	593	27	0	33: Hwy 211 & Dubarbo Rd LOS	A	A	F	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	Int Delay, V/veh	15.6			
		Minor (or AWSC) V/C	0.09	0.05	0.05	0.04	0.02	0.36	0.26	0.26	0.39	0.35	0.02	0.02	0.02					
		Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR					
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WB11	WB12	SBL	SBT	SBR	0	0	0					
		HCM Lane V/C Ratio	0.10	-	-	1.46	0.17	-	-	0.05	-	-	-	-	0.00					
		HCM Cntl Chy (s/v)	8.5	0.0	-	311.0	12.8	58.4	10.6	8.3	0.0	-	-	-	0.0					
		HCM Lane LOS	A	A	-	D	B	E	B	A	A	-	-	-	0					
41: Hwy 211 & Dubarbo Rd	TWSC	Movement	EBL	EBT	EBR	EBL	WB1	WB2	WB3	NBL	NBT	NBL	SBL	SBT	SBR	41: Hwy 211 & Dubarbo Rd V/C	0.34	0.07	0.32	0.82
		Lane Configurations	0	1	1	0	1	1	1	0	1	0	0	1	1	41: Hwy 211 & Dubarbo Rd Delay	7.60	8.80	29.60	66.50
		Mvmt Flow	28	39	89	106	101	84	50	444	39	17	122	22	0	41: Hwy 211 & Dubarbo Rd LOS	A	A	D	F
		Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R									

Intersection ID and Name	Critical Flow Calculator														Overlap Critical Flow Calculator														Intersection V/C	HCM Control Delay, s/veh	HCM LOS
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NBL/SBT	SBL/NBT	V/S E/W	V/S N/S	NBR OV	NB OV V/S	SBR OV	SB OV V/S	EBR OV	EB OV V/S	WBR OV	WB OV V/S	V/S Overlap						
47: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	67	0	89	189	0	94	633	0	0	130	0	23	Protected	1.60	0.35	0.38	0.08	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	2.29	82	F			
	Grp Sat Flow(s), veh/h	238	0	1466	123	0	1335	1718	0	0	1733	0	1383	Permitted or Split	0.28	1.54	0.08	0.37	Right Turn Approach Phasing	Split	0.08 Split	0.37 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.28	0.00	0.06	1.24	0.00	0.07	0.37	0.37	0.00	0.00	0.08	0.00	0.02 selected phasing	0.28	1.54	0.08	0.37	Overlap Approach Phasing	Permitted	0.07 Permitted	0.07 Split	0.08 Split	0.37 N/A							
48: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	104	0	93	126	0	33	544	0	0	642	0	33	Protected	0.76	0.24	0.34	0.37	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	1.61	96	F			
	Grp Sat Flow(s), veh/h	468	0	1460	180	0	1519	1689	0	0	1723	0	1526	Permitted or Split	0.22	0.70	0.37	0.32	Right Turn Approach Phasing	Split	0.37 Split	0.32 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.22	0.00	0.06	0.70	0.00	0.02	0.32	0.00	0.00	0.37	0.00	0.02 selected phasing	0.22	0.70	0.37	0.32	Overlap Approach Phasing	Permitted	0.06 Permitted	0.06 Split	0.37 Split	0.32 N/A								
49: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	67	0	89	189	0	94	50	0	383	17	0	144	Protected	1.90	0.41	0.11	0.35	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	2.52	69	E			
	Grp Sat Flow(s), veh/h	200	0	1466	103	0	1335	1688	0	1723	1581	0	1697	Permitted or Split	0.34	1.83	0.08	0.34	Right Turn Approach Phasing	Protected	0.03 Protected	0.03 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.34	0.00	0.06	1.83	0.00	0.07	0.03	0.00	0.34	0.01	0.00	0.08 selected phasing	0.34	1.83	0.11	0.35	Overlap Approach Phasing	Permitted	0.07 Permitted	0.07 Protected	0.34 Protected	0.34 N/A								
50: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	104	0	93	126	0	33	79	0	445	89	0	626	Protected	0.76	0.24	0.42	0.29	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	1.30	22	C			
	Grp Sat Flow(s), veh/h	469	0	1461	180	0	1521	1661	0	1689	1647	0	1734	Permitted or Split	0.22	0.70	0.37	0.26	Right Turn Approach Phasing	Protected	0.06 Protected	0.06 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.22	0.00	0.06	0.70	0.00	0.02	0.06	0.00	0.26	0.03	0.00	0.17 selected phasing	0.22	0.70	0.42	0.29	Overlap Approach Phasing	Permitted	0.06 Permitted	0.06 Protected	0.37 Protected	0.37 N/A								
51: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	28	0	128	106	0	177	613	0	0	139	0	23	Protected	0.16	0.14	0.38	0.08	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.64	21	C			
	Grp Sat Flow(s), veh/h	1262	0	1600	1288	0	1502	1718	0	0	1733	0	1383	Permitted or Split	0.08	0.12	0.08	0.37	Right Turn Approach Phasing	Split	0.08 Split	0.37 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.08	0.08	0.00	0.12	0.37	0.00	0.00	0.08	0.00	0.02 selected phasing	0.08	0.12	0.08	0.37	Overlap Approach Phasing	Permitted	0.12 Permitted	0.12 Split	0.08 Split	0.37 N/A								
52: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	27	0	170	60	0	99	544	0	0	642	0	33	Protected	0.15	0.08	0.34	0.37	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.90	56	E			
	Grp Sat Flow(s), veh/h	1243	0	1633	1206	0	1615	1689	0	0	1723	0	1526	Permitted or Split	0.10	0.06	0.37	0.32	Right Turn Approach Phasing	Split	0.37 Split	0.32 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.10	0.05	0.00	0.06	0.32	0.00	0.00	0.37	0.00	0.02 selected phasing	0.10	0.06	0.37	0.32	Overlap Approach Phasing	Permitted	0.10 Permitted	0.10 Split	0.37 Split	0.32 N/A								
53: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	28	0	128	106	0	177	613	0	0	139	0	23	Protected	0.16	0.14	0.38	0.08	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.61	21	C			
	Grp Sat Flow(s), veh/h	1262	0	1600	1288	0	1502	1718	0	0	1733	0	1383	Permitted or Split	0.08	0.12	0.08	0.37	Right Turn Approach Phasing	Protected	0.06 Protected	0.06 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.08	0.08	0.00	0.12	0.37	0.00	0.00	0.08	0.00	0.02 selected phasing	0.08	0.12	0.38	0.08	Overlap Approach Phasing	Permitted	0.12 Permitted	0.12 Protected	0.02 Protected	0.02 N/A								
54: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	27	0	130	60	0	99	544	0	445	89	0	626	Protected	0.15	0.08	0.42	0.29	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.64	14	B			
	Grp Sat Flow(s), veh/h	1244	0	1634	1207	0	1616	1661	0	1689	1647	0	1734	Permitted or Split	0.10	0.06	0.37	0.26	Right Turn Approach Phasing	Protected	0.06 Protected	0.06 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.10	0.05	0.00	0.06	0.06	0.00	0.26	0.03	0.00	0.37 selected phasing	0.10	0.06	0.42	0.29	Overlap Approach Phasing	Permitted	0.10 Protected	0.10 Protected	0.37 Protected	0.37 N/A								
57: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	67	0	89	207	0	94	634	0	0	139	0	23	Protected	1.44	0.35	0.39	0.08	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	2.14	143	F			
	Grp Sat Flow(s), veh/h	238	0	1466	193	0	1333	1681	0	0	1733	0	1383	Permitted or Split	0.28	1.38	0.08	0.38	Right Turn Approach Phasing	Protected	0.38 Protected	0.38 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.28	0.00	0.06	1.38	0.00	0.07	0.38	0.00	0.00	0.08	0.00	0.02 selected phasing	0.28	1.38	0.39	0.08	Overlap Approach Phasing	Permitted	0.07 Permitted	0.07 Protected	0.02 Protected	0.02 N/A								
58: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	181	0	98	203	0	33	344	0	0	365	0	33	Protected	5.14	0.26	0.34	0.33	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	6.54	161	F			
	Grp Sat Flow(s), veh/h	754	0	1460	40	0	1519	1689	0	0	1722	0	1526	Permitted or Split	0.24	5.08	0.33	0.32	Right Turn Approach Phasing	Protected	0.33 Protected	0.33 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.24	0.00	0.06	5.08	0.00	0.02	0.32	0.00	0.00	0.33	0.00	0.02 selected phasing	0.24	5.08	0.34	0.33	Overlap Approach Phasing	Permitted	0.06 Permitted	0.06 Protected	0.02 Protected	0.02 N/A								
59: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	28	0	128	106	0	205	60	0	588	37	0	144	Protected	0.16	0.19	0.11	0.36	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.60	15	B			
	Grp Sat Flow(s), veh/h	1175	0	1600	1288	0	1543	1688	0	1683	1581	0	1697	Permitted or Split	0.08	0.17	0.08	0.35	Right Turn Approach Phasing	Protected	0.03 Protected	0.03 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.08	0.08	0.00	0.17	0.03	0.00	0.17	0.03	0.00	0.08 selected phasing	0.08	0.17	0.11	0.36	Overlap Approach Phasing	Permitted	0.17 Permitted	0.17 Protected	0.35 Protected	0.35 N/A								
60: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	27	0	247	137	0	96	89	0	445	89	0	549	Protected	0.27	0.08	0.38	0.29	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.81	16	B			
	Grp Sat Flow(s), veh/h	1245	0	1683	1136	0	1617	1661	0	1689	1647	0	1733	Permitted or Split	0.15	0.12	0.32	0.26	Right Turn Approach Phasing	Protected	0.06 Protected	0.06 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.02	0.00	0.15	0.12	0.00	0.06	0.06	0.00	0.26	0.03	0.00	0.12 selected phasing	0.15	0.12	0.38	0.29	Overlap Approach Phasing	Permitted	0.15 Permitted	0.15 Protected	0.32 Protected	0.32 N/A								
61: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	33	0	56	122	0	72	449	0	0	150	0	11	Protected	0.79	0.15	0.27	0.09	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	1.23	29	C			
	Grp Sat Flow(s), veh/h	342	0	1466	162	0	1335	1722	0	0	1737	0	1383	Permitted or Split	0.10	0.75	0.09	0.26	Right Turn Approach Phasing	Protected	0.26 Protected	0.26 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.10	0.00	0.04	0.75	0.00	0.05	0.26	0.00	0.00	0.09	0.00	0.01 selected phasing	0.10	0.75	0.27	0.09	Overlap Approach Phasing	Permitted	0.05 Permitted	0.05 Protected	0.01 Protected	0.01 N/A								
62: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	71	0	77	93	0	27	484	0	0	472	0	16	Protected	0.56	0.15	0.29	0.27	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.97	47	D			
	Grp Sat Flow(s), veh/h	550	0	1460	182	0	1519	1711	0	0	1725	0	1526	Permitted or Split	0.13	0.51	0.27	0.28	Right Turn Approach Phasing	Protected	0.28 Protected	0.28 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.13	0.00	0.05	0.51	0.00	0.02	0.28	0.00	0.00	0.27	0.00	0.01 selected phasing	0.13	0.51	0.29	0.27	Overlap Approach Phasing	Permitted	0.05 Permitted	0.05 Protected	0.01 Protected	0.01 N/A								
63: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	71	0	77	93	0	27	484	0	0	472	0	16	Protected	0.56	0.15	0.29	0.27	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.97	47	D			
	Grp Sat Flow(s), veh/h	550	0	1460	182	0	1519	1711	0	0	1725	0	1526	Permitted or Split	0.13	0.51	0.27	0.28	Right Turn Approach Phasing	Protected	0.28 Protected	0.28 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.13	0.00	0.05	0.51	0.00	0.02	0.28	0.00	0.00	0.27	0.00	0.01 selected phasing	0.13	0.51	0.29	0.27	Overlap Approach Phasing	Permitted	0.05 Permitted	0.05 Protected	0.01 Protected	0.01 N/A								
64: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	71	0	77	93	0	27	484	0	0	472	0	16	Protected	0.56	0.15	0.29	0.27	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.97	47	D			
	Grp Sat Flow(s), veh/h	550	0	1460	182	0	1519	1711	0	0	1725	0	1526	Permitted or Split	0.13	0.51	0.27	0.28	Right Turn Approach Phasing	Protected	0.28 Protected	0.28 Permitted	0.00 Permitted	0.00 No OV							
	V/S	0.13	0.00	0.05	0.51	0.00	0.02	0.28	0.00	0.00	0.27	0.00	0.01 selected phasing	0.13	0.51	0.29	0.27	Overlap Approach Phasing	Permitted	0.05 Permitted	0.05 Protected	0.01 Protected	0.01 N/A								
64: Hwy 211 & Dubarbo Rd	Grp Volume(s), veh/h	16	0	132	44	0	11	66	0	428	27	0	404	Protected	0.12	0.06	0.31	0.26	Right Turn Overlap	No	0.00 No	0.00 No	0.00 No	0.00 No	0.00	0.39	11	B			
	Grp Sat Flow(s), veh/h	1274	0	1621	1661	0	1621	1661	0	1728	1647	0	1728	Permitted or Split	0.05	0.09	0.09	0.24	Right Turn Approach Phasing	Protected	0.04 Protected	0.04 Protected	0.00 Permitted	0.00 No OV							
	V/S	0.01	0.00	0.08	0.04	0.00	0.04	0.04	0.00	0.24	0.02	0.00	0.02 selected phasing	0.08	0.04	0.31	0.26	Overlap Approach Phasing	Permitted	0.08 Permitted	0.08 Protected	0.27 Protected	0.27 N/A								

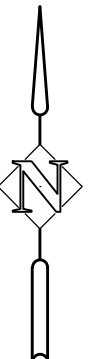
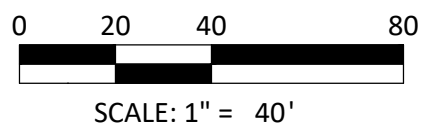
SECTION 14: PRELIMINARY CONCEPT FOR TRAFFIC SIGNAL AND LEFT-TURN LANE IMPROVEMENTS

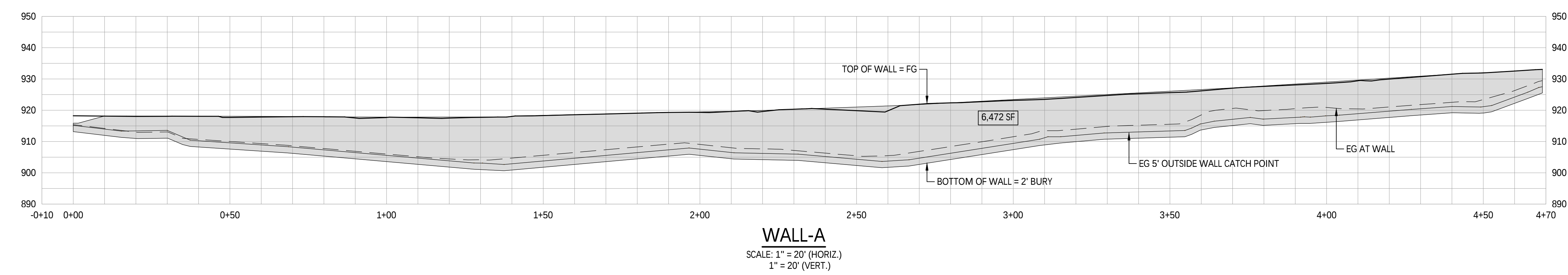




ROADWAY CONCEPT GRADING

SCALE: 1" = 40'





Meeting Type: City Council
Meeting Date: August 3, 2026
From: Kelly O'Neill Jr., Development Services Director
Reah Flisakowski, Portland Planning Business Development Manager for DKS
Kevin Chewuk, Senior Transportation Planner for DKS
Subject: Intersection Study for 362nd Drive and Dubarko Road

DECISION TO BE MADE:

Hold a work session to discuss the intersection study for 362nd Drive and Dubarko Road that was performed by DKS Associates.

APPLICABLE COUNCIL GOAL:

No applicable City Council goal, but this study is needed to define intersection needs especially considering additional development to the west of the intersection at 17151 362nd Drive.

BACKGROUND / CONTEXT:

The 362nd Drive and Dubarko Road Intersection Improvement Evaluation memorandum evaluates existing and future conditions and summarizes improvement options that were analyzed at the intersection and recommends a preferred treatment.

Definition note: Level of service (LOS): A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hours travel demand. LOS D and E are progressively worse operation conditions. LOS F represents conditions where average vehicle delay has become excessive, and demand has exceeded capacity.

- **The operations at the intersection are performing well today:** 2026 operations show that the intersection meets the City's LOS D mobility target under its existing two-way stop control, operating with a LOS C or better during peak hours.
- **The frequency of collisions at the intersection is typical for similar intersections with the volume of traffic served:** the crash history is below the critical crash-rate threshold, with 3 crashes over five years. The observed crash rate of 0.14 crashes per million entering vehicles is below the critical crash rate at similar intersections of 0.29.

- **Without changes, the intersection will continue to operate adequately through 2040:** operations are expected to be LOS D or better under the no-build scenario assuming the existing two-way stop control and turn movements at the intersection.
- **Additional vehicle trips on the west leg (17151 362nd Drive) will cause the intersection to exceed city mobility targets by 2040:** The Dubarko Road westward extension from 362nd Drive to Champion Way (Sandy TSP Project D13) will introduce a new west leg and turn movements at the intersection, and traffic volumes will increase as new trips are generated by future development on the vacant parcels surrounding the Dubarko Road westward extension. This is expected to cause a significant increase in delay at the intersection, reaching LOS “F” for the Dubarko Road approach under the no-build scenario assuming the existing two-way stop control at the intersection.

KEY CONSIDERATIONS / ANALYSIS:

Multiple alternatives were evaluated at the intersection using the forecasted 2040 traffic volumes, including two way stop control, a roundabout, and a traffic signal. The alternatives were compared for operations, pedestrian/bicycle access, property impacts, cost, and safety.

- Two-way stop control has an operations fatal flaw, despite assuming different lane configurations, as no configuration allowed for the current mobility target to be met through 2040 without changes to the existing traffic control at the intersection.
- A roundabout performs well operationally and provides safety benefits but has a higher estimated construction cost and greater property/right-of-way impacts.
- A traffic signal ranks highest overall due to lower construction costs (\$2.0M vs. \$5.5M for a roundabout) and minimal right-of-way impacts. However, full signalization is not currently warranted until traffic increases beyond 2040.
- The traffic signal and roundabout alternatives have an estimated benefit-cost ratio of 0.07 at the intersection. This suggests that they are not cost-effective solutions with a B/C ratio well below 1.0, and the cost of construction outweighing the expected economic safety benefits provided by the improvements.
- The downhill slopes approaching the intersection could make it prone to slippery driving conditions during the winter season, especially as drivers attempt to stop. Some options, such as an Icy Road Warning System, “Rest in Red” technology for traffic signals and Heated Pavement have been implemented to help detect, warn drivers, or control snow and ice in other areas. These could be implemented at the intersection to help alleviate some of the challenges for drivers during the winter season.
- The curve of 362nd Drive at Chinook Street could benefit through the installation of traverse rumble strips or other measures on the northbound lane of 362nd Drive to help alert drivers to the upcoming intersection.

BUDGET IMPACT:

The traffic signal alternative has an estimated total cost of about \$2.0 million. This estimate does not include the costs associated with acquisition of right-of-way or project design.

- The improvements would likely need to be funded with a combination of funding sources, including Transportation SDCs, proportional share fees from developments that impact the intersection, direct developer improvements, and fuel taxes.

RECOMMENDATION:

The two-way stop control should remain at the intersection until Dubarko Road is extended westward and/or once new development occurs to the west of the 362nd Drive and Dubarko Road intersection. When the extension or development takes place, the recommended improvement is a traffic signal that initially functions as a pedestrian hybrid beacon until converted to a full traffic signal once the warrants are met.

- Provide separate left and through/right-turn lanes on the new Dubarko Road west leg of the intersection, an exclusive northbound left turn lane and southbound right turn lane on 362nd Drive and an exclusive left turn lane on the Dubarko Road east leg of the intersection.
- Add safety measures such as transverse rumble strips on the northbound lane of 362nd Drive at the curve south of the intersection with Dubarko Road to help alert drivers to the upcoming intersection.
- Add an interim crosswalk with a pedestrian refuge island on 362nd Drive at the Dubarko Road intersection if new sidewalks are provided on the west side of 362nd Drive before the recommended traffic signal installation occurs.

LIST OF ATTACHMENTS / EXHIBITS:

- Exhibit A. Intersection Study for 362nd Drive and Dubarko Road

TECHNICAL MEMORANDUM

DATE: July 23rd, 2026

TO: Kelly O'Neill Jr. | City of Sandy

FROM: Kevin Chewuk and Reah Flisakowski | DKS Associates

SUBJECT: City of Sandy – 362nd Drive and Dubarko Road
Intersection Improvement Evaluation

22071-000-022

This memorandum summarizes an intersection improvement evaluation conducted at the 362nd Drive and Dubarko Road intersection in Sandy, Oregon. This study identifies the most appropriate transportation improvements, with the following sections providing a summary of the expected intersection performance and recommendations.

EXISTING 2026 TRANSPORTATION CONDITIONS

This section provides documentation of existing transportation conditions at the 362nd Drive and Dubarko Road intersection (see Figure 1), including an inventory of the existing transportation network and a safety evaluation and operational analysis. For the purposes of the transportation analysis, the year 2026 was used as the baseline for existing conditions. Supporting details are provided in the appendix.

TRANSPORTATION FACILITIES

362nd Drive provides a key north to south roadway connection on the west side of Sandy, connecting US 26 with Highway 211, while Dubarko Road provides a key east to west roadway connection on the south side of Sandy, connecting 362nd Drive with Highway 211 and Langensand Road. These segments are Minor Arterials under City of Sandy jurisdiction (see Table 1) and currently maintain a two to three-lane cross-section (i.e., one through lane in each direction, with a left-turn lane on 362nd Drive at the Dubarko Road intersection.)

362nd Drive has a posted speed of 35 miles per hour at the Dubarko Road intersection, with an existing annual average daily traffic (AADT) volume of 11,000, of which four percent are trucks. Dubarko Road has an AADT volume of 950 at the 362nd Drive intersection, of which three percent are trucks. 362nd Drive slopes downhill approaching Dubarko Road from the north and south and similarly, Dubarko Road slopes downhill approaching 362nd Drive from the east.

TABLE 1: EXISTING ROADWAY CHARACTERISTICS

ROADWAY (SEGMENT LOCATION)	CLASSIFICATION*	AADT/ TRUCK %	LANES	POSTED SPEED	PEDESTRIAN FACILITY	BIKE FACILITY
362ND DRIVE (AT DUBARKO ROAD INTERSECTION)	Minor Arterial	11,100 / 4%	3	35 mph	Sidewalk on east side / None **	Bike lanes / None ***
DUBARKO ROAD (AT 362ND DRIVE INTERSECTION)	Minor Arterial	950 / 3%	2	25 mph	Sidewalk on both sides	None

* Source: City of Sandy Transportation System Plan, May 2023.

** A sidewalk is available on the east side of 362nd Drive north of Dubarko Road; no facilities are available south of Dubarko Road.

*** Bikes lanes are available north of Dubarko Road only.

FIGURE 1: STUDY INTERSECTION

SAFETY ANALYSIS

The most recent five years of available collision data at the 362nd Drive and Dubarko Road intersection was obtained from ODOT and used to evaluate the collision history¹. There were three crashes recorded at the intersection over the five-year period (see **Error! Reference source not found.**), with two of the crashes resulting in an injury. There were no crashes involving people walking or biking at the intersection.

The collision types that occurred were angle, turning, and fixed object, and show “no yield” or “driver inattention” as the cited cause.

TABLE 2: SUMMARY OF COLLISIONS

INTERSECTION	TOTAL COLLISIONS	COLLISION TYPE				COLLISION SEVERITY		
		ANGLE	TURNING	REAR	FIXED	FATAL	INJURY	PDO*
362ND DRIVE / DUBARKO ROAD	3	1	1	0	1	0	2	1

Source: ODOT Crash Analysis and Reporting Unit. Reported collision data from 2019 to 2023.

* PDO = Property Damage Only

Crash rates provide an additional perspective on intersection safety and identify locations where people have a higher risk of being involved in a crash. Crash frequencies (the number of crashes in a period of time) tend to increase with higher vehicle traffic. With more exposure to vehicles, there are more opportunities for crashes to occur. Crash rates consider the number of crashes relative to the traffic volume at the intersection and are expressed in units of crashes per million entering vehicles.

The crash rate (crashes per million entering vehicles) for the 362nd Drive and Dubarko Road intersection was calculated and evaluated using the critical crash rate method from the Highway Safety Manual. The critical crash rate method compares an intersection’s crash history to that of other similar intersections, adjusting for volume at the intersection. Where an intersection’s crash rate is greater than the critical crash rate, it is an indication that a problem might exist, and that further study is warranted.

As shown in Table 3, the crash rate calculated is well below this threshold, indicating the frequency of collisions is typical for the volume of traffic served.

¹ ODOT reported collisions for January 1, 2019, through December 31, 2023.

TABLE 3: COLLISION ANALYSIS AT 362ND DRIVE AND DUBARKO ROAD

INTERSECTION	TOTAL COLLISIONS	OBSERVED CRASH RATE (PER MEV)	CRITICAL CRASH RATE (PER MEV)	OVER CRITICAL CRASH RATE
362ND DRIVE / DUBARKO ROAD	3	0.14	0.29	No

EXISTING YEAR CAPACITY ANALYSIS

This section will summarize the existing year intersection operations at the 362nd Drive and Dubarko Road intersection using Highway Capacity Manual (HCM) 6th edition methodology.

EXISTING MOTOR VEHICLE VOLUMES

Traffic operations were analyzed using the estimated 30th highest annual hour traffic volume (30 HV) consistent with methodology outlined in the Oregon Department of Transportation *Analysis Procedure Manual (APM)*. Based on analysis of Automatic Traffic Recorder (ATR) data the seasonal peak occurs on a weekday afternoon in July². Traffic counts were collected in December during the weekday morning peak period (7:00 a.m. to 9:00 a.m.) and evening peak period (4:00 p.m. to 6:00 p.m.) and the individual peak hours³ were utilized and adjusted to reflect this seasonal peak⁴. The raw traffic counts are included in the Appendix.

INTERSECTION PERFORMANCE MEASURES

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations. Agencies often incorporate these performance measures into their mobility standards. Descriptions are given below:

- **Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hours travel demand. LOS D and E are progressively worse operation conditions. LOS F represents conditions where average vehicle delay has become excessive, and demand has exceeded capacity.
- **Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00 (generally above 0.70), congestion noticeably increases, and

² Based on ATR data along US 26 in Gresham (26-003).

³ The weekday a.m. peak hour started at 7:40 a.m. and p.m. peak hour started at 4:30 p.m. at the 362nd Drive and Dubarko Road intersection.

⁴ The most recent five years of July and December data from ATR 26-003 (2019, 2021-2024) was utilized to develop a calculated seasonal factor of 1.08 for the weekday period.

performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Jurisdictional Mobility Targets

The City of Sandy operating standards require that a level of service “D” or better be maintained for any signalized intersection and unsignalized intersections with stop control on the minor approach, and a volume-to-capacity ratio of less than or equal to 0.90 on each intersection approach at roundabouts.

Existing Intersection Operations

Motor vehicle conditions were evaluated during the weekday a.m. and p.m. peak hours using the *Highway Capacity Manual, 6th Edition* (HCM)⁵ methodologies. Synchro reports can be found in the appendix.

As shown in Table 4, the 362nd Drive and Dubarko Road intersection meets the current mobility target during the weekday a.m. and p.m. peak hours, operating with a LOS C or better and with a v/c of 0.26 or less.

TABLE 4: 2026 INTERSECTION OPERATIONS AT 362ND DRIVE AND DUBARKO ROAD

INTERSECTION	TRAFFIC CONTROL	MOBILITY TARGET	WEEKDAY A.M. PEAK HOUR (30 HV)			WEEKDAY P.M. PEAK HOUR (30 HV)		
			LOS	DELAY	V/C	LOS	DELAY	V/C
362ND DRIVE / DUBARKO ROAD	Two-Way Stop Control	LOS D	B	13	0.20	C	17	0.26

Note: Intersection operations are reported for the worst minor street movement.

FUTURE TRANSPORTATION CONDITIONS

This section summarizes future year conditions and identifies how the 362nd Drive and Dubarko Road intersection will function in the future. Included is a summary of future travel estimates, intersection operational performance, and recommended intersection configurations.

PLANNING HORIZON AND SCENARIOS

The planning horizon selected for analysis is the year 2040, which represents the horizon year for the Sandy Transportation System Plan (TSP). Future 2040 traffic forecasts were prepared for two alternatives, one of which includes no changes to the existing intersection and one that includes a new west leg at the intersection with the planned extension of Dubarko Road from 362nd Drive to

⁵ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016.

Champion Way (Sandy TSP Project D13). The two alternatives shown below include the following assumptions:

- **2040 No-Build (without the Dubarko Road extension)** – Existing traffic volumes plus background traffic growth, with the existing lane configurations.
- **2040 Build (with the Dubarko Road extension)** – Existing traffic volumes plus background traffic growth, with the rerouted traffic associated with the west extension of Dubarko Road from 362nd Drive. The new Dubarko Road west leg of the intersection is assumed to have separate left and through/right-turn lanes and 362nd Drive is assumed to include an exclusive left turn lane for the new northbound left-turn movement and an exclusive right turn lane for the new southbound right-turn movement (see **Error! Reference source not found.** later in this document). An evaluation of different lane configurations for the 362nd Drive approaches to Dubarko Road and for the Dubarko Road approaches to 362nd Drive is provided later in this document.

FUTURE MOTOR VEHICLE VOLUMES

The motor vehicle volumes for 2040 consist of the existing traffic volumes and background traffic growth. Background traffic volume growth for the a.m. and p.m. peak hours through 2040 was estimated by applying an average growth factor based on the 2020 and 2040 traffic volumes at the 362nd Drive and Industrial Way (south) intersection⁶ from the Sandy TSP. The growth was incrementally applied to the 2026 count data collected at 362nd Drive and Dubarko Road to the future forecast year of 2040 both without and with the west extension of Dubarko Road.

FORECASTED 2040 INTERSECTION OPERATIONS

Table 5 shows the forecasted 2040 intersection operations at the 362nd Drive and Dubarko Road intersection, both without and with the west extension of Dubarko Road. As shown, the intersection is expected to continue to meet current mobility targets during the peak hours through 2040 without the Dubarko Road extension.

The Dubarko Road westward extension from 362nd Drive will introduce a new west leg and turn movements at the 362nd Drive and Dubarko Road intersection (see **Error! Reference source not found.** later in this document). This includes new eastbound left, through and right, westbound through, northbound left and southbound right-turn movements, which are expected to draw trips and cause some drivers to re-route from nearby intersections. Additional vehicle trips at the intersection are also expected to be generated by future development on the vacant parcels surrounding the Dubarko Road westward extension. Likewise, the intersection is forecasted to see a significant increase in delay after the Dubarko Road extension and operate with a LOS "F" for the Dubarko Road approach and no longer meet the mobility target as it did without the extension in

⁶ No traffic count data was available for the 362nd Drive and Dubarko Road intersection in the Sandy TSP. The forecasted growth was instead based on data on the adjacent intersection to the north at the 362nd Drive and Industrial Way (south) intersection. The derived growth increment was applied to the 2026 count data collected at 362nd Drive and Dubarko Road and used to forecast the 2040 volumes.

both the a.m. and p.m. peak hours. The Sandy TSP includes a planned project that would add capacity to the 362nd Drive and Dubarko Road intersection (Sandy TSP Project ID D2). This planned project would mitigate the forecasted substandard LOS, although it is currently not funded.

A summary of alternatives considered to mitigate the impact at this intersection is provided later in this document. Detailed intersection operations calculation worksheets are included in the Appendix.

TABLE 5: 2040 INTERSECTION OPERATIONS AT 362ND DRIVE AND DUBARKO ROAD

362ND DRIVE / DUBARKO ROAD	TRAFFIC CONTROL	MOBILITY TARGET	2040 A.M. PEAK HOUR			2040 P.M. PEAK HOUR		
			LOS	DELAY	V/C	LOS	DELAY	V/C
2040 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION)	Two-Way Stop Control	LOS D	B	15	0.26	D	32	0.54
2040 BUILD (WITH THE DUBARKO ROAD EXTENSION)	Two-Way Stop Control	LOS D	E	40	0.08	F	170	0.45

Note: Intersection operations are reported for the worst minor street movement.

ALTERNATIVE EVALUATION

Preliminary improvement options were evaluated at the 362nd Drive and Dubarko Road intersection. The design alternatives were focused at the intersection as well as what would be required along the approaching segment, and were based in accordance with the Sandy TSP. The alternatives were evaluated based on the following screening measures, with a score of 2 given to an alternative that meets or fully addresses the criterion, 1 given to an alternative that somewhat addresses the criterion, and 0 given to an alternative that does not meet or negatively impacts the criterion:

- Operations – meet the mobility standard for the intersection.
- Pedestrian/Bicycle – enhance connectivity and access for pedestrians and bicyclists.
- Right-of-Way – limit right-of-way and other property impacts.
- Expected Cost – limit the overall project costs.
- Safety – improve safety for all users.

INTERSECTION CONFIGURATION AND CONTROL EVALUATION

The recommended configuration and control for the 362nd Drive and Dubarko Road intersection was developed based on the identified needs at the intersection. Intersection geometries and control type supported by warrant analysis are covered in this section.

TURN LANE EVALUATION

A turn lane evaluation was assessed for the uncontrolled 362nd Drive approaches at the Dubarko Road intersection using the forecasted 2040 traffic volumes with the Dubarko Road extension.

The analysis found that a northbound left-turn lane on 362nd Drive would be warranted during both the a.m. and p.m. peak hours, and a northbound right-turn lane on 362nd Drive is warranted based on the p.m. peak hour volume only. The currently forecasted southbound right-turn volume is not high enough to warrant a separate turn lane at the intersection, although the demand for this turn movement could potentially be higher depending on the future development that occurs on the parcels surrounding the Dubarko Road westward extension. However, given that 362nd Drive slopes downhill approaching Dubarko Road from the north, a southbound right-turn lane on 362nd Drive is recommended to provide a space for turning vehicles to decelerate without impeding downhill through traffic.

Calculations are in the Appendix.

PRELIMINARY SIGNAL WARRANT ANALYSIS

A signal warrant analysis for the 362nd Drive and Dubarko Road intersection was analyzed following the Manual on Uniform Traffic Control Devices (MUTCD) Warrants⁷. The warrants were evaluated using the forecasted 2040 traffic volumes with the Dubarko Road extension. The number of lanes used in the warrant analysis for Dubarko Road was based on the proposed future geometry, which included separate left and through/right turn lanes on the approach, and therefore right turn discounts were applied to warrant volumes⁸. The result was none of the forecasted right turn volume was included in the warrant analysis for the Dubarko Road approach.

The results of the warrant analysis are shown in Table 6, with the intersection not projected to meet the peak hour (Warrant #3) and crash experience (Warrant #7) warrant. More details on warrant analysis can be found in the Appendix.

TABLE 6: 362ND DRIVE AND DUBARKO ROAD INTERSECTION SIGNAL WARRANT ANALYSIS

WARRANT	WARRANT MET?	
	2040 A.M. PEAK HOUR	2040 P.M. PEAK HOUR
WARRANT 3: PEAK HOUR	No	No
WARRANT 7: CRASH EXPERIENCE	No	No

⁷ Manual on Uniform Traffic Control Devices, 2009 Edition, Chapter 4C. Based on Warrants #3 and #7.

⁸ Right turn discount based on 85 percent of the unsignalized right lane capacity.

ALL-WAY STOP CONTROL REVIEW

The installation of any stop sign must meet the Manual on Uniform Traffic Control Devices (MUTCD) standards⁹. Research has shown that the installation of stop signs, while reducing roadway speeds immediately adjacent to the stop sign, has no effect on overall neighborhood speed limit compliance, and unwarranted stop signs tend to have a lower driver compliance rate.

Based on the criteria from the MUTCD for installing stop signs and findings related to the 362nd Drive and Dubarko Road intersection, the all-way stop criteria is not met, and therefore all-way stop control is not recommended.

INTERSECTION CONTROL EVALUATION

The 362nd Drive and Dubarko Road intersection was identified as exceeding the mobility target by 2040 with the Dubarko Road extension. This planned extension will form a new west leg at the intersection, and the new approach is assumed to have separate left and through/right-turn lanes. Based on the turn lane evaluation, 362nd Drive is assumed to include an exclusive left turn lane for the new northbound left-turn movement and an exclusive right turn lane for the new southbound right-turn movement.

The following improvement options were analyzed at the 362nd Drive and Dubarko Road intersection using the forecasted 2040 traffic volumes with the Dubarko Road extension.

- **Two-way Stop** – the existing control at the intersection is maintained, with stop control on the Dubarko Road approaches. A new northbound right-turn and westbound left-turn lane will be tested. The new Dubarko Road west leg of the intersection is assumed to have separate left and through/right-turn lanes and 362nd Drive is assumed to include an exclusive left turn lane for the new northbound left-turn movement and an exclusive right turn lane for the new southbound right-turn movement.
- **Roundabout** – the intersection will be controlled with a single-lane roundabout.
- **Traffic signal** - the intersection will be controlled with a traffic signal. The preliminary traffic signal warrant was not met under the forecasted 2040 scenarios, so this potential improvement option would not be warranted until beyond 2040.

TRAFFIC OPERATIONS

As shown in Table 7**Error! Reference source not found.**, only the roundabout and traffic signal would be expected to allow for the intersection to meet the mobility target through 2040 during the peak hours. Under the roundabout option the intersection is forecasted to operate with a LOS "B" and v/c of 0.68 or better through 2040, which is slightly better than the forecasted operations under the traffic signal option.

⁹ Manual on Uniform Traffic Control Devices, 11th Edition, Federal Highway Administration, December 2025.

The two-way stop control option was further evaluated with a different configuration for the northbound 362nd Drive approach to Dubarko Road and for the westbound Dubarko Road approach to 362nd Drive to see if it allows the current mobility target to be met through 2040 without changes to the existing traffic control at the intersection. The analysis (shown in Table 7) initially assumed the current configuration with a shared through/right turn lane on the northbound 362nd Drive approach to Dubarko Road, and instead a configuration that includes a separate right turn lane was assumed, to include a left turn lane, through lane, and right turn lane. The analysis shows that this configuration provides a little benefit to the northbound approach to the intersection (i.e., the v/c decreases up to 3 percent when compared to the condition without the right-turn lane), although it will be expected to continue to operate with LOS "E" or LOS "F" in 2040 for the uncontrolled eastbound Dubarko Road approach which does not benefit from this potential right-turn lane.

Another test was done for the shared left/through/right turn lane initially assumed on the westbound Dubarko Road approach to 362nd Drive, with a configuration that instead includes a separate left turn lane, to include a left turn lane, and shared through/right turn lane. The analysis shows that this configuration provides some benefit to the westbound approach to the intersection (i.e., the v/c decreases up to 40 percent when compared to the condition without the left-turn lane), although it will be expected to continue to operate with LOS "E" or LOS "F" in 2040 for the uncontrolled eastbound Dubarko Road approach which does not benefit from this potential left-turn lane.

TABLE 7: 362ND DRIVE AND DUBARKO ROAD INTERSECTION CONTROL OPTIONS (2040)

INTERSECTION CONTROL	MOBILITY TARGET	2040 AM PEAK HOUR			2040 PM PEAK HOUR		
		LOS	DELAY	V/C	LOS	DELAY	V/C
TWO-WAY STOP CONTROL (EXISTING CONFIGURATION) *		E	40	0.08	F	170	0.45
TWO-WAY STOP CONTROL, WITH NORTHBOUND RIGHT-TURN LANE *	LOS D	E	40	0.08	F	170	0.45
TWO-WAY STOP CONTROL, WITH WESTBOUND LEFT-TURN LANE *		E	40	0.08	F	170	0.45
ROUNDABOUT	0.90 V/C	A	7	0.43	B	11	0.68
TRAFFIC SIGNAL	LOS D	A	10	0.54	B	12	0.72

Note: Intersection operations are reported for the entire intersection at traffic signals, and for the worst turn movement at roundabouts and two-way stop control intersections.

* The new Dubarko Road west leg of the intersection is assumed to have separate left and through/right-turn lanes and 362nd Drive is assumed to include an exclusive left turn lane for the new northbound left-turn movement and an exclusive right turn lane for the new southbound right-turn movement.

PEDESTRIAN AND BICYCLE

The design for both the signal and roundabout alternatives can include pedestrian crossings on all approaches and accommodate cyclists through the intersection. The roundabout alternative will

also include splitter islands and reverse curves approaching the roundabout to lower speeds through the intersection and enhance the safety of pedestrian crossings, while the traffic signal option will include controlled pedestrian crossings for each movement.

The two-way stop control alternative will result in uncontrolled traffic flow along 362nd Drive, which could lead to higher travel speeds through the Dubarko Road intersection and make the pedestrian crossings more challenging. The need for new pedestrian crossings was evaluated with the uncontrolled traffic flow along 362nd Drive to understand the recommended treatment at the potential pedestrian crossings. The crossing treatment evaluation was performed following guidance procedures in the National Cooperative Highway Research Program (NCHRP) Report 562 Pedestrian Crossing Analysis workbook. The analysis suggests that the 362nd Drive crossing should include a crosswalk and pedestrian refuge island given the posted speed and traffic volume at this location. Stopping sight distance requirements will need to be met at this crossing, which is around 300 feet and close to the curve along 362nd Drive to the south.

Outside of the immediate intersection, people walking and biking will be served by the existing sidewalks on Dubarko Road and on the east side of 362nd Drive north of Dubarko Road, and the existing bike lanes on 362nd Drive north of Dubarko Road.

RIGHT OF WAY AND PROPERTY IMPACTS

The traffic signal alternative assumes exclusive left turn and shared through and right-turn lanes on 362nd Drive to Dubarko Road, and the Dubarko Road approaches to 362nd Drive are assumed to include separate left-turn and a shared through and right turn lanes. All turn lanes will need to be designed to accommodate the 2040 p.m. peak hour 95th percentile queues to allow for adequate deceleration before vehicles reach the back of queue. The right-of-way needs associated with the traffic signal alternative are driven by the design guidance for 362nd Drive, the curb returns, and the area required for the placement of signal equipment. The additional right-of-way required for this is expected to be minimal and is assumed to require only acquisition costs without the full taking of properties or removal of existing businesses and structures.

The roundabout alternative assumes single-lane entries and exits on all approaches, with a WB-67 design vehicle. The posted speed along the segment of 362nd Drive at Dubarko Road is 35 mph and is sloped downhill as it approaches from the north and south, which will also require special design considerations such as longer splitter islands or reversing curves approaching the roundabout to transition the roadside environment from higher to lower speeds approaching the roundabout intersection. With the existing development to the east of the intersection preventing any shift in the roadway alignment in that direction, the roundabout must shift entirely to the west. This would impact the adjacent parcels and would require right-of-way acquisition to allow for the construction of the roundabout and associated approaches.

CONCEPTUAL CONSTRUCTION COSTS

Conceptual cost estimates were prepared for the improvement alternatives using planning-level quantities and unit prices based on similar work for other projects. The estimates provided include

the assumed traffic control and associated work to the approaches and do not include the costs associated with acquisition of right-of-way or project design. As shown in Table 8, the traffic signal alternative would have an estimated construction cost of \$2.0 million which is more than \$3.5 million below the estimated construction cost of the single-lane roundabout at \$5.5 million.

The costs associated with new signal equipment and the new pavement for the widened approaches will have the greatest impact on the signal costs. The roundabout costs are most influenced by the diameter of the intersection, splitter islands and new pavement on the realigned approaches.

OPERATING COSTS

Construction and right-of-way costs are one-time costs at the time of construction. Assumed costs for on-going operations and maintenance are summarized below. A traffic signal is estimated to have an expected total operating cost of about \$100,000 through 2040, which is about \$25,000 more than the roundabout at \$75,000 (see Table 8).

• Traffic Signal

- Signal retiming - \$5,000 every 3 years
- Lighting - \$3,000 annually
- Signal Maintenance – \$4,000 annually
 - > Expected total operating cost through 2040: \$100,000.

• Roundabout

- Lighting - \$3,000 annually
- Roundabout landscaping - \$2,000 annually
 - > Expected total operating cost through 2040: \$75,000.

TABLE 8: PRELIMINARY COST ESTIMATES FOR IMPROVEMENT OPTIONS (2026 COSTS)

IMPROVEMENT OPTION	CONSTRUCTION COST	TOTAL OPERATING COSTS (THROUGH 2040)	TOTAL ESTIMATED COST (THROUGH 2040)
TRAFFIC SIGNAL	\$2,000,000	\$100,000	\$2,100,000
ROUNDABOUT	\$5,500,000	\$75,000	\$5,575,000

Note: The estimates provided include the assumed traffic control and associated work to the approaches and do not include the costs associated with acquisition of right-of-way or project design.

SAFETY

One approach to consider the safety enhancement of constructing a new traffic control pattern is by determining the Benefit Cost Ratio (B/C Ratio) of a solution by estimating the ratio of the total economic safety benefits compared to the cost of construction. As shown in Table 9, both the traffic

signal and roundabout improvement options have a B/C ratio below 1.0, suggesting they are not cost-effective solutions. Although this analysis assumes only the collision reduction benefit associated with three collisions that occurred over the 5-year period at the intersection. Below is a summary of the safety benefits that each alternative would be expected to provide at the intersection.

TABLE 9: BENEFIT COST RATIO RATIOS OF IMPROVEMENT OPTIONS

IMPROVEMENT OPTION	CRASH TYPES REDUCED	CRASH TYPES INCREASED	ANNUAL ECONOMIC COLLISION REDUCTION SAVINGS	PLANNING LEVEL COST	B/C RATIO
TRAFFIC SIGNAL	Angle	Rear End	\$12,000	\$2,000,000	0.07
ROUNDBABOUT	All Types	-	\$31,000	\$5,500,000	0.07

TRAFFIC SIGNAL

The conversion of a stop-controlled approach into a signalized intersection in an urban area can reduce angle crashes by up to 67 percent but will typically increase rear-end crashes by up to 143 percent¹⁰. This increase in rear-end collision potential is caused by the introduction of the red light to the approaches where there had previously been no traffic control. However, the signal provides vehicles on the minor streets dedicated green time to advance through the intersection without taking risky gaps in traffic, reducing the number of angle collisions. For pedestrians, bicyclists and other vulnerable roadway users, the crossings at the intersection are also safer with controlled pedestrian phases on all approaches where the traffic is stopped at the red light.

ROUNDBABOUT

The conversion of a stop-controlled approach into a single-lane roundabout in an urban area can reduce all crashes at the intersection by as much as 72 percent¹¹. Many of the crash types resulting in severe or fatal crashes, such as head-on and angle crashes, are significantly reduced by orienting traffic flows in one single direction and reducing the number of potential conflict points. Because of the geometry of the roundabout, vehicles speeds are reduced while circulating the intersection. The splitter islands provide pedestrian refuge which means that the largest crossing width for a pedestrian or bicyclists at the single-lane roundabout is one vehicle travel lane.

EVALUATION SUMMARY

A summary of the alternative evaluation is provided in Table 10. The traffic signal ranked the highest of the alternatives, followed by the roundabout alternative and were the only alternatives

¹⁰ CMF ID: 323 and CMF ID: 324, Federal Highway Administration, CMFClearinghouse.org.

¹¹ CMF ID: 206, Federal Highway Administration, CMFClearinghouse.org.

that did not result in a fatal flaw for any of the criteria. The traffic signal fully addressed the respective criterion in three of the measures (i.e., operations, pedestrian/bicycle, and expected cost) and partially addressed the criterion in the remaining two measures (i.e., right-of-way impact and safety). However, the preliminary traffic signal warrant was not met under the forecasted 2040 scenarios, so this potential improvement option would not be warranted until beyond 2040.

The roundabout would result in more significant right-of-way impacts and a higher expected construction cost compared to the traffic signal alternative. However, the roundabout fully addressed the respective criterion in three of the measures (i.e., operations, pedestrian/bicycle, and safety). It is also the alternative that allows for the intersection to operate with the lowest forecasted LOS and v/c ratio through 2040.

The two-way stop alternative results in a fatal flaw for the operations criterion, as shown in Table 10, and would be expected to result in significant delays for people at the intersection. This alternative will require the provision of a crosswalk and pedestrian refuge island on 362nd Drive at the Dubarko Road crossing.

TABLE 10: IMPROVEMENT OPTION EVALUATION SUMMARY

IMPROVEMENT OPTION	OPERATIONS	PEDESTRIAN /BICYCLE	RIGHT-OF-WAY IMPACT	EXPECTED COST	SAFETY	OVERALL RANK
TWO-WAY STOP CONTROL	FF	○	●	●	○	FF
TRAFFIC SIGNAL	●	●	◐	●	◐	1
ROUNDABOUT	●	●	○	◐	●	2

Notes: ● = Option meets or fully addresses the criterion; ◐ = Option somewhat addresses the criterion; ○ = Option does not meet or negatively impacts the criterion; FF= Option results in a fatal flaw for the criterion.

INTERSECTION RECOMMENDATIONS

Overall, the 362nd Drive and Dubarko Road intersection was identified as exceeding the mobility target by 2040 once Dubarko Road is extended westward to connect with Champion Way (Sandy TSP Project D13). Without this project, the intersection is forecasted to meet the mobility target through 2040 with the existing two-way stop control. The traffic signal was the highest-ranking improvement alternative, but the preliminary traffic signal warrant was not met under the forecasted 2040 scenarios, so this potential improvement option would not be warranted until beyond 2040. Likewise, the roundabout would also alleviate the forecasted substandard operating condition at the intersection, but it would have more significant right-of-way impacts and a higher expected construction cost compared to the traffic signal alternative.

Therefore, it is recommended that the two-way stop control be maintained until Dubarko Road is extended westward and/or until new development occurs to the west of the 362nd Drive and

Dubarko Road intersection. At that time, a traffic signal should be installed, and the traffic signal warrants should be reevaluated to determine if the intersection meets the installation requirements. The signal should function as a pedestrian hybrid beacon until converted to a full traffic signal once the warrants are met. If new sidewalks are provided on the west side of 362nd Drive before the planned Dubarko Road extension and/or traffic signal installation occurs, then an interim pedestrian crossing improvement should be provided to include a crosswalk and pedestrian refuge island on 362nd Drive at the Dubarko Road intersection based on the pedestrian crossing analysis.

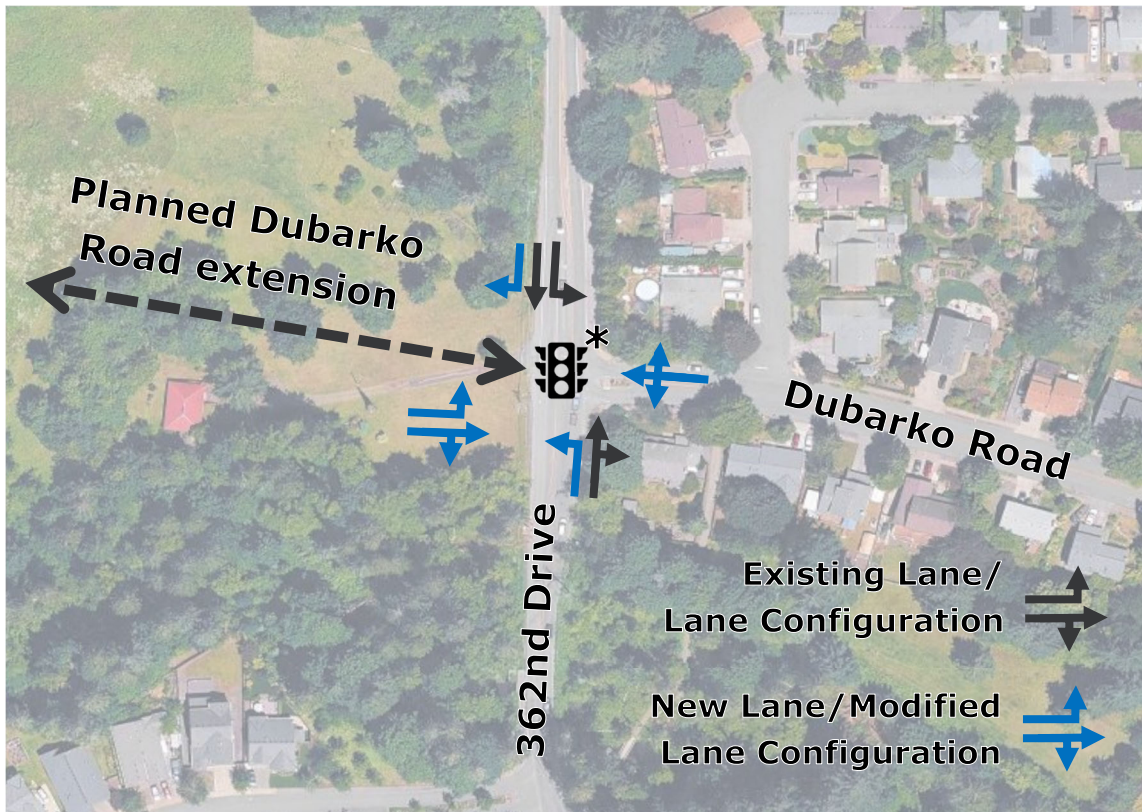
The downhill slopes approaching the intersection could make it prone to slippery driving conditions during the winter season, especially as drivers attempt to stop. The potential challenging conditions for drivers would be expected to occur for any type of traffic control installed at the intersection, including a traffic signal or roundabout. Some options that have been implemented to help detect, warn drivers, or control snow and ice in other areas are summarized below. These could be implemented at the intersection to help alleviate some of the challenges for drivers during the winter season.

- **Icy road warning system:** Icy road warning systems detect when conditions are favorable for ice to form on approaching roadways and then activate LED-enhanced warning alerts that are programmed to flash during icy conditions, prompting drivers to slow down and take caution.
- **“Rest in Red” technology for traffic signals:** Traffic signals with “rest in red” technology can display red lights in all directions, turning green only when sensors detect an approaching vehicle. This system is designed to curb speeding by triggering a red light if a driver is speeding over a set limit, however, it could potentially be applied in a similar way by using the detected vehicle speeds on the downhill slopes approaching the intersection during icy conditions. If the speed is over a limit to stop safely given the conditions, it could trigger a red light on the conflicting approaches. This system requires installation of smart detection technology and upgraded signal controllers.
- **Heated pavement:** Heated pavement for roadways uses embedded electric cables, hydronic tubing, or conductive concrete to maintain surface temperatures above freezing, automatically melting snow and ice to enhance safety. These systems are primarily used for critical infrastructure but come with high installation and operational costs.

SUMMARY OF INTERSECTION RECOMMENDATIONS

A summary of the recommendations at the 362nd Drive and Dubarko Road intersection are provided below and shown in Figure 2. These recommended improvements should be provided once Dubarko Road is extended westward and/or once new development occurs to the west of the 362nd Drive and Dubarko Road intersection.

- Provide a traffic signal.
 - Re-evaluate traffic signal warrants to determine when the intersection meets the installation requirements.
 - The signal should function as a pedestrian hybrid beacon until converted to a full traffic signal once the warrants are met.
 - Install transverse rumble strips or other measures on the northbound lane of 362nd Drive at the curve south of the intersection with Dubarko Road to help alert drivers to the upcoming intersection.
 - If new sidewalks are provided on the west side of 362nd Drive before the recommended traffic signal installation occurs, then an interim pedestrian crossing improvement should be provided to include a crosswalk and pedestrian refuge island on 362nd Drive at the Dubarko Road intersection.
 - > Stopping sight distance requirements will need to be met at this crossing, which is around 300 feet and close to the curve along 362nd Drive to the south.
- Provide separate left and through/right-turn lanes on the new Dubarko Road west leg of the intersection.
- Provide an exclusive left turn lane for the new northbound left-turn movement to Dubarko Road.
- Provide an exclusive right turn lane for the new southbound right-turn movement to Dubarko Road.
- Provide an exclusive left turn lane for the westbound left-turn movement from Dubarko Road to 362nd Drive.

FIGURE 2: SUMMARY OF 362ND DRIVE AND DUBARKO ROAD INTERSECTION RECOMMENDATIONS

Notes: * The signal should function as a pedestrian hybrid beacon until converted to a full traffic signal once the traffic signal warrant requirements are met.

Install transverse rumble strips or other measures on the northbound lane of 362nd Drive at the curve south of the intersection with Dubarko Road to help alert drivers to the upcoming intersection.

If new sidewalks are provided on the west side of 362nd Drive before the recommended traffic signal installation occurs, then an interim pedestrian crossing improvement should be provided to include a crosswalk and pedestrian refuge island on 362nd Drive at the

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SECTION 1: COLLISION ANALYSIS

General & Site Information	
Agency/Company:	DKS Associates
Date:	3/20/2026
Project Name:	Sandy Intersection Control Evaluation

Intersection Crash Data						
Intersection	Intersection Type	Year				
		2019	2020	2021	2022	2023
SE 362nd Dr--Dubarko Rd	Urban 3ST	1	1	0	1	0
Total						3

Intersection Population Type Crash Rate				
Average Crash Rate per intersection type				
Intersection Pop. Type	Sum of Crashes	Sum of 5-year MEV	Avg Crash Rate for Ref Pop.	INT in Pop
Urban 3ST	3	22	0.1364	1

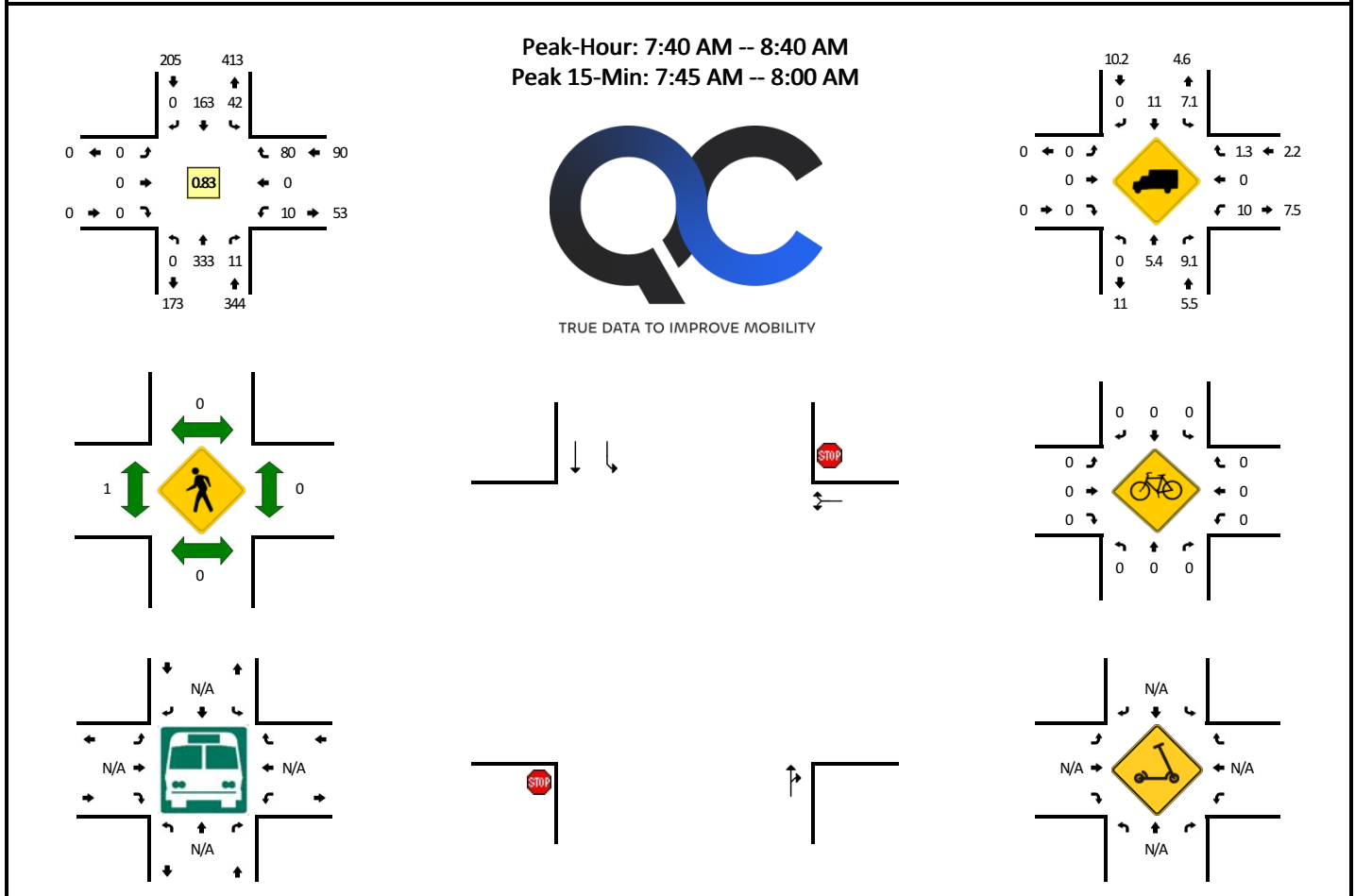
Critical Rate Calculation								
Intersection	AADT Entering Intersection	5-year MEV	Crash Total	Intersection Population Type	Intersection Crash Rate	Reference Population Crash Rate	Critical Rate	Over Critical
SE 362nd Dr--Dubarko Rd	12,050	22.0	3	Urban 3ST	0.14	APM Exhibit 4-1	0.29	Under

Study Intersection	Total Collisions	Observed Crash Rate (per MEV)	Critical Crash Rate (per MEV)	Over Critical Crash Rate
SE 362nd Dr--Dubarko Rd	3	0.14	0.29	No

SECTION 2: VOLUME DATA

LOCATION: SE 362nd Dr -- Dubarko Rd
CITY/STATE: Sandy, OR

QC JOB #: 17379101
DATE: Tue, Dec 16 2025

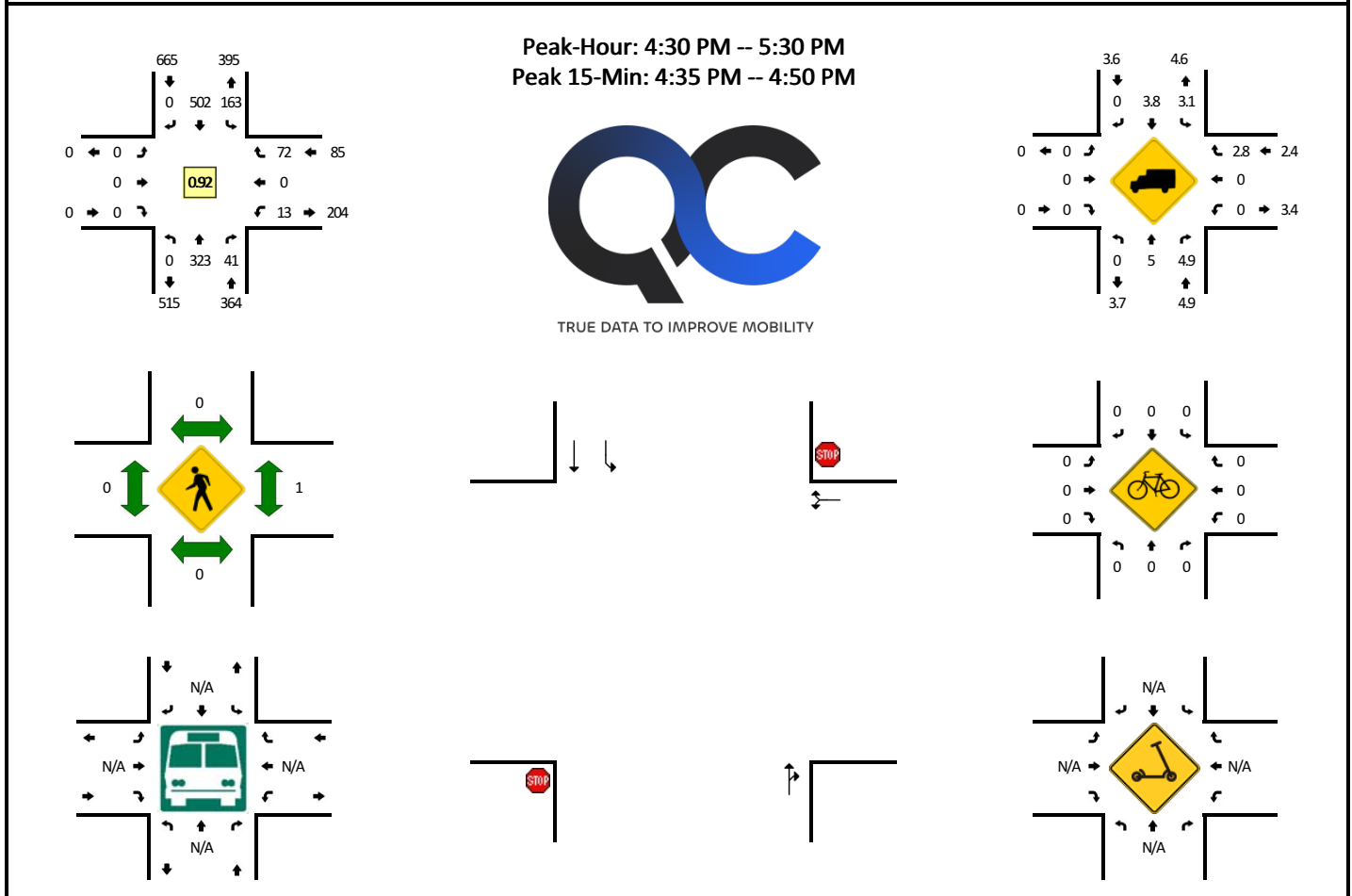


5-Min Count Period Beginning At	SE 362nd Dr (Northbound)				SE 362nd Dr (Southbound)				Dubarko Rd (Eastbound)				Dubarko Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	17	4	0	3	8	0	0	0	0	0	0	1	0	10	0	43	
7:05 AM	0	16	3	0	2	6	0	0	0	0	0	0	1	0	5	0	33	
7:10 AM	0	20	2	0	0	4	0	0	0	0	0	0	2	0	6	0	34	
7:15 AM	0	23	0	0	0	12	0	0	0	0	0	0	2	0	7	0	44	
7:20 AM	0	35	3	0	0	3	0	0	0	0	0	0	0	0	11	0	52	
7:25 AM	0	28	2	0	2	7	0	0	0	0	0	0	1	0	6	0	46	
7:30 AM	0	30	2	0	3	13	0	0	0	0	0	0	2	0	3	0	53	
7:35 AM	0	26	1	0	2	6	0	0	0	0	0	0	0	0	7	0	42	
7:40 AM	0	39	1	0	0	14	0	0	0	0	0	0	1	0	4	0	59	
7:45 AM	0	40	2	0	4	13	0	0	0	0	0	0	0	0	10	0	69	
7:50 AM	0	39	4	0	2	5	0	0	0	0	0	0	0	0	6	0	56	
7:55 AM	0	32	1	0	3	15	0	0	0	0	0	0	1	0	15	0	67	598
8:00 AM	0	30	0	0	3	12	0	0	0	0	0	0	1	0	6	0	52	607
8:05 AM	0	21	0	0	7	17	0	0	0	0	0	0	1	0	5	0	51	625
8:10 AM	0	18	0	0	7	18	0	0	0	0	0	0	1	0	3	0	47	638
8:15 AM	0	20	1	0	5	10	0	0	0	0	0	0	0	0	4	0	40	634
8:20 AM	0	25	1	0	2	15	0	0	0	0	0	0	0	0	5	0	48	630
8:25 AM	0	23	0	0	3	10	0	0	0	0	0	0	3	0	5	0	44	628
8:30 AM	0	22	0	0	1	25	0	0	0	0	0	0	1	0	7	0	56	631
8:35 AM	0	24	1	0	5	9	0	0	0	0	0	0	1	0	10	0	50	639
8:40 AM	0	25	0	0	4	9	0	0	0	0	0	0	0	0	3	0	41	621
8:45 AM	0	32	1	0	2	14	0	0	0	0	0	0	0	0	4	0	53	605
8:50 AM	0	27	2	0	6	10	0	0	0	0	0	0	1	0	9	0	55	604
8:55 AM	0	35	2	0	5	5	0	0	0	0	0	0	3	0	4	0	54	591
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	444	28	0	36	132	0	0	0	0	0	0	4	0	124	0	768	
Heavy Trucks	0	12	0	0	4	12	0	0	0	0	0	0	0	0	4	0	32	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: SE 362nd Dr -- Dubarko Rd
CITY/STATE: Sandy, OR

QC JOB #: 17379102
DATE: Tue, Dec 16 2025



5-Min Count Period Beginning At	SE 362nd Dr (Northbound)				SE 362nd Dr (Southbound)				Dubarko Rd (Eastbound)				Dubarko Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	16	4	0	14	39	0	0	0	0	0	0	0	0	5	0	78	
4:05 PM	0	24	3	0	15	46	0	0	0	0	0	0	0	0	8	0	96	
4:10 PM	0	24	3	0	10	44	0	0	0	0	0	0	1	0	6	0	88	
4:15 PM	0	30	0	0	11	35	0	0	0	0	0	0	0	0	4	0	80	
4:20 PM	0	20	1	0	12	52	0	0	0	0	0	0	2	0	7	0	94	
4:25 PM	0	19	2	0	15	48	0	0	0	0	0	0	4	0	9	0	97	
4:30 PM	0	25	1	0	17	41	0	0	0	0	0	0	2	0	6	0	92	
4:35 PM	0	29	3	0	13	46	0	0	0	0	0	0	2	0	5	0	98	
4:40 PM	0	31	1	0	18	48	0	0	0	0	0	0	2	0	6	0	106	
4:45 PM	0	36	5	0	12	41	0	0	0	0	0	0	2	0	4	0	100	
4:50 PM	0	24	10	0	12	33	0	0	0	0	0	0	0	0	3	0	82	
4:55 PM	0	15	2	0	10	36	0	0	0	0	0	0	0	0	9	0	72	1083
5:00 PM	0	22	1	0	17	36	0	0	0	0	0	0	0	0	14	0	90	1095
5:05 PM	0	35	1	0	6	42	0	0	0	0	0	0	2	0	4	0	90	1089
5:10 PM	0	25	4	0	18	39	0	0	0	0	0	0	3	0	8	0	97	1098
5:15 PM	0	22	7	0	10	52	0	0	0	0	0	0	0	0	4	0	95	1113
5:20 PM	0	25	3	0	12	48	0	0	0	0	0	0	0	0	4	0	92	1111
5:25 PM	0	34	3	0	18	40	0	0	0	0	0	0	0	0	5	0	100	1114
5:30 PM	0	11	6	0	15	54	0	0	0	0	0	0	1	0	4	0	91	1113
5:35 PM	0	25	3	0	11	44	0	0	0	0	0	0	1	0	6	0	90	1105
5:40 PM	0	19	10	0	14	38	0	0	0	0	0	0	0	0	8	0	89	1088
5:45 PM	0	22	8	0	13	33	0	0	0	0	0	0	1	0	5	0	82	1070
5:50 PM	0	24	2	0	6	29	0	0	0	0	0	0	2	0	9	0	72	1060
5:55 PM	0	23	2	0	11	32	0	0	0	0	0	0	0	0	2	0	70	1058
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	384	36	0	172	540	0	0	0	0	0	0	24	0	60	0	1216	
Heavy Trucks	0	44	4		4	12	0		0	0	0		0	0	4		68	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

SECTION 3: SIGNAL WARRANT ANALYSIS

TRAFFIC SIGNAL WARRANT ANALYSIS

PROJECT LOCATION/CHARACTERISTICS

Major Street: SE 362nd Dr

Minor Street: Dubarko Rd

Number of lanes on each approach of Major Street: 1

Number of lanes on each approach of Minor Street: 1

85th percentile speed of major-street traffic $\geq$ 40 mph ☒

-or-

In built-up area of an isolated community of < 10,000 pop. ☐, then use Rural Requirements

Analysis Scenario (Year): Year 2040

Date of Analysis: 3/25/2026

SUMMARY OF RESULTS

WARRANT 3: Peak Hour

☐ YES

☒ NO

WARRANT 7: Crash Experience

☐ YES

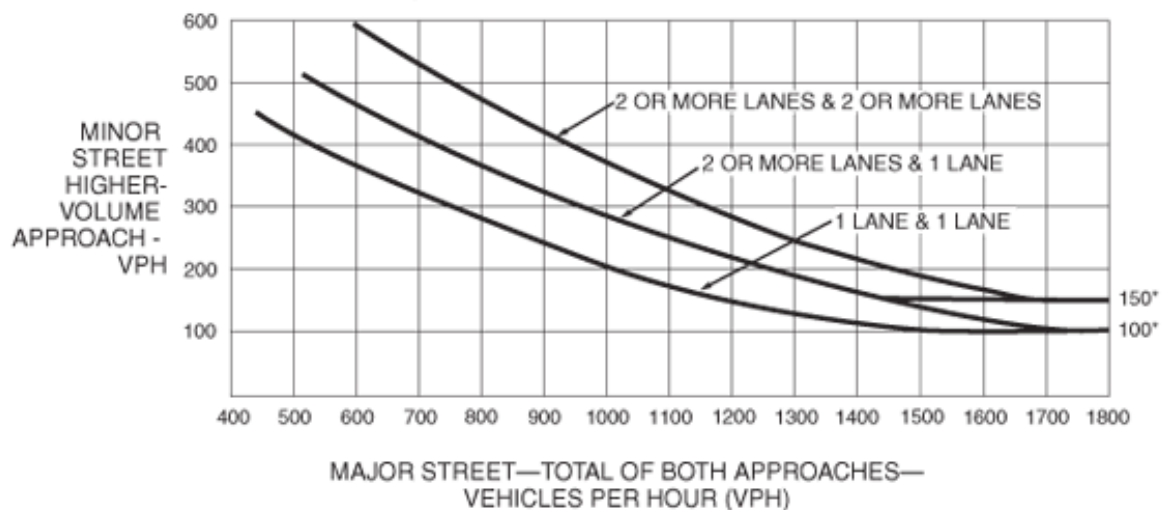
☒ NO

Other Outstanding Issues

Warrant 3: Peak HourSATISFIED ☐ YES ☒ NO

Warrant 3 Worksheet	Approach Lanes		Peak Hour Volumes	
	1	2 or more	AM Peak	PM Peak
Time Period (Hour)			7am-8am	4pm-5pm
Major Street (Both Approaches)	X		890	1400
Minor Street (Highest Approach)	X		10	20

REQUIREMENT	FULFILLED
The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; AND	Yes ☒ No ☐
The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐ No ☒
The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches, OR	Yes ☒ No ☐
The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach for 1 hour of an average day falls above the applicable curve.	Yes ☐ No ☒

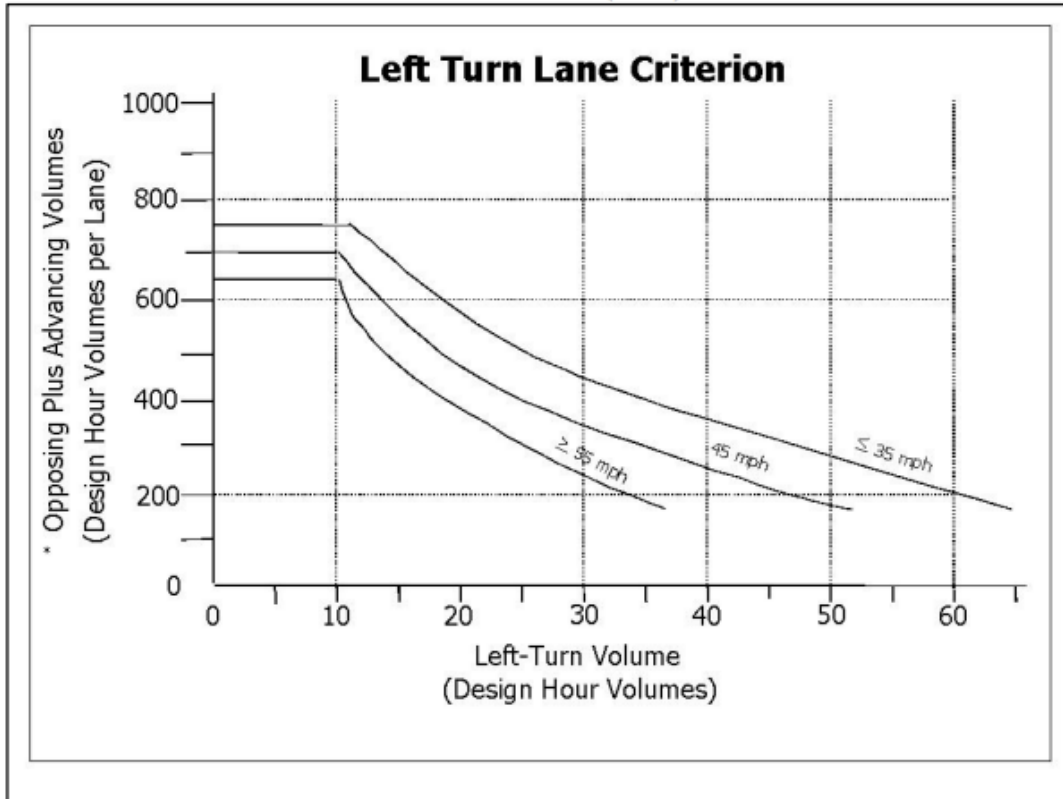
Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 7: Crash Experience100% SATISFIED ☐ YES ☒ NO

REQUIREMENTS	WARRANT	FULFILLED
ONE WARRANT SATISFIED	Warrant 1: 56% Eight-Hour Vehicular Volume (Conditions A and B); OR	Yes ☐ No ☒
	Warrant 4: 80 % Pedestrian Volume	
Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; AND		Yes ☐ No ☒
5 or more accidents susceptible to correction by traffic signal control occurring within a 12-month period and involving injury or property damage exceeding the applicable requirements for a reportable accident.		Yes ☐ No ☒

SECTION 4: TURN LANE EVALUATION

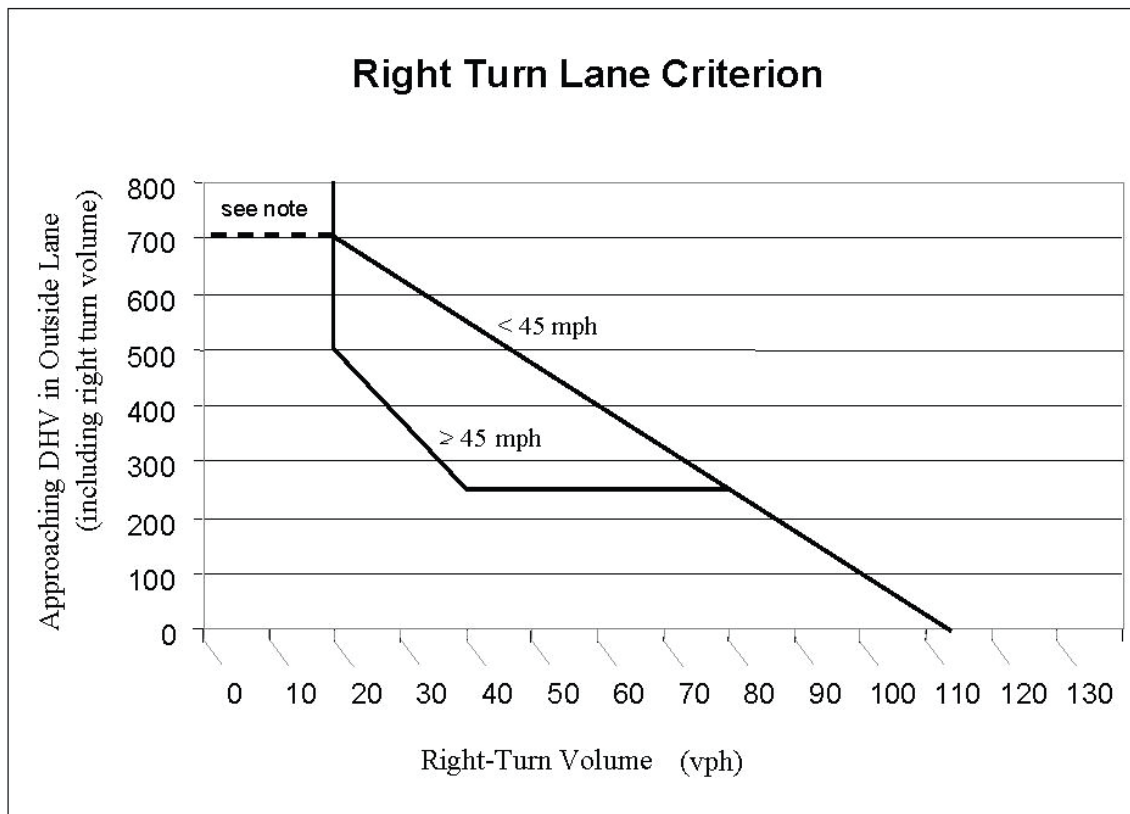


*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

Opposing left turns are not counted as opposing volumes

Left Turn Lane Criterion

SE 362nd Dr/ Dubarko Rd	Posted Speed	Advancing plus Opposing Volume	Left Turn Volume	Warrant Met
Northbound Left-Turn	35 mph			
2040 AM Peak Hour with Dubarko extension		825	20	Yes
2040 PM Peak Hour with Dubarko extension		1,200	10	Yes



Right Turn Lane Criterion

SE 362nd Dr/ Dubarko Rd	Approaching Volume (outside lane)	Right Turn Volume	Major Street Speed	Warrant Met
Southbound Right-Turn				
AM Peak Hour	450	15	35 mph	No
PM Peak Hour	800	5	35 mph	No
Northbound Right-Turn				
AM Peak Hour	455	10	35 mph	No
PM Peak Hour	590	50	35 mph	Yes

SECTION 5: PEDESTRIAN CROSSING EVALUATION

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

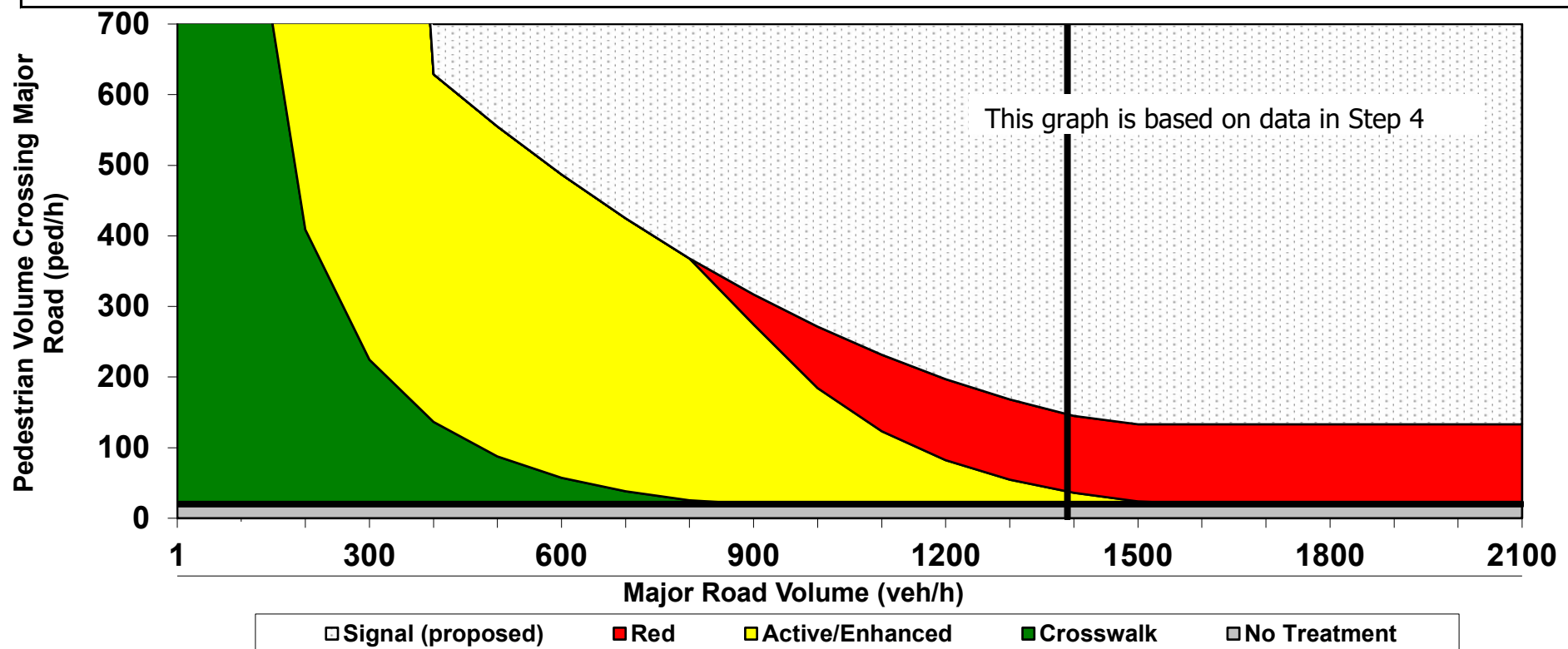
Version 1.2, revised 9/27/21

This spreadsheet reflects recommendations of TCRP Report 112/NCHRP Report 562 (Improving Pedestrian Safety at Unsignalized Intersections) and FHWA Report HRT-04-100 (Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations) along with Portland Bureau of Transportation practices. It is based on the TTI spreadsheet and adapted for PBOT use. Revisions are tracked in last tab.

Key

	Green fields are required and must be completed.
	Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).

Analyst and Site Information					
Analyst	DKS		Major Street	362nd Drive	
Analysis Date	March 20, 2026		Minor Street or Location	Dubarko Road	
Data Date	March 1, 2026		Analysis Hour/Scenario	2040 p.m. peak hour with Dubarko Road extension	
Step 1: Select worksheet.					
Posted or statutory speed limit and 85% speed on the major street			Posted speed (mph)	1a-1	35
			85% speed if available (mph)	1a-2	
Is the population of the surrounding area <10,000? (enter YES or NO)				1b	NO
Primary lanes per direction:	☒ One lane per direction ☐ Two or more lanes in one direction			1c	1
Median type:	☐ None ☒ TWLTL or painted median ☐ Raised median ☐ One-way street			1d	2
Is crossing on a SRTS route or adjacent to a school, care facility, or other similar use?				1e	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?					
If bicycle crossings are a goal of the crossing improvement, estimate peak-hour bicycles crossing as pedestrians:				2a-1	5
Peak-hour pedestrian volume (ped/h), V_p				2a-2	15
Effective Peak-hour pedestrian volume including bicycles operating as pedestrians (ped/h), V_{p-eff}				2a	20
Step 3: Does the crossing meet the peak-hour pedestrian warrant for a traffic signal or PHB?					
Major road volume, by direction (if available) during peak hour (veh/h), V_{maj-s}			Dir1/Dir2	590	800
				3a	1,390
Full pedestrian crossing distance, from curb to curb (ft)				3a-2	50
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant				3b	147
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant, PHB warrant				3c	20
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s? (enter YES or NO)				3d	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s, then reduce 3c by up to 50%.			% reduction for 3c (up to 50%)	3e	
			Reduced value for 3c signal warrant	3f	147
Step 4: Estimate pedestrian delay.					
Crossing distance from curb to median refuge, if present (ft)					
Effective Pedestrian crossing distance, curb to curb or refuge (ft), L				4a	50
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)				4b	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)				4c	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c				4d	17
Major road peak-hr volume, total both directions OR portion being crossed if raised median island is present (vph), V_{maj-d}				4e	1,390
Major road flow rate (veh/s), v				4f	0.39
Average pedestrian delay (s/person), d_p				4g	2151
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.				4h	12.0
				4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.					
Expected motorist compliance at pedestrian crossings in region: enter HIGH or LOW for compliance				5a	high
NCHRP 562 Category:	2005 FHWA Report:	PBOT SOP:	Signal Warrant:		
Active or Enhanced	Enhancements Probably Needed	Refuge island(s) or In-street crossing sign(s)	PHB warrant is met but may not be necessary		



This PBOT Ped crossing analysis tool is based on the original TTI spreadsheet and provides recommendations on crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment. This tool does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

SECTION 6: EXISTING YEAR CAPACITY ANALYSIS

HCM 6th TWSC 2: 362nd Dr & Dubarko Rd

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	85	360	10	45	175
Future Vol, veh/h	10	85	360	10	45	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	10	1	5	9	7	11
Mvmt Flow	12	102	434	12	54	211

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	759	440	0	0	446
Stage 1	440	-	-	-	-
Stage 2	319	-	-	-	-
Critical Hdwy	6.5	6.21	-	-	4.17
Critical Hdwy Stg 1	5.5	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-
Follow-up Hdwy	3.59	3.309	-	-	2.263
Pot Cap-1 Maneuver	363	619	-	-	1088
Stage 1	633	-	-	-	-
Stage 2	719	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	345	619	-	-	1088
Mov Cap-2 Maneuver	345	-	-	-	-
Stage 1	601	-	-	-	-
Stage 2	719	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.9	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	571	1088
HCM Lane V/C Ratio	-	-	0.2	0.05
HCM Ctrl Dly (s/v)	-	-	12.9	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q (veh)	-	-	0.7	0.2

HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	80	350	45	175	540
Future Vol, veh/h	15	80	350	45	175	540
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	5	5	3	4
Mvmt Flow	16	87	380	49	190	587
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1373	406	0	0	430	0
Stage 1	406	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	162	643	-	-	1124	-
Stage 1	677	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	642	-	-	1123	-
Mov Cap-2 Maneuver	134	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	17	0	2.2			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	402	1123	-	
HCM Lane V/C Ratio	-	-	0.257	0.169	-	
HCM Ctrl Dly (s/v)	-	-	17	8.9	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q (veh)	-	-	1	0.6	-	

SECTION 7: 2040 NO-BUILD (WITHOUT THE DUBARKO ROAD EXTENSION) CAPACITY ANALYSIS

HCM 6th TWSC
2: 362nd Dr & Dubarko Rd

Item # 2.

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	110	435	10	85	360
Future Vol, veh/h	10	110	435	10	85	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	1	5	9	7	11
Mvmt Flow	11	122	483	11	94	400
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1077	489	0	0	494	0
Stage 1	489	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Critical Hdwy	6.5	6.21	-	-	4.17	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.309	-	-	2.263	-
Pot Cap-1 Maneuver	234	581	-	-	1044	-
Stage 1	600	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	213	581	-	-	1044	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	14.6	0		1.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	508	1044	-	
HCM Lane V/C Ratio	-	-	0.262	0.09	-	
HCM Ctrl Dly (s/v)	-	-	14.6	8.8	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q (veh)	-	-	1	0.3	-	

2040 A.M. Peak Hour
No-Build

Page 1

HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	120	535	50	200	615
Future Vol, veh/h	15	120	535	50	200	615
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	5	5	3	4
Mvmt Flow	16	130	582	54	217	668
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1712	610	0	0	637	0
Stage 1	610	-	-	-	-	-
Stage 2	1102	-	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	101	493	-	-	942	-
Stage 1	546	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	493	-	-	941	-
Mov Cap-2 Maneuver	78	-	-	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	26.6	0	2.4			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	310	941	-	
HCM Lane V/C Ratio	-	-	0.473	0.231	-	
HCM Ctrl Dly (s/v)	-	-	26.6	10	-	
HCM Lane LOS	-	-	D	A	-	
HCM 95th %tile Q (veh)	-	-	2.4	0.9	-	

SECTION 8: 2040 BUILD (WITH THE DUBARKO ROAD EXTENSION) CAPACITY ANALYSIS

HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
Future Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
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	100	-	-	-	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	10	2	1	2	5	9	7	11	2
Mvmt Flow	6	11	11	11	17	122	22	483	11	94	400	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1199	1135	409	1141	1138	489	417	0	0	494	0	0
Stage 1	597	597	-	533	533	-	-	-	-	-	-	-
Stage 2	602	538	-	608	605	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.2	6.52	6.21	4.12	-	-	4.17	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.59	4.018	3.309	2.218	-	-	2.263	-	-
Pot Cap-1 Maneuver	162	202	642	171	201	581	1142	-	-	1044	-	-
Stage 1	490	491	-	516	525	-	-	-	-	-	-	-
Stage 2	486	522	-	469	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	109	180	642	147	179	581	1142	-	-	1044	-	-
Mov Cap-2 Maneuver	109	180	-	147	179	-	-	-	-	-	-	-
Stage 1	481	447	-	506	515	-	-	-	-	-	-	-
Stage 2	364	512	-	409	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.1	19.5	0.4	1.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1142	-	-	109	281	396	1044	-	-
HCM Lane V/C Ratio	0.019	-	-	0.051	0.079	0.379	0.09	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	39.8	18.9	19.5	8.8	-	-
HCM Lane LOS	A	-	-	E	C	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.3	1.7	0.3	-	-

HCM 6th TWSC
2: 362nd Dr & Dubarko Rd

Item # 2.

Intersection												
Int Delay, s/veh	12											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Future Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	2	3	2	5	5	3	4	2
Mvmt Flow	16	16	22	22	11	125	11	576	54	207	658	5
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1768	1728	661	1720	1703	604	663	0	0	631	0	0
Stage 1	1075	1075	-	626	626	-	-	-	-	-	-	-
Stage 2	693	653	-	1094	1077	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.23	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.327	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	65	88	462	71	92	496	926	-	-	947	-	-
Stage 1	266	296	-	475	477	-	-	-	-	-	-	-
Stage 2	434	464	-	262	295	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	68	462	46	71	496	926	-	-	946	-	-
Mov Cap-2 Maneuver	36	68	-	46	71	-	-	-	-	-	-	-
Stage 1	263	231	-	469	471	-	-	-	-	-	-	-
Stage 2	313	458	-	181	230	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	80.9		90.1		0.2		2.3					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	926	-	-	36	133	180	946	-	-			
HCM Lane V/C Ratio	0.012	-	-	0.453	0.286	0.876	0.218	-	-			
HCM Ctrl Dly (s/v)	8.9	-	-	170.4	42.6	90.1	9.9	-	-			
HCM Lane LOS	A	-	-	F	E	F	A	-	-			
HCM 95th %tile Q (veh)	0	-	-	1.5	1.1	6.4	0.8	-	-			

2040 P.M. Peak Hour
Build with planned extensions

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SECTION 9: 2040 INTERSECTION CONTROL EVALUATION CAPACITY ANALYSIS

HCM 6th TWSC 2: 362nd Dr & Dubarko Rd

Intersection

Int Delay, s/veh 3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
Future Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
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	100	-	-	-	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	10	2	1	2	5	9	7	11	2
Mvmt Flow	6	11	11	11	17	122	22	483	11	94	400	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1199	1135	409	1141	1138	489	417	0	0	494	0	0
Stage 1	597	597	-	533	533	-	-	-	-	-	-	-
Stage 2	602	538	-	608	605	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.2	6.52	6.21	4.12	-	-	4.17	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.59	4.018	3.309	2.218	-	-	2.263	-	-
Pot Cap-1 Maneuver	162	202	642	171	201	581	1142	-	-	1044	-	-
Stage 1	490	491	-	516	525	-	-	-	-	-	-	-
Stage 2	486	522	-	469	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	109	180	642	147	179	581	1142	-	-	1044	-	-
Mov Cap-2 Maneuver	109	180	-	147	179	-	-	-	-	-	-	-
Stage 1	481	447	-	506	515	-	-	-	-	-	-	-
Stage 2	364	512	-	409	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.1	19.5	0.4	1.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1142	-	-	109	281	396	1044	-	-
HCM Lane V/C Ratio	0.019	-	-	0.051	0.079	0.379	0.09	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	39.8	18.9	19.5	8.8	-	-
HCM Lane LOS	A	-	-	E	C	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.3	1.7	0.3	-	-

2040 A.M. Peak Hour
Build with planned extensions

HCM 6th TWSC
2: 362nd Dr & Dubarko Rd

Item # 2.

Intersection												
Int Delay, s/veh	12											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Future Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	2	3	2	5	5	3	4	2
Mvmt Flow	16	16	22	22	11	125	11	576	54	207	658	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1768	1728	661	1720	1703	604	663	0	0	631	0	0
Stage 1	1075	1075	-	626	626	-	-	-	-	-	-	-
Stage 2	693	653	-	1094	1077	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.23	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.327	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	65	88	462	71	92	496	926	-	-	947	-	-
Stage 1	266	296	-	475	477	-	-	-	-	-	-	-
Stage 2	434	464	-	262	295	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	36	68	462	46	71	496	926	-	-	946	-	-
Mov Cap-2 Maneuver	36	68	-	46	71	-	-	-	-	-	-	-
Stage 1	263	231	-	469	471	-	-	-	-	-	-	-
Stage 2	313	458	-	181	230	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	80.9		90.1		0.2		2.3	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	36	133	180	946	-	-
HCM Lane V/C Ratio	0.012	-	-	0.453	0.286	0.876	0.218	-	-
HCM Ctrl Dly (s/v)	8.9	-	-	170.4	42.6	90.1	9.9	-	-
HCM Lane LOS	A	-	-	F	E	F	A	-	-
HCM 95th %tile Q (veh)	0	-	-	1.5	1.1	6.4	0.8	-	-

2040 P.M. Peak Hour
Build with planned extensions

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HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
Future Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
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	100	-	-	-	-	-	100	-	100	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	10	2	1	2	5	9	7	11	2
Mvmt Flow	6	11	11	11	17	122	22	483	11	94	400	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1199	1135	409	1135	1132	483	417	0	0	494	0	0
Stage 1	597	597	-	527	527	-	-	-	-	-	-	-
Stage 2	602	538	-	608	605	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.2	6.52	6.21	4.12	-	-	4.17	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.59	4.018	3.309	2.218	-	-	2.263	-	-
Pot Cap-1 Maneuver	162	202	642	173	203	586	1142	-	-	1044	-	-
Stage 1	490	491	-	520	528	-	-	-	-	-	-	-
Stage 2	486	522	-	469	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	110	180	642	149	181	586	1142	-	-	1044	-	-
Mov Cap-2 Maneuver	110	180	-	149	181	-	-	-	-	-	-	-
Stage 1	481	447	-	510	518	-	-	-	-	-	-	-
Stage 2	365	512	-	409	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23	19.3	0.4	1.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1142	-	-	110	281	400	1044	-	-
HCM Lane V/C Ratio	0.019	-	-	0.051	0.079	0.375	0.09	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	39.5	18.9	19.3	8.8	-	-
HCM Lane LOS	A	-	-	E	C	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.3	1.7	0.3	-	-

2040 A.M. Peak Hour

Build with planned extensions, NB RT Lane

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HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection												
Int Delay, s/veh	11.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Future Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	100	-	100	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	2	3	2	5	5	3	4	2
Mvmt Flow	16	16	22	22	11	125	11	576	54	207	658	5
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1768	1728	661	1693	1676	577	663	0	0	631	0	0
Stage 1	1075	1075	-	599	599	-	-	-	-	-	-	-
Stage 2	693	653	-	1094	1077	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.23	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.327	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	65	88	462	74	95	514	926	-	-	947	-	-
Stage 1	266	296	-	492	490	-	-	-	-	-	-	-
Stage 2	434	464	-	262	295	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	68	462	48	73	514	926	-	-	946	-	-
Mov Cap-2 Maneuver	36	68	-	48	73	-	-	-	-	-	-	-
Stage 1	263	231	-	486	484	-	-	-	-	-	-	-
Stage 2	317	458	-	181	230	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	80.9		81.4		0.2		2.3					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	926	-	-	36	133	187	946	-	-			
HCM Lane V/C Ratio	0.012	-	-	0.453	0.286	0.843	0.218	-	-			
HCM Ctrl Dly (s/v)	8.9	-	-	170.4	42.6	81.4	9.9	-	-			
HCM Lane LOS	A	-	-	F	E	F	A	-	-			
HCM 95th %tile Q (veh)	0	-	-	1.5	1.1	6.1	0.8	-	-			

2040 P.M. Peak Hour

Build with planned extensions, NB RT Lane

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HCM 6th TWSC

2: 362nd Dr & Dubarko Rd

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
Future Vol, veh/h	5	10	10	10	15	110	20	435	10	85	360	15
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	100	-	-	100	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	10	2	1	2	5	9	7	11	2
Mvmt Flow	6	11	11	11	17	122	22	483	11	94	400	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1199	1135	409	1141	1138	489	417	0	0	494	0	0
Stage 1	597	597	-	533	533	-	-	-	-	-	-	-
Stage 2	602	538	-	608	605	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.2	6.52	6.21	4.12	-	-	4.17	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.2	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.59	4.018	3.309	2.218	-	-	2.263	-	-
Pot Cap-1 Maneuver	162	202	642	171	201	581	1142	-	-	1044	-	-
Stage 1	490	491	-	516	525	-	-	-	-	-	-	-
Stage 2	486	522	-	469	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	109	180	642	147	179	581	1142	-	-	1044	-	-
Mov Cap-2 Maneuver	109	180	-	147	179	-	-	-	-	-	-	-
Stage 1	481	447	-	506	515	-	-	-	-	-	-	-
Stage 2	364	512	-	409	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.1	17.3	0.4	1.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1142	-	-	109	281	147	458	1044	-	-
HCM Lane V/C Ratio	0.019	-	-	0.051	0.079	0.076	0.303	0.09	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	39.8	18.9	31.5	16.2	8.8	-	-
HCM Lane LOS	A	-	-	E	C	D	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.3	0.2	1.3	0.3	-	-

2040 A.M. Peak Hour

Build with planned extensions, WB LT Lane

Page 1

HCM 6th TWSC
2: 362nd Dr & Dubarko Rd

Item # 2.

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Future Vol, veh/h	15	15	20	20	10	115	10	530	50	190	605	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	2	3	2	5	5	3	4	2
Mvmt Flow	16	16	22	22	11	125	11	576	54	207	658	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1768	1728	661	1720	1703	604	663	0	0	631	0	0
Stage 1	1075	1075	-	626	626	-	-	-	-	-	-	-
Stage 2	693	653	-	1094	1077	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.23	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.327	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	65	88	462	71	92	496	926	-	-	947	-	-
Stage 1	266	296	-	475	477	-	-	-	-	-	-	-
Stage 2	434	464	-	262	295	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	36	68	462	46	71	496	926	-	-	946	-	-
Mov Cap-2 Maneuver	36	68	-	46	71	-	-	-	-	-	-	-
Stage 1	263	231	-	469	471	-	-	-	-	-	-	-
Stage 2	313	458	-	181	230	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	80.9		39		0.2		2.3	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	36	133	46	335	946	-	-
HCM Lane V/C Ratio	0.012	-	-	0.453	0.286	0.473	0.406	0.218	-	-
HCM Ctrl Dly (s/v)	8.9	-	-	170.4	42.6	139.9	22.9	9.9	-	-
HCM Lane LOS	A	-	-	F	E	F	C	A	-	-
HCM 95th %tile Q (veh)	0	-	-	1.5	1.1	1.7	1.9	0.8	-	-

MOVEMENT SUMMARY

 **Site: [2 (2)] SE 362nd Dr--Dubarko Rd_AMpeak_w/ext**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				mph
			veh/h	%	veh/h	%	v/c	sec		veh	ft				
South: SE 362nd Dr															
3	L2	All MCs	22	2.0	22	2.0	0.432	7.1	LOS A	2.8	71.7	0.38	0.18	0.38	31.8
8	T1	All MCs	472	5.0	472	5.0	0.432	7.4	LOS A	2.8	71.7	0.38	0.18	0.38	32.4
18	R2	All MCs	11	9.0	11	9.0	0.432	7.7	LOS A	2.8	71.7	0.38	0.18	0.38	32.0
Approach			506	5.0	506	5.0	0.432	7.4	LOS A	2.8	71.7	0.38	0.18	0.38	32.3
East: Dubarko Rd															
1	L2	All MCs	11	10.0	11	10.0	0.177	7.7	LOS A	0.7	18.8	0.57	0.46	0.57	31.9
6	T1	All MCs	17	2.0	17	2.0	0.177	6.4	LOS A	0.7	18.8	0.57	0.46	0.57	32.8
16	R2	All MCs	111	1.0	111	1.0	0.177	6.3	LOS A	0.7	18.8	0.57	0.46	0.57	32.5
Approach			139	1.8	139	1.8	0.177	6.4	LOS A	0.7	18.8	0.57	0.46	0.57	32.5
North: SE 362nd Dr															
7	L2	All MCs	89	7.0	89	7.0	0.419	6.7	LOS A	2.6	71.3	0.25	0.09	0.25	31.6
4	T1	All MCs	394	11.0	394	11.0	0.419	7.0	LOS A	2.6	71.3	0.25	0.09	0.25	32.2
14	R2	All MCs	17	2.0	17	2.0	0.419	6.3	LOS A	2.6	71.3	0.25	0.09	0.25	32.1
Approach			500	10.0	500	10.0	0.419	6.9	LOS A	2.6	71.3	0.25	0.09	0.25	32.0
West: Dubarko Rd Ext															
5	L2	All MCs	6	2.0	6	2.0	0.036	5.0	LOS A	0.1	3.5	0.53	0.42	0.53	32.5
2	T1	All MCs	11	2.0	11	2.0	0.036	5.0	LOS A	0.1	3.5	0.53	0.42	0.53	33.1
12	R2	All MCs	11	2.0	11	2.0	0.036	5.0	LOS A	0.1	3.5	0.53	0.42	0.53	32.9
Approach			28	2.0	28	2.0	0.036	5.0	LOS A	0.1	3.5	0.53	0.42	0.53	32.9
All Vehicles			1172	6.7	1172	6.7	0.432	7.0	LOS A	2.8	71.7	0.35	0.18	0.35	32.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoeline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglach M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: L:\All-DKS\PDIX-Drive\Projects\2022\P22071-000 (Sandy On-Call Services)\Task 020_Hwy 211-Dubarko\Analysis\Roundabout\Sandy.sipx

MOVEMENT SUMMARY

 **Site: [2] SE 362nd Dr--Dubarko Rd_PMpeak_w/ext (Folder1)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				mph
South: SE 362nd Dr															
3	L2	All MCs	11	2.0	11	2.0	0.632	12.0	LOS B	7.2	188.0	0.70	0.55	0.94	29.8
8	T1	All MCs	576	5.0	576	5.0	0.632	12.3	LOS B	7.2	188.0	0.70	0.55	0.94	30.3
18	R2	All MCs	54	5.0	54	5.0	0.632	12.3	LOS B	7.2	188.0	0.70	0.55	0.94	30.0
Approach			641	4.9	641	4.9	0.632	12.3	LOS B	7.2	188.0	0.70	0.55	0.94	30.2
East: Dubarko Rd															
1	L2	All MCs	22	0.0	22	0.0	0.227	7.4	LOS A	0.9	24.0	0.62	0.54	0.62	31.4
6	T1	All MCs	11	2.0	11	2.0	0.227	7.7	LOS A	0.9	24.0	0.62	0.54	0.62	32.0
16	R2	All MCs	125	3.0	125	3.0	0.227	7.9	LOS A	0.9	24.0	0.62	0.54	0.62	31.7
Approach			158	2.5	158	2.5	0.227	7.8	LOS A	0.9	24.0	0.62	0.54	0.62	31.7
North: SE 362nd Dr															
7	L2	All MCs	207	3.0	207	3.0	0.683	10.4	LOS B	7.9	204.1	0.39	0.13	0.39	30.1
4	T1	All MCs	658	4.0	658	4.0	0.683	10.5	LOS B	7.9	204.1	0.39	0.13	0.39	30.6
14	R2	All MCs	5	2.0	5	2.0	0.683	10.4	LOS B	7.9	204.1	0.39	0.13	0.39	30.4
Approach			870	3.8	870	3.8	0.683	10.5	LOS B	7.9	204.1	0.39	0.13	0.39	30.5
West: Dubarko Rd Ext															
5	L2	All MCs	16	2.0	16	2.0	0.105	8.2	LOS A	0.4	9.7	0.65	0.63	0.65	30.9
2	T1	All MCs	16	2.0	16	2.0	0.105	8.2	LOS A	0.4	9.7	0.65	0.63	0.65	31.4
12	R2	All MCs	22	2.0	22	2.0	0.105	8.2	LOS A	0.4	9.7	0.65	0.63	0.65	31.2
Approach			54	2.0	54	2.0	0.105	8.2	LOS A	0.4	9.7	0.65	0.63	0.65	31.2
All Vehicles			1723	4.0	1723	4.0	0.683	10.9	LOS B	7.9	204.1	0.54	0.34	0.63	30.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: L:\All-DKS\PD\X-Drive\Projects\2022\P22071-000 (Sandy On-Call Services)\Task 020_Hwy 211-Dubarko\Analysis\Roundabout\Sandy.sipx

HCM 6th Signalized Intersection Summary

Item # 2.

2: 362nd Dr & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	10	10	10	15	110	20	435	10	85	360	15
Future Volume (veh/h)	5	10	10	10	15	110	20	435	10	85	360	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1614	1723	1736	1723	1682	1627	1654	1600	1723
Adj Flow Rate, veh/h	6	11	11	11	17	122	22	483	11	94	400	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	10	2	1	2	5	9	7	11	2
Cap, veh/h	189	98	98	292	23	162	618	937	21	563	929	39
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.57	0.55	0.06	0.61	0.59
Sat Flow, veh/h	1250	790	790	1302	182	1306	1641	1638	37	1576	1523	65
Grp Volume(v), veh/h	6	0	22	11	0	139	22	0	494	94	0	417
Grp Sat Flow(s),veh/h/ln	1250	0	1580	1302	0	1488	1641	0	1675	1576	0	1588
Q Serve(g_s), s	0.2	0.0	0.6	0.4	0.0	4.4	0.3	0.0	8.8	1.2	0.0	6.8
Cycle Q Clear(g_c), s	4.6	0.0	0.6	1.0	0.0	4.4	0.3	0.0	8.8	1.2	0.0	6.8
Prop In Lane	1.00		0.50	1.00		0.88	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	189	0	196	292	0	184	618	0	958	563	0	969
V/C Ratio(X)	0.03	0.00	0.11	0.04	0.00	0.75	0.04	0.00	0.52	0.17	0.00	0.43
Avail Cap(c_a), veh/h	570	0	678	689	0	638	885	0	958	760	0	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	19.1	19.5	0.0	20.7	4.8	0.0	6.4	4.8	0.0	5.1
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.0	0.0	4.6	0.0	0.0	2.0	0.1	0.0	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.1	0.0	1.6	0.1	0.0	2.6	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.0	0.0	19.2	19.5	0.0	25.4	4.8	0.0	8.3	4.9	0.0	6.5
LnGrp LOS	C		B	B		C	A		A	A		A
Approach Vol, veh/h	28			150			516			511		
Approach Delay, s/veh	20.1			24.9			8.2			6.2		
Approach LOS	C			C			A			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	32.0		10.1	5.0	33.9		10.1				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	9.0	27.0		21.0	9.0	27.0		21.0				
Max Q Clear Time (g_c+I1), s	3.2	0.0		6.6	2.3	0.0		3.0				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				9.7								
HCM 6th LOS				A								

2040 A.M. Peak Hour

Build with planned extensions, Traffic Signal

Page 1

HCM 6th Signalized Intersection Summary

2: 362nd Dr & Dubarko Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	15	20	20	10	115	10	530	50	190	605	5
Future Volume (veh/h)	15	15	20	20	10	115	10	530	50	190	605	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1723	1750	1723	1709	1723	1682	1682	1709	1695	1723
Adj Flow Rate, veh/h	16	16	22	22	11	125	11	576	54	207	658	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	2	3	2	5	5	3	4	2
Cap, veh/h	196	87	120	294	16	180	437	824	77	480	1047	8
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.01	0.54	0.52	0.09	0.62	0.60
Sat Flow, veh/h	1253	657	903	1391	120	1359	1641	1514	142	1628	1680	13
Grp Volume(v), veh/h	16	0	38	22	0	136	11	0	630	207	0	663
Grp Sat Flow(s),veh/h/ln	1253	0	1560	1391	0	1478	1641	0	1656	1628	0	1693
Q Serve(g_s), s	0.6	0.0	1.1	0.7	0.0	4.5	0.2	0.0	14.4	2.6	0.0	12.5
Cycle Q Clear(g_c), s	5.2	0.0	1.1	1.8	0.0	4.5	0.2	0.0	14.4	2.6	0.0	12.5
Prop In Lane	1.00		0.58	1.00		0.92	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	196	0	207	294	0	196	437	0	901	480	0	1055
V/C Ratio(X)	0.08	0.00	0.18	0.07	0.00	0.69	0.03	0.00	0.70	0.43	0.00	0.63
Avail Cap(c_a), veh/h	541	0	637	678	0	603	705	0	901	618	0	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	19.8	20.7	0.0	21.3	6.3	0.0	8.7	7.1	0.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.1	0.0	3.3	0.0	0.0	4.5	0.5	0.0	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	0.2	0.0	1.6	0.0	0.0	4.8	0.5	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.9	0.0	20.2	20.7	0.0	24.6	6.3	0.0	13.2	7.5	0.0	8.9
LnGrp LOS	C		C	C		C	A		B	A		A
Approach Vol, veh/h		54			158			641			870	
Approach Delay, s/veh		21.3			24.0			13.0			8.5	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	32.0		10.8	4.6	36.0		10.8				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	9.0	27.0		21.0	9.0	27.0		21.0				
Max Q Clear Time (g_c+I1), s	4.6	0.0		7.2	2.2	0.0		3.8				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			12.0									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												

2040 P.M. Peak Hour

Build with planned extensions, Traffic Signal

Page 1

SECTION 10: CAPACITY ANALYSIS (HCM) RESULTS

ID	Software/Method	Intersection	Control Type	Mobility Target	LOS	Delay	V/C Ratio	Over Target	Critical Movement	Scenario
2	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/B	9/13	0.12/0.20	FALSE	SB/WB	2026 AM Peak
4	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/C	9/17	0.35/0.26	FALSE	SB/WB	2026 PM Peak
12	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/B	9/13	0.15/0.19	FALSE	SB/WB	2030 AM Peak
14	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/C	9/19	0.36/0.31	FALSE	SB/WB	2030 PM Peak
22	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/B	9/15	0.24/0.26	FALSE	SB/WB	2040 AM Peak
24	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/D	10/32	0.39/0.54	FALSE	SB/WB	2040 PM Peak
32	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/E	9/40	0.25/0.08	TRUE	SB/EB	2040 AM Peak with planned extensions
34	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/F	10/170	0.39/0.45	TRUE	SB/EB	2040 PM Peak with planned extensions
35	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/E	9/40	0.25/0.08	TRUE	SB/EB	2040 AM Peak with planned extensions, NB RT Lane
36	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/F	10/170	0.39/0.45	TRUE	SB/EB	2040 PM Peak with planned extensions, NB RT Lane
37	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/E	9/40	0.25/0.08	TRUE	SB/EB	2040 AM Peak with planned extensions, WB LT Lane
38	Synchro HCM 6th Stop Control	362nd Dr & Dubarko Rd	TWSC	LOS D	A/F	10/170	0.39/0.45	TRUE	SB/EB	2040 PM Peak with planned extensions, WB LT Lane
39	Synchro HCM 6th Signal	362nd Dr & Dubarko Rd	Signal	LOS D	A	10	0.54	FALSE	N/A	2040 AM Peak with planned extensions, Traffic Signal
40	Synchro HCM 6th Signal	362nd Dr & Dubarko Rd	Signal	LOS D	B	12	0.72	FALSE	N/A	2040 PM Peak with planned extensions, Traffic Signal

Intersection ID and Name	use dropdown	Control Type	1	3	4	5	6	7	8	9	10	11	12	13	14	Outputs	NB	SB	EB	WB
2: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		2: 362nd Dr & Dubarko Rd V/C	0.25	0.12	0.00	0.20
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		2: 362nd Dr & Dubarko Rd Delay	0.00	8.50	0.00	12.90
		Mvmt Flow	0	0	0	12	0	102	0	434	12	54	211	0		2: 362nd Dr & Dubarko Rd LOS	A	A	A	B
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	2.3			
		Minor (or AWSC) V/C				0.20				0.26	0.26	0.05	0.12							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.20	0.05	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	12.9	8.5	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	B	A	-	0	0	0	0	0	0	0						
4: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		4: 362nd Dr & Dubarko Rd V/C	0.25	0.35	0.00	0.26
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		4: 362nd Dr & Dubarko Rd Delay	0.00	8.90	0.00	17.00
		Mvmt Flow	0	0	0	16	0	87	0	380	49	190	587	0		4: 362nd Dr & Dubarko Rd LOS	A	A	A	C
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	2.6			
		Minor (or AWSC) V/C				0.26				0.25	0.25	0.17	0.35							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.26	0.17	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	17.0	8.9	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	C	A	-	0	0	0	0	0	0	0						
12: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		12: 362nd Dr & Dubarko Rd V/C	0.25	0.15	0.00	0.19
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		12: 362nd Dr & Dubarko Rd Delay	0.00	8.50	0.00	12.80
		Mvmt Flow	0	0	0	11	0	100	0	422	11	61	256	0		12: 362nd Dr & Dubarko Rd LOS	A	A	A	B
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	2.2			
		Minor (or AWSC) V/C				0.19				0.25	0.25	0.06	0.15							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.19	0.06	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	12.8	8.5	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	B	A	-	0	0	0	0	0	0	0						
14: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		14: 362nd Dr & Dubarko Rd V/C	0.29	0.36	0.00	0.31
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		14: 362nd Dr & Dubarko Rd Delay	0.00	9.10	0.00	18.80
		Mvmt Flow	0	0	0	16	0	98	0	440	49	196	609	0		14: 362nd Dr & Dubarko Rd LOS	A	A	A	C
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	2.8			
		Minor (or AWSC) V/C				0.31				0.29	0.29	0.18	0.36							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.31	0.18	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	18.8	9.1	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	C	A	-	0	0	0	0	0	0	0						
22: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		22: 362nd Dr & Dubarko Rd V/C	0.29	0.24	0.00	0.26
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		22: 362nd Dr & Dubarko Rd Delay	0.00	8.80	0.00	14.60
		Mvmt Flow	0	0	0	11	0	122	0	483	11	94	400	0		22: 362nd Dr & Dubarko Rd LOS	A	A	A	B
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	2.2			
		Minor (or AWSC) V/C				0.26				0.29	0.29	0.09	0.24							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.26	0.09	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	14.6	8.8	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	B	A	-	0	0	0	0	0	0	0						
24: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		24: 362nd Dr & Dubarko Rd V/C	0.37	0.39	0.00	0.54
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		24: 362nd Dr & Dubarko Rd Delay	0.00	10.00	0.00	32.20
		Mvmt Flow	0	0	0	22	0	130	0	582	54	217	668	0		24: 362nd Dr & Dubarko Rd LOS	A	A	A	D
		Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R		Int Delay, s/veh	4.2			
		Minor (or AWSC) V/C				0.54				0.37	0.37	0.23	0.39							
		Movement	WBL	WBR	NBT	NBR	SBL	SBT	0	0	0	0	0	0						
		Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0	0						
		HCM Lane V/C Ratio	-	-	0.54	0.23	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	-	-	32.2	10.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
		HCM Lane LOS	-	-	D	A	-	0	0	0	0	0	0	0						
32: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		32: 362nd Dr & Dubarko Rd V/C	0.29	0.25	0.08	0.38
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		32: 362nd Dr & Dubarko Rd Delay	0.20	8.20	39.80	19.50
		Mvmt Flow	1	1	0	1	0	1	0	1	0	1	1	0		32: 362nd Dr & Dubarko Rd LOS	A	A	E	C
		Major V/C Lanes	6	11	11	11	17	122	22	483	11	94	400	17		Int Delay, s/veh	3.8			
		Minor (or AWSC) V/C	0.05	0.01	0.01	0.08	0.08	0.08	0.02	0.29	0.29	0.09	0.25	0.25						
		Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR	0	0	0						
		HCM Lane V/C Ratio	0.02	-	-	0.05	0.08	0.38	0.09	-	-	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	8.2	-	-	39.8	18.9	19.5	8.8	-	-	0.0	0.0	0.0						
		HCM Lane LOS	A	-	-	E	C	C	A	-	-	-	0	0						
34: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		34: 362nd Dr & Dubarko Rd V/C	0.37	0.39	0.45	0.88
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		34: 362nd Dr & Dubarko Rd Delay	0.20	8.90	170.40	90.10
		Mvmt Flow	1	1	0	0	1	0	1	1	0	1	1	0		34: 362nd Dr & Dubarko Rd LOS	A	A	F	F
		Major V/C Lanes	16	16	22	22	11	125	11	576	54	207	658	5		Int Delay, s/veh	12			
		Minor (or AWSC) V/C	0.02	0.02	0.02	0.08	0.08	0.08	0.01	0.37	0.37	0.22	0.39	0.39						
		Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
		Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR	0	0	0						
		HCM Lane V/C Ratio	0.01	-	-	0.45	0.29	0.88	0.22	-	-	0.00	0.00	0.00						
		HCM Ctrl Dly (s/v)	8.9	-	-	170.4	42.6	90.1	9.9	-	-	0.0	0.0	0.0						
		HCM Lane LOS	A	-	-	F	E	F	A	-	-	-	0	0						
35: 362nd Dr & Dubarko Rd	TWSC	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		35: 362nd Dr & Dubarko Rd V/C	0.28	0.25	0.08	0.38
		Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		35: 362nd Dr & Dubarko Rd Delay	0.20	8.20	39.80	19.50
		Mvmt Flow	1	1	0	1	0	1	0	1	0	1	1	0		35: 362nd Dr & Dubarko Rd LOS	A	A	E	C
		Major V/C Lanes	6	11	11	11	17	122	22	483	11	94	400	17		Int Delay, s/veh	3.8			
		Minor (or AWSC) V/C	0.05	0.01	0.01	0.08	0.08	0.08	0.02	0.28	0.28	0.09	0.25	0.25						
		Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
		Minor Lane/Major Mvmt	NBL	NBT																

Intersection ID and Name	1														Critical Flow Calculator										Overlap Critical Flow Calculator										Intersection V/C	HCM Control Delay, s/veh	HCM LOS
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	417	Protected	WBL/EBT	EBL/WBT	NBL/SBT	SBL/NBT	V/S E/W	V/S N/S		NBR OV	NB OV V/S	SBR OV	SB OV V/S	EBR OV	EB OV V/S	WBR OV	WB OV V/S	V/S Overlap							
39: 362nd Dr & Dubarke Rd	Grp Volume(s), veh/h	0	0	22	11	0	139	22	0	496	94	0	417	Protected	0.02	0.10	0.28	0.35			Right Turn Overlap	No	0.00	No	0.00	No	0.00	No	0.00	No	0.00						
	Grp Sat Flow(s), veh/h	1250	0	1580	1302	0	1488	1641	0	1675	1576	0	1588	Permitted or Split	0.01	0.09	0.26	0.29			Right Turn Approach Phasing	Protected	0.06	Protected	0.06	Permitted	0.00	Permitted	0.00	No OV							
	V/S	0.00	0.00	0.01	0.01	0.00	0.09	0.01	0.00	0.29	0.06	0.00	0.25	selected phasing	0.01	0.09	0.28	0.35	0.09	0.35	Overlap Approach Phasing	Permitted	0.09	Permitted	0.09	Protected	0.29	Protected	0.29	N/A		0.54	18	A			
40: 362nd Dr & Dubarke Rd	Grp Volume(s), veh/h	16	0	38	22	0	136	11	0	636	207	0	663	Protected	0.04	0.10	0.40	0.51			Right Turn Overlap	No	0.00	No	0.00	No	0.00	No	0.00	No	0.00						
	Grp Sat Flow(s), veh/h	1253	0	1560	1391	0	1478	1641	0	1656	1628	0	1693	Permitted or Split	0.02	0.09	0.39	0.38			Right Turn Approach Phasing	Protected	0.13	Protected	0.13	Permitted	0.00	Permitted	0.00	No OV							
	V/S	0.01	0.00	0.02	0.02	0.00	0.09	0.01	0.00	0.38	0.13	0.00	0.39	selected phasing	0.02	0.09	0.40	0.51	0.09	0.51	Overlap Approach Phasing	Permitted	0.09	Permitted	0.09	Protected	0.39	Protected	0.39	N/A		0.72	12	B			



CITY COUNCIL MEETING

Monday, July 20, 2026 at 6:00 PM
Sandy City Hall and via Zoom

MINUTES

COUNCIL WORK SESSION – 6:00 PM

1. PGE Presentation

JD Podlesnik and Heidi Bell with PGE were present to deliver the presentation slides included in the meeting packet and answer questions from the Council. Discussion related to the following topics:

- Details of the early fault detection system, including trip out lines and sensors that will be installed
- Details of the FITNES program and possible replacement of power poles within the city
- Suggestion from the Council that PGE needs to address poles that impair ADA access as part of their inspection process
- Discussion of the smart thermostat program and opportunities to reduce peak electricity demand while saving families money
- Discussion related to AntFarm's assistance in clearing vegetation
- Opportunities to serve on community advisory councils
- Discussion related to data centers and HB 3546, particularly related to new special customer categories for data centers and rates for high demand users; note that the legislation only applies to certain utilities in the state
- Bill assistance program details
- Recap of community outreach during Music Fair and Feast
- Emphasis on the importance of PGE's support for Winterfest
- Discussion related to PSPS power shutoff protocols; note that Sandy neighborhoods are now isolated from more rural sections of the grid; note that critical City infrastructure will be prioritized for reenergization by PGE

SURA MEETING (separate agenda) – 6:30 PM

REGULAR COUNCIL MEETING – 7:00 PM

PLEDGE OF ALLEGIANCE

ROLL CALL

PRESENT

Mayor Kathleen Walker
Council President Don Hokanson
Councilor Laurie Smallwood

Councilor Rich Sheldon
Councilor Kristina Ramseyer

ABSENT

Councilor Lindy Hanley

CHANGES TO THE AGENDA

(none)

PUBLIC COMMENT (3-minute limit)

(none)

RESPONSE TO PREVIOUS COMMENTS

(none)

CONSENT AGENDA

2. City Council Minutes: June 15, 2026
3. IGA Revision: Clackamas County Business ISP Services

MOTION: Adopt the Consent Agenda

Motion made by Councilor Sheldon, Seconded by Councilor Ramseyer.

Voting Yea: Mayor Walker, Council President Hokanson, Councilor Smallwood, Councilor Sheldon, Councilor Ramseyer

MOTION CARRIED: 5-0

NEW BUSINESS

4. Declaration of City Council Vacancy: Seat #1

The Deputy City Manager summarized the staff report in the meeting packet. The Council agreed with staff's suggestion that any appointment to the vacant seat should wait until the results of the 2026 election are known.

MOTION: Due to the recent resignation of Chris Mayton, I move to declare Sandy City Council Seat #1 to be vacant, effective immediately

Motion made by Councilor Sheldon, Seconded by Councilor Ramseyer.

Voting Yea: Mayor Walker, Council President Hokanson, Councilor Smallwood, Councilor Sheldon, Councilor Ramseyer

MOTION CARRIED: 5-0

5. Contract Award: 2026 Pavement Maintenance

The Public Works Director summarized the staff report in the meeting packet, and the City Manager noted the intent to gather more advance input on paving from the Council in the future. Discussion related to the following topics:

- Discussion related to the pavement budget and future plans for maintaining the city's pavement condition index (PCI)
- Concerns about previous pavement contractors used; emphasis on the need to clearly communicate with residents in cases where crews will return to a street section to finish work after initial applications have had a chance to cure
- Further explanation of the OCI process
- Suggestions to communicate with residents to explain how the City decides which streets to pave, and considerations regarding addressing the most distressed sections of pavement and keeping other higher quality sections from deteriorating into distressed status

MOTION: Accept the low bid of \$561,990.50 with Knife River Corporation, NW for the 2026 Pavement Maintenance Program Construction Contract, and authorize the City Manager to enter into an agreement with Knife River Corporation, NW to complete this project

Motion made by Councilor Sheldon, Seconded by Council President Hokanson.

Voting Yea: Mayor Walker, Council President Hokanson, Councilor Smallwood, Councilor Sheldon, Councilor Ramseyer

MOTION CARRIED: 5-0

6. Discussion: Senate Bill 1561 - Nonconforming Development

Esin Onart and Josh Soper with BEH both provided summary remarks about HB 1561 and the potential implications on development within the city. It was noted that the definition of "involuntary event" is not defined in the statute, so the law's application to a house fire that destroys a structure is unclear and will likely be determined through the court system. The effects of the City's development moratorium were also considered, and it was noted that the legislation leaves the City without options other than to adopt the new provisions.

REPORT FROM THE CITY MANAGER

- Mayor Walker, Councilor Sheldon, and Councilor Ramseyer indicated their interest in attending the upcoming LOC Annual Conference
- Update on City Hall renovation progress
- Note that the Mayor will need to select a new liaison to the Parks and Trails Advisory Board
- Note that utility bills with new rates have been sent to customers
- Update on the Meinig Park renovations
- Thanks to Clackamas County Bank for sponsoring the fireworks show

- Discussion related to chairs placed on Pioneer Blvd sidewalks in advance of the Mt Festival parade
 - Concern about legal consequences should the City be challenged by those wishing to preserve ADA access
 - Respect for the tradition of leaving chairs out to reserve parade viewing space
 - Appreciation for the small-town charm of the tradition
 - Concern that allowing the chairs could undermine the City's ability to enforce other right-of-way regulations

Ultimately there was no clear consensus among the Council. Suggestions were made to potentially find a compromise where chairs would be allowed but roping off sidewalk areas would not, and only within a certain number of days before the event. It was agreed the issue should be revisited at a later date.

COMMITTEE / COUNCIL REPORTS

Council President Hokanson

- Update and discussion related to recent SandyNet service expansion planning

Councilor Ramseyer

- Praise and appreciation for the Mt Festival

Councilor Sheldon

- Note that C-4 was canceled in July
- Praise and appreciation for the Mt Festival
- Suggestion that instead of the usual thorough survey about LOC legislative policy priorities, Councilors should simply select their top five

Councilor Smallwood

- Concerns about homeless camping near Tickle Creek; discussion as to whether the camping is on private property; note that camping in a shed is not allowed, nor is leaving abandoned shopping carts on property

Mayor Walker

- Praise and appreciation for the Mt Festival; thanks to Councilor Hanley for her efforts
- Reminder to staff to address the Zipl facility noise complaint as soon as possible
- Discussion regarding whether Sandy should join other cities in the county in opposing the sale of flavored tobacco in an effort to protect children; suggestion to bring the matter to the next meeting
- Encouragement to support the LOC proposed policy on water reuse
- Suggestion to patrol Tickle Creek in evenings to prevent camping
- Reminder that water reuse experts are needed on the City's consulting team

STAFF UPDATES

Monthly Reports: <https://reports.cityofsandy.com/>

ADJOURN

EXECUTIVE SESSION - The City Council met in executive session pursuant to ORS 192.660(2)(h)

DRAFT



STAFF REPORT

Item # 4.

Meeting Type: City Council
Meeting Date: August 3, 2026
From: Kelly O'Neill Jr., Development Services Director
Josh Soper, City Attorney
Subject: PUBLIC HEARING: Ordinance 2026-17 - Senate Bill 1561 Nonconforming Development

DECISION TO BE MADE:

Hold a legislative public hearing to discuss proposed code amendments in Chapter 17.08 of the Sandy Municipal Code related to Senate Bill 1561 and adopt Ordinance No. 2026-17.

APPLICABLE COUNCIL GOAL:

- **Goal 6.9:** Ensure compliance with state legislative and regulatory mandates through code amendments that are responsible and reflect the community's values.

BACKGROUND / CONTEXT:

In 2026, the Oregon legislature adopted Senate Bill 1561, essentially extending and expanding a law that was written for the 2020 fires to apply to all natural disasters. Specifically, it requires a city or county to approve an application, without conditions, to "restore or replace" a dwelling that is "damaged or destroyed by a natural or involuntary event," if the former dwelling meets certain statutory requirements.

Further, the new dwelling must (1) not exceed the former dwelling floor area by more than 25%, (2) be adequately served by utilities, (3) be located wholly or partially within the footprint of the former dwelling, and (4) comply with building codes that were in effect when the building was damaged or destroyed.

An application under this bill must be filed within three years following the event, and the construction of the new dwelling must commence no later than four years after application approval.

KEY CONSIDERATIONS / ANALYSIS:

City staff were advised by the City Attorney that compliance with Senate Bill 1561 requirements could be accomplished by adding a new section to Chapter 17.08 Nonconforming Development in Title 17 of the Sandy Municipal Code. The primary modifications to Chapter 17.08 are included in a new section titled "Sec. 17.08.50. Statutorily Required Restoration or Replacement." With these revisions, the City would be in compliance with the requirements on Senate Bill 1561.

The Planning Commission held a public hearing regarding Senate Bill 1561 on June 22, 2026, and recommended that the City Council adopt the code modifications. [On July 20, 2026](#), the City Attorney provided an overview of Senate Bill 1561 to the City Council.

Unfortunately, the City Council cannot modify any of the proposed code language and still achieve compliance with the new state statute.

BUDGET IMPACT:

Staff and City Attorney expenses that have already been incurred.

RECOMMENDATION:

Hold a legislative public hearing to discuss proposed code amendments in Chapter 17.08 of the Sandy Municipal Code related to Senate Bill 1561 and adopt Ordinance No. 2026-17.

SUGGESTED MOTION:

"I move to approve the first reading of Ordinance 2026-17"

LIST OF ATTACHMENTS / EXHIBITS:

- Draft Ordinance No. 2026-17
 - Exhibit A. Chapter 17.08 modifications
 - Exhibit B. Findings

AN ORDINANCE UPDATING THE CITY'S REGULATIONS ON NONCONFORMING DEVELOPMENT IN SANDY MUNICIPAL CODE CHAPTER 17.08

WHEREAS, in 2026, the Oregon legislature adopted SB 1561 relating to restoration of dwellings damaged by involuntary causes such as wildfires and other natural occurring events; and

WHEREAS, SB 1561 requires local governments to approve restoration or replacement of dwellings rendered uninhabitable under an alternative process that is not a land use decision; and

WHEREAS, with adoption of SB 1561 the City Attorney reviewed Chapter 17.08 Nonconforming Development in Title 17 of the Sandy Municipal Code and identified multiple sections that were not aligned with ORS 215.213, 215.283, and 215.755; and

WHEREAS, with the proposed revisions to Chapter 17.08, the City would be in compliance with the requirements of SB 1561 and the modified Oregon Revised Statutes; and

WHEREAS, the Planning Commission held a public hearing on June 22, 2026, allowing the public an opportunity to provide testimony on the proposed code amendments; and

WHEREAS, the City Council held a public hearing on August 3, 2026, allowing the public an opportunity to provide testimony on the proposed code amendments.

NOW, THEREFORE, THE CITY OF SANDY ORDAINS AS FOLLOWS:

Section 1. Sandy Municipal Code Chapter 17.08 is hereby amended as detailed in Exhibit A, attached and incorporated by reference.

Section 2. In support of this ordinance, the City Council adopts the findings and conclusions attached as Exhibit B.

Section 3. This Ordinance shall become effective 30 days from the date of adoption.

This ordinance is adopted by the City Council of the City of Sandy on this 3rd day of August 2026.

Kathleen Walker, Mayor

ATTEST:

Jeffrey Aprati, City Recorder

Title 17 - DEVELOPMENT CODE
CHAPTER 17.08 NONCONFORMING DEVELOPMENT

CHAPTER 17.08 NONCONFORMING DEVELOPMENT¹

Sec. 17.08.00. Intent.

These regulations are intended to permit nonconforming uses and structures to continue, but not to encourage their perpetuation. The regulation of nonconforming development is intended to bring development into conformance with this Code and the Comprehensive Plan.

As used in this chapter, nonconforming development includes nonconforming structures and nonconforming uses. A nonconforming structure is a structure that does not fully comply with the zoning district provisions because of setbacks, building height, off-street parking, or with some other standard of the district.

Within the zoning districts established by this Code, development may exist that was lawful at the time it began, but would be prohibited in the future under the terms of this Code or future amendments.

In order to avoid undue hardship, nothing in this Code shall be deemed to require a change in the plans, construction, or designated use of any building on which actual substantial construction was lawfully begun prior to the effective date of adoption or amendment of this Code and upon which actual building construction has been carried on diligently. Construction is considered to have started if excavation, demolition, or removal of an existing building has begun in preparation of rebuilding, and a building permit has been acquired, prior to the effective date of adoption or amendment of this Code.

(Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)

Sec. 17.08.10. General provisions.

- A. *Alterations of a Nonconforming Use.* No building, structure, or land area devoted to a nonconforming use shall be enlarged, extended, reconstructed, moved, or structurally altered unless such development conforms to the provisions of this Code. Nothing in this chapter shall be construed to prohibit normal repair, maintenance, and nonstructural alterations to such development, nor the alteration, strengthening, or restoration to safe condition as may be required by law.
- B. *Alteration of a Nonconforming Structure.* Where the use of a structure is permitted by the applicable development district but the structure is nonconforming, an alteration, expansion, enlargement, extension, reconstruction, or relocation may be administratively approved if the improvement, evaluated separately from the existing structure, would be in compliance, and is not within a vision clearance area, [or the structure otherwise complies with Section 17.08.50.](#)

~~(Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)~~

Sec. 17.08.20. Discontinuance of a nonconforming use.

Whenever a nonconforming use is discontinued for more than one year, further use shall be in conformity with the provisions of this Code. For purposes of this Code, rental payments or lease payments and taxes shall not

¹Editor's note(s)—Pre-republication, this chapter was last revised by Ord. No. 2013-11, effective December 18, 2013. Any amendments occurring post-republication have a history note in parenthesis at the bottom of the amended section.

be considered a continued use. "Discontinued" shall mean nonuse and shall not require a determination of the voluntary or involuntary nature of the discontinuance or the intent to resume the nonconforming use.

(Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)

Sec. 17.08.30. Damage to a nonconforming use.

Except as provided in Section 17.08.50, if a structure with a nonconforming use is damaged by any means to an extent exceeding 80 percent of its most recent, pre-damage assessed valuation as indicated by the Clackamas County Assessor's office, any future development on the site shall conform to the requirements of the zoning district in which it is located.

~~(Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)~~

Sec. 17.08.40. Reclassification to conditional development.

Whenever a nonconforming use is classified as a use that may be permitted conditionally, it shall be reclassified as conforming upon receipt of an approved conditional use permit in accordance with Chapter 17.68.

(Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)

Sec. 17.08.50. Statutorily Required Restoration or Replacement.

A. As required by state law, if a nonconforming dwelling meets the following criteria, then the City shall approve an application to restore or replace it:

1. The former dwelling is damaged or destroyed by a natural or involuntary event; and
2. The former dwelling had intact exterior walls and roof structure; and
3. The former dwelling had indoor plumbing consisting of a kitchen sink, toilet, and bathing facilities connected to a sanitary waste disposal system; and
4. The former dwelling had interior wiring for interior lights; and
5. The former dwelling had a heating system; and
6. Either:
 - a. The former dwelling was authorized by building permits or by other regulatory approval process by the appropriate authority; or
 - b. The former dwelling was assessed as a residential dwelling for purposes of ad valorem taxation for the tax year beginning on July 1, 10 years before the date of the application, and is not subject to unresolved enforcement proceedings challenging the lawfulness of the dwelling; and
7. The proposed dwelling will not exceed the floor area of the former dwelling by more than twenty-five percent; and
8. The proposed dwelling will be adequately served by water, sanitation and roads; and
9. The proposed dwelling will be located wholly or partially within the footprint of the former dwelling unless necessary to comply with local flood regulations or to avoid a natural hazard area, in which case the applicant may choose a suitable location on the same lot or parcel; and
10. The proposed dwelling will comply with applicable building codes that were in effect on the date the dwelling was damaged or destroyed.

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(Supp. No. 5, Update 4)

- B. The applicant shall remove the damaged dwelling, demolish the damaged dwelling, incorporate the damaged dwelling into the replacement dwelling, or convert the damaged dwelling into a nonresidential use, within three months after the replacement dwelling is certified for occupancy.
- C. The applicant shall file an application under this section within three years following the date of the natural or involuntary event.
- D. The applicant shall commence construction of a replacement dwelling approved under this section no later than four years after approval of the application under this section.
- E. The City's findings in approving an application under this section are not land use decisions and are subject to review only under ORS 34.010 to 34.100. Notice of the application and decision shall be provided in accordance with Section 17.22.10. The City's findings and conclusions are entitled to deference if there is any evidence to support the findings.

Sec. 17.08.650. Exceptions.

- A. *Multi-Family Dwellings, Office Uses, Automotive Fueling Stations, Car Washes, and Retail Auto Dealerships in the C-1 Zoning District.*
 - 1. Multi-family dwellings in existence as of September 30, 1997, shall not be classified as nonconforming development. However, any redevelopment or expansion shall require compliance with current landscaping, access and parking standards and shall be processed as a conditional use permit.
 - 2. Office uses in existence as of September 30, 1997, shall not be classified as nonconforming development. However, any redevelopment or expansion shall require compliance with current landscaping, access and parking standards and shall be processed as a conditional use permit.
 - 3. Automotive fueling stations and car washes in existence as of September 30, 1997, shall not be classified as nonconforming development. However, any redevelopment or expansion shall require compliance with current landscaping, access and parking standards and shall be processed as a conditional use permit.
 - 4. Retail auto dealerships in existence as of September 30, 1997, shall not be classified as nonconforming development. Redevelopment of the existing dealership shall require compliance with current landscaping, lighting and access requirements. Expansion of an existing dealership shall be permitted only on property contiguous to the existing auto dealership and in the same ownership as the auto dealership on the effective date of the ordinance from which this chapter is derived. Expansion shall be processed as a conditional use permit. If the existing auto dealership building is proposed to be altered or if a new building is proposed to be constructed on the expansion property, the entire dealership shall be required to conform to current applicable criteria and standards in the Sandy Development Code. If the expansion is proposed to include only parking for the display of automobiles, landscaping, light standards and signage, only the expansion property shall be required to conform to current applicable criteria and standards in the Sandy Development Code.
- B. *Self-Service Storage in the C-1, C-2, and I-1 Zoning Districts.*
 - 1. Self-service storage facilities in the C-1 or C-2 zoning districts in existence as of February 16, 2023, shall not be classified as nonconforming development. Permitted expansion of an existing self-service storage facility shall be limited to an increase in building footprint of 20 percent and shall be permitted only on the subject property.
 - 2. Self-service storage facilities in the I-1 zoning district in existence as of February 16, 2023, shall not be classified as nonconforming development. Expansion of an existing self-service storage facility shall be permitted only on the same property or on property contiguous to and in the same ownership as the existing self-service storage facility as of February 16, 2023. If the existing self-service storage building

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is proposed to be altered or expanded on the subject property or if a new building is proposed to be constructed on the subject property, the application shall be processed as a conditional use permit.

- C. *Nonconforming Duplexes.* Where a duplex is a nonconforming building type in the zoning district where it is located and has been damaged as described in 17.08.30 above, a duplex may be reconstructed provided such reconstruction commences within one year of the damage and complies with required development standards.
- D. *Nonconforming Lots.* An existing legal lot may not meet the lot size requirements of the zoning district in which it is located. Such a lot may be occupied by a use permitted in the district. If, however, the lot is smaller than the size required in its district, residential use shall be limited to a single detached dwelling or duplex or to the number of dwelling units consistent with density requirements of the district. Also, other applicable requirements of the zoning district must be met.
- E. *Street and Drainageway Dedications.* The act of conveyance to or appropriation by the City for street, drainage, or other public purposes shall not in itself render as nonconforming the use of land, structure, or other improvement maintained upon a lot.
- F. *Residential Uses.* Any residential dwelling permitted prior to adoption of this Code, but which is no longer allowed as a new use, may be modified or enlarged, provided it complies with required development standards of the district.
- G. *Legally Required Alterations.* Alterations of any nonconforming use shall be permitted when necessary to comply with any lawful requirement for alteration in the use.

(Ord. No. 2000-02, 2000; Ord. No. 2022-26, § 1(Exh. A), 1-17-2023; Ord. No. 2024-01, § 1(Exh. A), 2-20-2024)

Ordinance 2026-17 Findings

Goal 1: Citizen Involvement

This goal calls for "the opportunity for citizens to be involved in all phases of the planning process."

Findings: The City held public hearings before both the Planning Commission and the City Council to afford the public the opportunity to be involved. Notice of the two hearings was published in the Sandy Post, posted on the City's website, and on the City Facebook account. Notice was provided to the Department of Land Conservation and Development on May 15, 2026.

Conclusion: *Goal 1 Public Involvement requirements are met.*

Goal 2: Land Use

This goal requires each local government in Oregon to have and follow a comprehensive land use plan and implementing regulations. Cities and counties must build their comprehensive plans on a factual basis and follow their plan when making decisions on appropriate zoning.

Findings: The proposed code amendments provide the development community with a clear understanding of an approval process that was previously not aligned with ORS 215.213, 215.283, and 215.755 for dwellings damaged by involuntary causes. These amendments will update the local municipal code to align with ORS requirements requiring local governments to approve restoration or replacement of dwellings rendered uninhabitable under an alternative process that is not a land use decision. With approval of these amendments the City will now be in compliance with SB 1561.

Conclusion: *Goal 2 Land Use requirements are met.*

Goal 10: Housing

This goal calls for an adequate housing supply to ensure opportunity for and promotion of the provision of adequate numbers of needed housing units and the efficient use of land within a city's urban growth boundary. Additionally, this goal aims to promote safe, accessible, and affordable housing options for all Oregonians in their communities of choice, in alignment with the Affirmatively Furthering Fair Housing mandate.

Findings: SB 1561 introduces new provisions for the purpose of addressing issues surrounding the effects of wildfires and other natural occurring events. These amendments update the City's regulations to allow an owner a separate path to restore a destroyed home. The amendments will comply with ORS 215.213, 215.283, and 215.755, and associated administrative rules, which impose the right to rebuild a non-conforming dwelling where prior to these amendments it would not have been allowed. In addition, these amendments provide a process to rebuild and maintain housing stock during emergencies that are declared by the United States Federal Government, the State of Oregon, or the City of Sandy.

Conclusion: *Goal 10 Housing requirements are met.*



STAFF REPORT

Item # 5.

Meeting Type: City Council
Meeting Date: August 3, 2026
From: Kelly O'Neill Jr., Development Services Director
Subject: PUBLIC HEARING: Ordinance 2026-10 - Chapter 17.74 Temporary Uses / Structures

DECISION TO BE MADE:

Hold a legislative public hearing to discuss proposed development code amendments for temporary uses/structures in Chapter 17.74 of the Sandy Municipal Code and adopt Ordinance No. 2026-10.

APPLICABLE COUNCIL GOAL:

- **Goal 6.10:** Continue to improve and refine code language, policies, and practices related to code enforcement.

BACKGROUND / CONTEXT:

In 2023, there was a kitchen fire at the Sandy Family Restaurant which also serves food for Ria's Bar. Staff worked with the property owner to quickly approve and install a food cart to act as the kitchen for Ria's Bar while Sandy Family Restaurant was remodeled. During this time, City Administration asked for staff to work on updates to the temporary use and temporary structure code in Section 17.74.60. The existing temporary use and temporary structure code is very short and doesn't adequately cover many situations. The proposed code modifications incorporate standards that are commonly integrated into the findings and conditions for temporary uses and structures.

Meeting History:

- November 23, 2015: The Planning Commission held a [work session](#) to discuss municipal code amendments, including fences and retaining walls.
- November 27, 2023: The Planning Commission held a [work session](#) to discuss municipal code amendments. The work session included prioritization of code amendments, which included input from the Commission that code amendments from the City Council and City Administration should be completed first.
- On June 10, 2024: The Planning Commission held a [work session](#) to discuss code amendments for fences/retaining walls and temporary uses/structures.
- On May 27, 2025: The Planning Commission held a [second work session](#) to discuss the code amendments for fences/retaining walls and temporary uses/structures.
- On March 16, 2026: The City Council held a [work session](#) to discuss code amendments for fences/retaining walls and temporary uses/structures.

- On June 22, 2026: The Planning Commission held a [public hearing](#) to discuss the code amendments for temporary uses/structures, recommended one edit for temporary uses on City owned property, and recommended the City Council adopt Ordinance No. 2026-10.

KEY CONSIDERATIONS / ANALYSIS:

The Development Services Department routinely issues temporary use permits for events, such as the Mount Hood Farmers Market or the Sandy Invitational Chainsaw Carving Event. Temporary structure permits are more routinely issued for construction trailers and temporary storage.

Temporary Uses

The primary edits are related to the following:

- Added a carve out for farmers markets to be permitted for 200 days, ***as requested by the City Council at the March 16, 2026, work session.***
- Added a definition for farmers markets ***as recommended by the City Attorney since the March 16, 2026, work session.***
- Added a provision that temporary uses sponsored by the City or held on City owned property is exempt from the requirements in Section 17.74.60., ***as requested by the Planning Commission on June 22, 2026.***
- Added that fabric structures may be permitted with the temporary use permit approval.
- Added parking lot, ADA parking, and traffic disruption provisions.
- Added references to Title 8 for amplified music and Title 15 for signage.
- Added fabric structure provisions as they relate to temporary uses.
- Added Oregon Fire Code provision.
- Added clarity to the renewal process and the maximum number of extensions that can be granted by the Director.

Temporary Structures

The primary edits are related to the following:

- Expanded allowances for temporary structures such as for construction of parks and in conjunction with an emergency.
- Added that the Building Official has discretion to waive ingress and egress requirements.
- Added provisions that utility services and plans are only required if utilities are needed. ***This was modified after the March 16, 2026, work session as requested by the City Council.***
- Added that temporary structures shall not be recreational vehicles and shall be maintained in good condition.
- Added that temporary structures may be sited immediately during emergencies that are declared by the United States Federal Government, the State of Oregon, the City of Sandy, or their designee. Similar to the hazardous tree provisions in Chapter 17.102, the agency that placed the temporary structure has to apply for a temporary structure permit within seven days of placement. ***This was modified after the March 16, 2026, work session as requested by the City Council.***
- Added clarity to the renewal process and the maximum number of extensions that can be granted by the Director.

Portable Outdoor Storage Units

The primary edits are related to the following:

- Added a definition for portable outdoor storage units.
- Added clarity on where portable outdoor storage units may be placed.

BUDGET IMPACT:

Staff and City Attorney expenses that have already been incurred.

RECOMMENDATION:

Staff and the Planning Commission recommend that the City Council hold a legislative public hearing to discuss proposed development code amendments for temporary uses/structures in Chapter 17.74 of the Sandy Municipal Code and adopt Ordinance No. 2026-10.

LIST OF ATTACHMENTS / EXHIBITS:

- Ordinance No. 2026-10
 - Exhibit A. Section 17.74.60. modifications
 - Exhibit B. Findings



ORDINANCE NO. 2026-10

AN ORDINANCE UPDATING THE CITY'S REGULATIONS ON TEMPORARY USES AND STRUCTURES IN CHAPTER 17.74

WHEREAS, in 2023, in response to a kitchen fire at a Sandy restaurant, City Administration asked for staff to work on updates to the temporary use and temporary structure code in Section 17.74.60; and

WHEREAS, the proposed code modifications incorporate standards that are commonly integrated into the findings and conditions for temporary uses and structures; and

WHEREAS, the Planning Commission held work sessions on June 10, 2024, and May 27, 2025, and the City Council held a work session on March 16, 2026; and

WHEREAS, the Planning Commission held a public hearing on June 22, 2026, allowing the public an opportunity to provide testimony on the proposed code amendments; and

WHEREAS, the City Council held a public hearing on August 3, 2026, allowing the public an opportunity to provide testimony on the proposed code amendments.

NOW, THEREFORE, THE CITY OF SANDY ORDAINS AS FOLLOWS:

Section 1. Sandy Municipal Code Chapter 17.74 is hereby amended as detailed in Exhibit A, attached and incorporated by reference.

Section 2. In support of this ordinance, the City Council adopts the findings and conclusions attached as Exhibit B.

Section 3. This Ordinance shall become effective 30 days from the date of adoption.

This ordinance is adopted by the City Council of the City of Sandy on this 3rd day of August 2026.

Kathleen Walker, Mayor

ATTEST:

Jeffrey Aprati, City Recorder

Title 17 - DEVELOPMENT CODE
CHAPTER 17.74 ACCESSORY DEVELOPMENT—ADDITIONAL PROVISIONS AND PROCEDURES

Sec. 17.74.60. Temporary uses or structures.

- A. *Temporary Uses.* Temporary uses, as defined in Chapter 17.10—Definitions, not located within a structure (except for fire-retardant fabric structures), may be permitted for a period not to exceed 90 days, provided a temporary use permit is first obtained under the Type I procedure. Notwithstanding the foregoing sentence, farmers market events may be permitted for a period not to exceed 200 days. For purposes of this section, "farmers market" means an outdoor public market at a fixed location operating on a consistently scheduled basis where farmers and producers sell agricultural products and crafts directly to consumers. City-sponsored events and events held on City-owned property are exempt from the requirements of this subsection (A). Temporary use permits shall meet all the following standards:
1. The temporary use shall be located within the boundaries of the property and not located in the right-of-way unless the City approves the use in the right-of-way under a separate process.
 2. The temporary use shall not interfere with ADA compliant parking spaces and vehicles shall not be parked on unimproved surfaces, such as grass, unless permitted by the temporary use approval.
 3. The temporary use shall be monitored by the applicant to ensure there is no disruption to traffic or adverse impacts to surrounding properties.
 4. The temporary use shall comply with Title 8 of the Sandy Municipal Code regarding music and amplified music.
 5. The temporary use shall comply with Title 15 of the Sandy Municipal Code regarding signage.
 6. If the temporary use includes a fabric structure(s), the fabric structure shall be secured at all corners to prevent being blown by the wind. The securing system used shall not penetrate any parking lot surfaces or damage any trees or landscaping. A fabric structure associated with a temporary use does not have to adhere to the temporary structure requirements in subsection B. of this code section, except that ingress and egress shall be maintained for ADA access.
 7. The use shall continuously meet the requirements of the Oregon Fire Code, Chapter 31.
- When a temporary use permit expires, the applicant shall return the site to pre-temporary use conditions within 24 hours of permit expiration. The renewal of a temporary permit shall be processed under the Type II procedure and shall be applied for at least 30 days prior to the expiration of the temporary use permit. The temporary use may remain in place until the Type II renewal procedure is completed. The Director may grant one renewal through a Type II procedure not to exceed 90 days.
- B. *Temporary Structures.* Temporary structures in connection with the building or sale of dwellings and land, ~~and~~ construction of industrial or commercial facilities, construction of parks, or in connection with an emergency (e.g., a commercial kitchen fire or natural disaster), may be permitted, for a period not to exceed ~~one three hundred and sixty-five (365) days~~ (1) year, provided a temporary structure permit is first obtained under the Type I procedure. ~~Renewal of a temporary permit shall be processed under the Type II procedure.~~ Temporary structure permits shall meet all the following standards:
1. Temporary structures shall be located within the boundaries of the property, not located in the right-of-way, and shall not include any overnight accommodation, except in the event of an emergency that requires temporary housing accommodation as defined in Section 17.74.60.B.6.
 2. Setbacks, height requirements, and other locational standards for structures in the applicable underlying zoning district shall be met for any temporary structure.

3. Ingress and egress to the temporary structures shall meet the requirements of the latest edition of the Oregon Building Codes, unless waived by the Building Official.
4. When the City, in its sole discretion, determines that public utilities are necessary to serve the temporary structure, the temporary structure shall be served by public utilities for sanitary sewer and water needs, and franchise utilities for applicable service needs.
5. Temporary structures shall not be recreational vehicles as defined in Chapter 17.10, shall be maintained in good condition to present a healthy, neat, and orderly appearance, and shall be kept free of refuse and debris.
6. In the event of an emergency that is declared by the United States Federal Government, the State of Oregon, the City of Sandy, or their designee, the public agency declaring the emergency may place temporary structures associated with the emergency immediately without the approval via a Type I procedure. The agency that placed the temporary structures shall apply for a temporary structure permit within seven days following the placement of the temporary structures.

When a temporary structure permit expires, the applicant shall remove the temporary structures from the site within 24 hours of permit expiration. The renewal of a temporary structure permit shall be processed under the Type II procedure and shall be applied for at least 30 days prior to the expiration of the temporary structure permit. The temporary structure may remain in place until the Type II renewal procedure is completed. The Director may grant one renewal through a Type II procedure not to exceed three hundred and sixty-five (365) days.

- C. ***Portable Outdoor Storage Unit.*** For purposes of this section, a "portable outdoor storage unit" is defined as an enclosed container that is transported and is normally used for the short-term storage of items and materials associated with a move into or from the primary use on the property.

Portable outdoor storage units may be placed on private property ~~a lot~~ without a permit, including within the setback areas, for not more than 60 days (any portion of a day, between 12:00 a.m. and ending at 11:59 p.m., shall be counted as a day) within any 12-~~month~~ period. Portable outdoor storage units shall not be ~~located~~ placed in the public right-of-way unless the Public Works Department approves the siting of the storage unit and shall not restrict access to any walkway, sidewalk, or utility box/cleanout/manhole.

Ordinance 2026-10 Findings

Goal 1: Citizen Involvement

This goal calls for "the opportunity for citizens to be involved in all phases of the planning process."

Findings: The City held public hearings before both the Planning Commission and City Council to afford the public the opportunity to be involved. Notice of the two hearings was published in the Sandy Post, posted on the City's website, and on the City Facebook account. Notice was provided to the Department of Land Conservation and Development on April 24, 2026.

Conclusion: *Goal 1 Public Involvement requirements are met.*

Goal 2: Land Use

This goal requires each local government in Oregon to have and follow a comprehensive land use plan and implementing regulations. Cities and counties must build their comprehensive plans on a factual basis and follow their plan when making decisions on appropriate zoning.

Findings: The code amendments incorporate standards that are commonly integrated into the findings and conditions for temporary uses and structures. These amendments will improve and refine code language, policies, and practices related to approval of temporary uses and structures and provide clarity on code provisions for applicants.

Conclusion: *Goal 2 Land Use requirements are met.*

Goal 9: Economic Development

This goal calls for adequate opportunities throughout the state for a variety of economic activities to promote the health, welfare, and prosperity of Oregon's citizens.

Findings: The code amendments provide clarity on code provisions for events that produce economic activity in Sandy, while also carving out unique time allowances for farmers markets. The modifications also clarify provisions in regard to the Oregon Fire Code and the ADA access code, helping business owners stay in compliance while also enhancing safety and access for customers and employees.

Conclusion: *Goal 9 Economic Development requirements are met.*

Goal 10: Housing

This goal calls for an adequate housing supply to ensure opportunity for and promotion of the provision of adequate numbers of needed housing units and the efficient use of land within a city's urban growth boundary.

Findings: These amendments provide a process for immediate siting of temporary housing during emergencies that are declared by the United States Federal Government, the State of Oregon, the City of Sandy, or their designee. The amendments also clarify that temporary structures shall not be recreational vehicles and shall be maintained in good condition.

Conclusion: *Goal 10 Housing requirements are met.*