Exhibit 2.i

Traffic Impact Analysis Report

Received 12-20-2023

CHAMPIONS CENTRE

Dupont, WA

TRAFFIC IMPACT ANALYSIS (TIA)
SEPTEMBER 1, 2023

HEATH & ASSOCIATES
Transportation Planning & Engineering

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

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CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

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CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

1. INTRODUCTION

The main goals of this study focus on the assessment of existing roadway conditions and forecasts of newly generated project traffic. The first task includes the review of general roadway information on the adjacent street system and baseline vehicular volumes. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. As a final step, appropriate conclusions and mitigation measures are defined if needed.

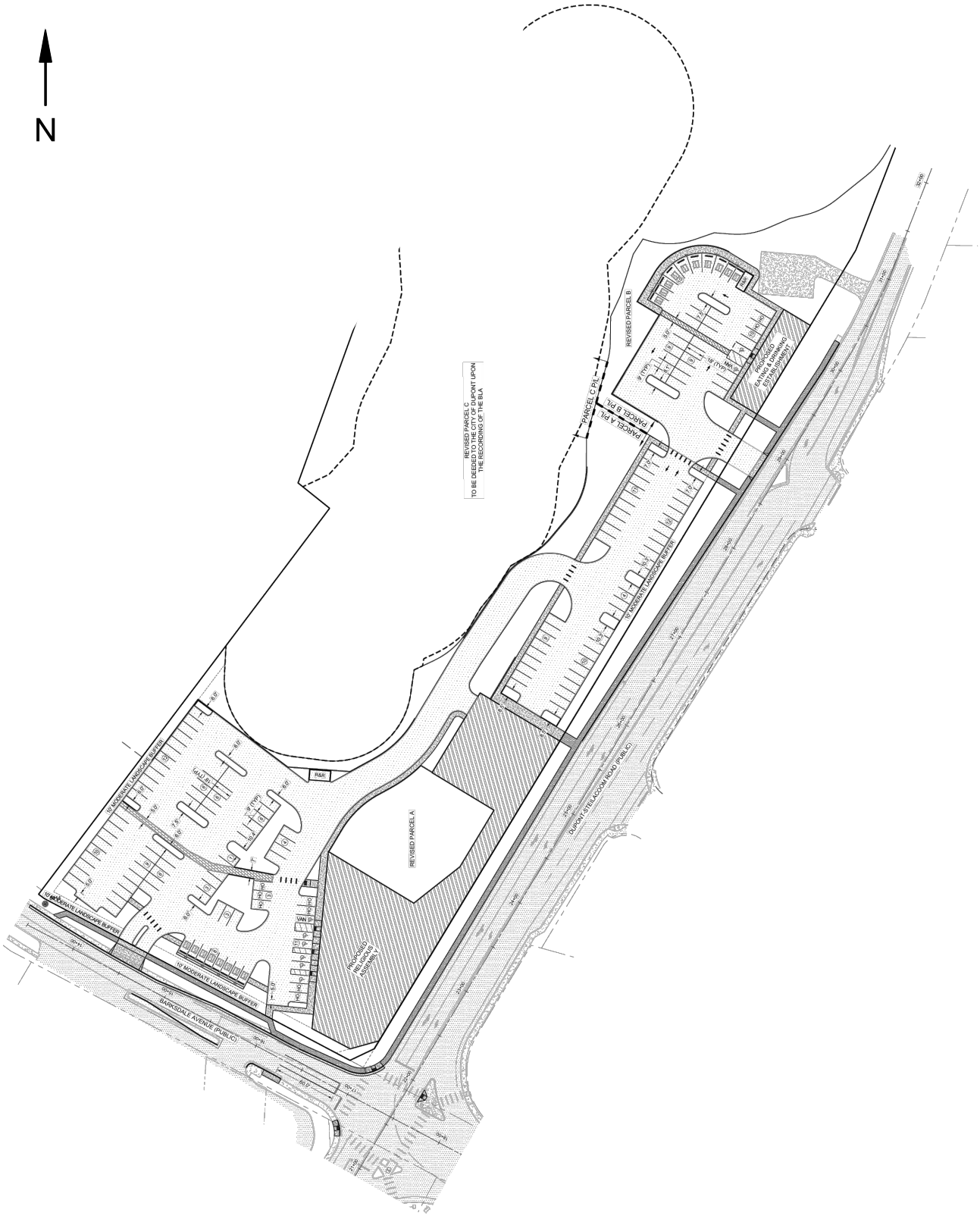
2. PROJECT DESCRIPTION

Champions Centre proposes for the construction of a 25,480 square foot religious assembly building (Parcel A) and a 3,000 square foot dining/commercial building (Parcel B) located within the city of Dupont. Presently, no tenants or users are known for the commercial space. Occupancy would be based on market demands at the time of construction. The subject site is situated on the north corner of Steilacoom-DuPont Road SW & Barksdale Avenue, encompassing a cumulative 21.42-acres within tax parcel #'s: 011936-2039; -2009; -2012; & -2043. Parcel boundaries will be adjusted (refer to the conceptual site plan) to Parcel A and Parcel B.

Access to the subject site is proposed via a single driveway on Barksdale Avenue and a single driveway on Dupont-Steilacoom Road and opposite Station Drive (North). Under present conditions, the Dupont-Steilacoom access would function as a right-in, right-out. However, a full movement access may be permitted upon completion of the I-5 Interchange Relocation project in which Exit 119 would relocate to the north prior to Pendleton Avenue—resulting in reduced volumes along the project's Dupont-Steilacoom Road frontage.

The development proposal includes up to 14 electric vehicle charging stations—10 of which will be located on Parcel B and open to the public. The remaining 4 will be located on Parcel A and used for the church. Figure 1 on the following page depicts a vicinity map with the subject site highlighted in blue. A conceptual site plan is provided in Figure 2.

Figure 1: Vicinity Map



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CHAMPIONS CENTRE

CONCEPTUAL SITE PLAN
FIGURE 2

3. EXISTING CONDITIONS

3.1 Existing Street System

The street network serving the proposed project consists of a variety of roadways. The major roadways serving the site are listed and described below.

Steilacoom Dupont Road SW: is a north-south, multi-lane Urban Minor Arterial bordering the subject site to the east. Additional turn-lanes are provided at major intersections. South of Station Drive (North), bike lanes are provided on either side of the roadway. Moreover, curb, gutter and sidewalk are provided on the east side of the roadway south of Station Drive (North) and along the west side of the roadway south of Station Drive (South). Elsewhere, shoulder composition varies from paved segments, rolled curb or grass/gravel. The posted speed limit is 35-mph.

Wilmington Drive: is an southwest-northeast, predominantly 2-lane Urban Minor Arterial located southwest of the subject site. Additional turn-lanes are provided at major intersections. Paved bike lanes ~4.5-feet in width, curb and gutter are available along either side of the roadway between Palisade Boulevard and *Barksdale Avenue*. The posted speed limit in the subject site vicinity is 25-mph.

Barksdale Avenue: is a northwest-southeast, two-lane roadway bordering the subject site to the southwest. Northwest of Wilmington Drive, the roadway is classified as an Urban Major Collector. Southeast of Wilmington Drive it is classified as an Urban Minor Arterial. For approximately 160-feet northwest of Wilmington Drive, curb and sidewalk are available. Northwest of this segment, rolled curb and detached sidewalk are typically provided along either side of the roadway. Southeast of Wilmington Drive, curb, gutter and sidewalk are available along the north side of the roadway. The posted speed limit is 25-mph.

3.2 Transit Service

A review of the Sound Transit service system indicates that Dupont Station is located approximately 1.0-mile walking-distance southwest of the proposed Champions Centre. This facility is served by Route 592 – Dupont to Seattle. Stops between Dupont and Seattle along the route include Lakewood Station and the SR 512 Park & Ride. No weekend service is provided.

Approximately 126 parking spaces are provided at Dupont Station, in addition to bicycle lockers and racks. Refer to Sound Transit's Routes and Schedules for further public transportation details.

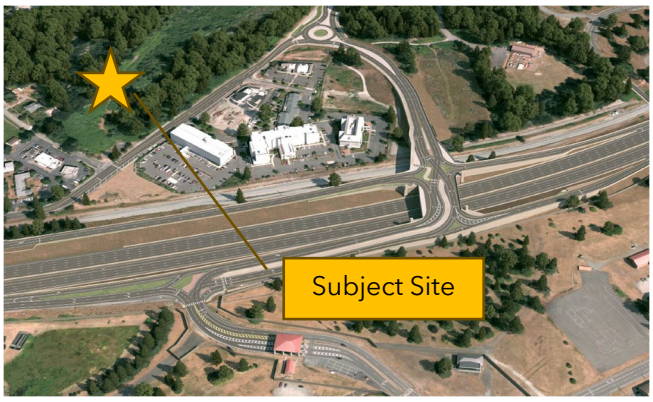
3.3 Roadway Improvements

A review of the City of Dupont's Six-Year Transportation Improvement Program (2024-2029) indicated that the following project is currently planned in the vicinity of Champions Centre development.

> *Barksdale Avenue Pavement Repair (Map ID # 6):* Install HMA pre-level, asphalt reinforcement grid and 2" HMA overlay on the roadway between Steilacoom-Dupont Road SW & Haskell Street. Construction is anticipated to occur in 2026. The total estimated cost of the project is $590,000.

Moreover, given the project's proximity to I-5, a review of the WSDOT Statewide Transportation Improvement Program (2023-2025) indicated that the following projects are currently planned in the subject site vicinity.

> *I-5 - Mounts Road to Steilacoom-DuPont Road - Corridor Improvements:* This project entails rebuilding the interchange of Steilacoom-DuPont Road (Exit 119) and adding HOV lanes to I-5. The project will help improve mobility and improve travel times during peak commute hours. The existing at-grade crossing of the railroad will be replaced with a grade-separated crossing. The re-configured interchange will tie-in to Steilacoom-DuPont Road just before Pendleton Avenue. The project is currently under construction and is scheduled to be completed by 2026. The total estimated cost of the project is $233,390,000. Project extents and a schematic of the newly proposed interchange are provided below.
>
> The proposed project will result in eliminating the southeast leg of Steilacoom-DuPont Rd SW & Barksdale Avenue. At this time, it is planned that the intersection will be modified to comprise all-way stop-control. It should also be noted that the project will modify future traffic volumes in the project vicinity given the I-5 access ramp northerly relocation. Further discussion of how this project will be accounted for under forecast analysis conditions will be provided in Section 4 of this report.



3.4 Existing Peak Hour Volumes

Per project scoping requirements, evaluation of the weekday PM and Sunday peak hour at the study intersection of Steilacoom Dupont Road SW & Barksdale Avenue. Given the ongoing *I-5 - Mounts Road to Steilacoom-DuPont Road - Corridor Improvement* project (herein referred to as the I-5 Interchange project), the city provided forecast count volumes that takes into consideration the I-5 Interchange project. The volumes represent forecast 2026 weekday PM peak hour conditions.

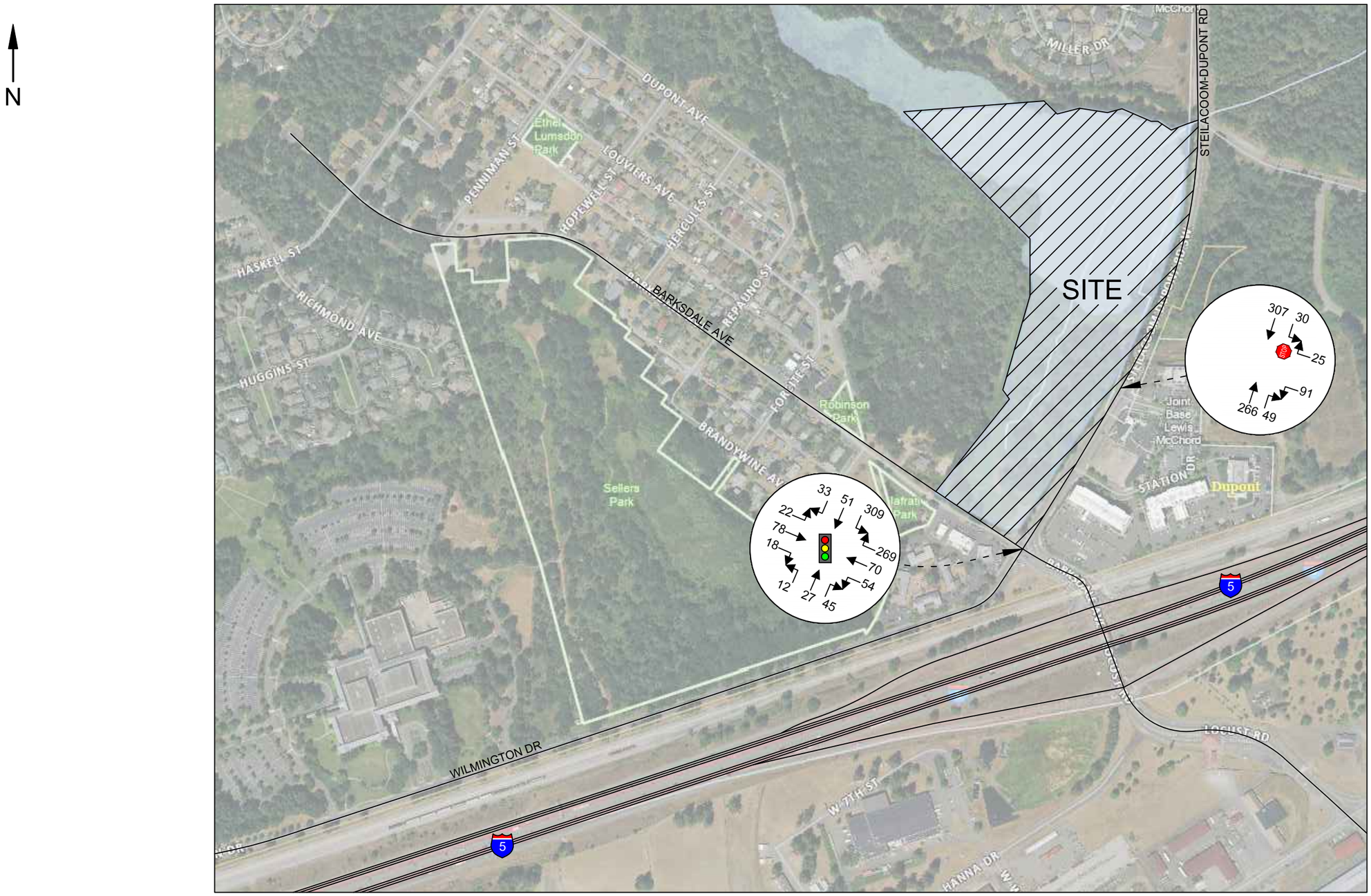
However, no Sunday peak hour data was available. As such, existing Sunday peak hour counts were collected by our firm in July of 2023. In addition to the study intersection of Steilacoom Dupont Road SW & Barksdale Avenue, data was gathered at Steilacoom Dupont Road SW & Station Drive (North) as a project access is proposed to extend westerly from the intersection. Counts were performed on a Sunday from 9:30 AM – 12:30 PM, which coincides with the proposed development's service times (peak trip generating period). The single hour exhibiting highest overall intersection volumes is then derived (peak hour) and is used for analysis the study intersection.

Figure 3 on the following page identifies existing Sunday peak hour volumes. Full count sheets have been attached in the appendix for reference. It should be noted that adjustments will be made to the existing Sunday counts to account for future conditions. Adjustment methodologies are discussed in later sections.

3.5 Non-Motorist Infrastructure

Non-motorist activity was observed at Steilacoom-DuPont Rd SW & Barksdale Avenue during Sunday data collection. During the Sunday peak hour, no pedestrians and one bicyclist was observed traveling through the study intersection. Marked crosswalks and pedestrian actuated crossings are currently available at the signal.

Sidewalk segments are provided along the Barksdale Avenue project frontage and along the Steilacoom-Dupont Road SW frontage for ~380-feet north of Barksdale Avenue. Moreover, bike lanes are available along Steilacoom-Dupont Road SW/Wilmington Drive south of Station Drive (North). Where currently missing, sidewalk will be constructed along the Steilacoom-Dupont Road SW and Barksdale Avenue project frontage upon full build-out. Moreover, sidewalk is proposed to be constructed internal to the subject site, providing connections to the roadways fronting the development.



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EXISTING SUNDAY PEAK HOUR VOLUMES
FIGURE 3

4. FORECAST TRAFFIC DEMAND & ANALYSIS

4.1 Site Characteristics

Religious Assembly Building
The church will mainly be used on Sundays, providing a single service at 10:15 AM. A second service may occur, predicated on demand, which would commence at 11:45 AM. The maximum seating capacity at the church is ~350 patrons.

It should be noted that miscellaneous activity throughout the week could be expected such as Youth Group on Thursdays starting at 6:30 PM, office workers throughout the week (3-5 staff two days a week), and other occasional gatherings. However, the predominate activity levels will occur for the Sunday service which is the proposed targeted evaluation period.

Dining/Commercial Building
Currently, there is no known tenant for the 3,000 square foot commercial building. The building, for analysis purposes, is anticipated to be a fast casual dining establishment.

4.2 Project Trip Generation

The magnitude of the anticipated vehicle trip generation for the proposed project was derived from the Institute of Transportation Engineers (ITE) publication, *Trip Generation Manual,* 11th Edition and a local trip generation study.

Religious Assembly Building
The utilized Land Use Code (LUC) for the church is *LUC 560 – Church.* Square footage was used as the input variable with ITE rates to determine trip ends.

Dining/Commercial Building
While there is no specific tenant identified for the 3,000 square feet of commercial area, a dining establishment with no drive-through is anticipated to occupy the space. As such, *LUC 930 – Fast Casual Restaurant* was determined to be the most applicable land use. Square footage was used as the input variable with ITE average rates for the weekday daily, AM and PM peak hours. For the Sunday trip generation, the Saturday Peak Hour Generator has been applied with ITE average rates to determine trip ends.

Electrical Vehicle Charging Stations
Given the relatively new use of EV charging, no data are available in the Trip Generation Manual. Therefore, trip estimates are based on a prior analysis conducted by Heath & Associates that evaluated three EV charging stall sites. The analysis, which solely surveyed weekday PM peak periods between 4:00-6:00, concluded a weighted

average peak hour trip rate of 0.93 trips per stall. The same rate (0.93 trips/stall) is proposed to be used for the Sunday peak hour. Details of the study locations and count sheets are available in the appendix. Only the 10-charging station on Parcel B (commercial site) are accounted for. The 4 EV stalls located adjacent the Church are anticipated to be accounted for under the general church trip rates.

Trip Generation Adjustments

Pass-by trips have been considered for this project, pass-by trips, or motorists already passing by the site who decide to make an intermediate stop before proceeding to their primary destination such as commercial/dining services. These trips are not considered as new trips but will impact the site's access points. ITE reports a 43% pass-by rate for LUC 932 High-Turnover Restaurant (similar use), which has been applied.

Table 1: Project Trip Generation

Use	Size	Trip Type	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips			Sunday Peak Hour Trips		
				In	Out	Total	In	Out	Total	In	Out	Total
Church (LUC 560)	25.4 8 ksf	Primary	194	5	3	**8**	5	7	**12**	127	137	**264**
F-C Restaurant (LUC 930)	3.0 ksf	Primary	166	1	1	**2**	12	10	**22**	31	25	**56**
		Pass-By	125	1	1	**2**	8	8	**16**	21	21	**42**
10 Charging Stations		Primary	--	--	--	**--**	5	4	**9**	5	4	**9**
Total Primary Trips			360	6	4	**10**	22	21	**43**	163	166	**329**
Total Pass-By Trips			125	1	1	**2**	8	8	**16**	21	21	**42**

As illustrated in Table 1, the proposed project is anticipated to generate approximately 43 primary (22 in / 21 out) and 16 pass-by (8 in / 8 out) weekday PM peak hour trips. Moreover, approximately 329 primary (163 in / 166 out) and 42 pass-by (21 in / 21 out) Sunday peak hour trips are anticipated to be generated by the development proposal. Refer to the appendix for a trip generation summary spreadsheet.

4.3 Distribution & Assignment

Trip distribution describes the anticipated travel routes for inbound and outbound project traffic during the peak hour study period. The majority of residential development within Dupont is situated primarily west of the subject site. The proposed church is anticipated to serve local residents, which is reflected in the outlying trip distribution percentages. Moreover, the future ~2026 closure of the I-5 Interchanges at Barksdale Avenue was accounted for in trip assignment. The project is to eliminate the southeast leg of Steilacoom-Dupont Road SW & Barksdale Avenue, creating an all-way stop-controlled intersection. Project-generated traffic traveling to/from I-5 North (~10%) and southeast of I-5 (~10%) were routed to/from the north. Project-generated traffic traveling to/from I-5 South (~10%) were routed to/from the southwest via Wilmington Drive and subsequently the Center Drive interchanges.

It should also be noted that two access scenarios were analyzed herein. Scenario 1 entails a right-in, right-out access on Steilacoom-Dupont Road SW while Scenario 2 evaluates a full-turning movement access. The I-5 Interchange project will reduce traffic volumes along the fronting section of Steilacoom-Dupont Road SW. Moreover, improvements will be made to Steilacoom-Dupont Road SW, resulting in an unknown cross-section. As such, the driveway may permit full access under forecast conditions. Both scenarios were therefore accounted for.

Primary and pass-by weekday PM peak hour trips generated by the project are expected to follow the general pattern as shown in Figure 4. Sunday peak hour trip assignment is illustrated in Figure 5. Both figures illustrate trip distribution and assignment under Scenario 1 (right-in, right-out Steilacoom-Dupont Road SW access) and Scenario 2 (full turning movement driveway on Steilacoom-Dupont Road SW).

4.4 Future Peak Hour Volumes

A three-year horizon of 2026 was used to analyze future conditions. Forecast 2026 weekday PM peak hour background volumes at Steilacoom-Dupont Road SW/Wilmington Drive & Barksdale Avenue were provided by the reviewing party and account for the I-5 Interchange relocation. Turning movements at Station Drive (North), which is situated opposite the proposed Steilacoom-Dupont Road SW access, were derived via ITE data. The ~35,500 square feet of shopping center (LUC 822 – Strip Retail Plaza) served by the driveway is anticipated to generate 202 weekday PM peak hour trips (101 in / 100 out). These trips were assigned to the driveway based on travel patterns observed at the intersection during existing Sunday peak hour counts.

In order to derive Sunday peak hour background volumes at Steilacoom-Dupont Road SW/Wilmington Drive & Barksdale Avenue, a 2.0 percent compound annual growth rate was applied to existing peak hour volumes. Moreover, the I-5 Interchange project was accounted for. The project is going to eliminate the current I-5 Interchanges on Barksdale Avenue and construct new interchanges northerly at Pendleton Avenue. As such, traffic volumes at the study intersection associated with the existing Barksdale Avenue I-5 interchanges were rerouted. Figure 6 illustrates how Sunday peak hour traffic volumes were rerouted. Additionally illustrated forecast 2026 background peak hour volumes (without Champions Centre). It should be noted that approximately 25% of traffic volumes at Steilacoom-Dupont Road SW & Station Drive (North) traveling to the intersection to/from the south were rerouted to the north given the I-5 Interchange project.

Lastly, weekday PM peak hour volumes with project-generated traffic are shown in Figure 7 while Sunday peak hour volumes are illustrated in Figure 8. Traffic volumes for both Scenarios 1 and 2 are depicted in Figures 7 and 8.

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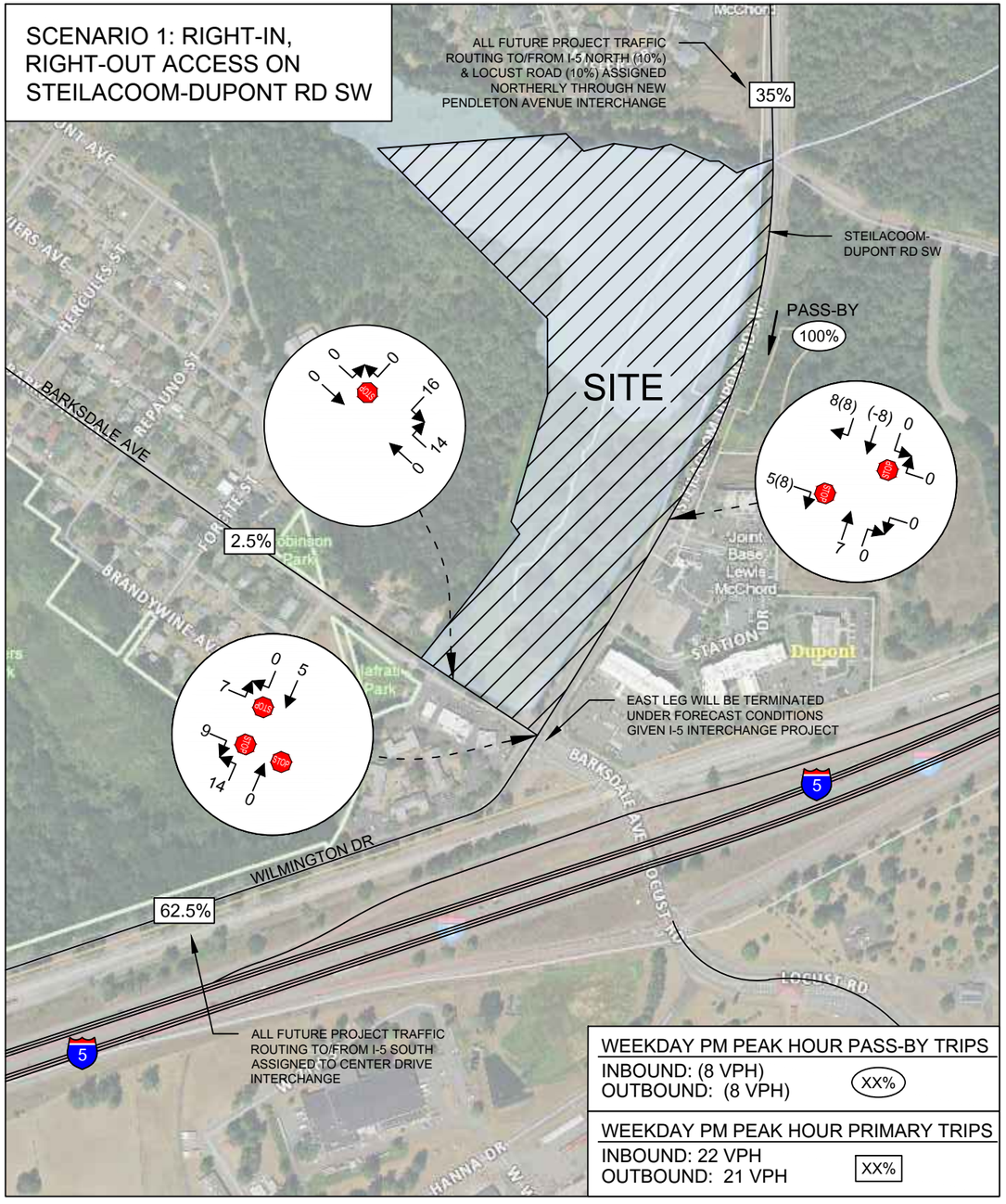
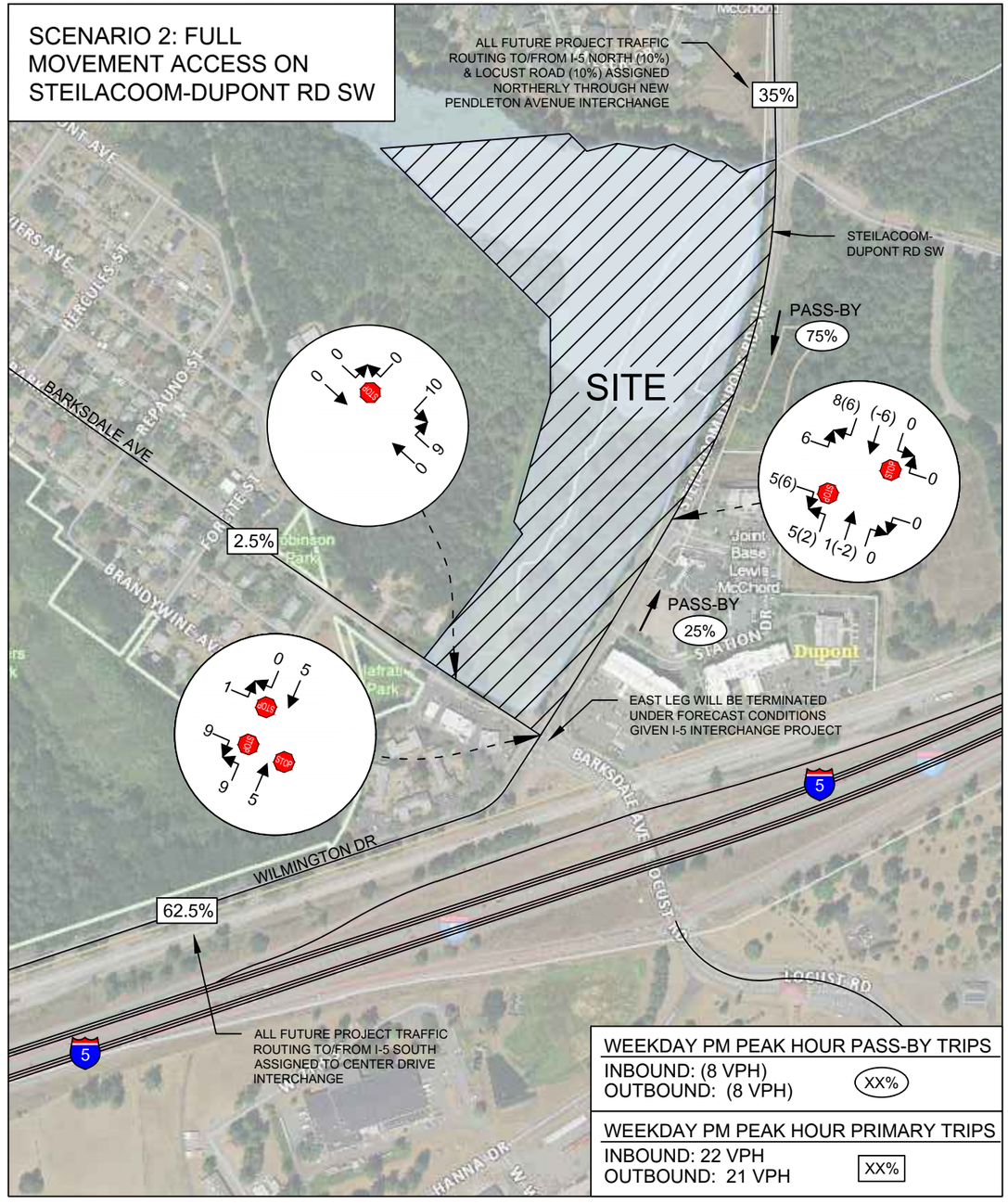
SCENARIO 1: RIGHT-IN, RIGHT-OUT ACCESS ON STEILACOOM-DUPONT RD SW



SCENARIO 2: FULL MOVEMENT ACCESS ON STEILACOOM-DUPONT RD SW



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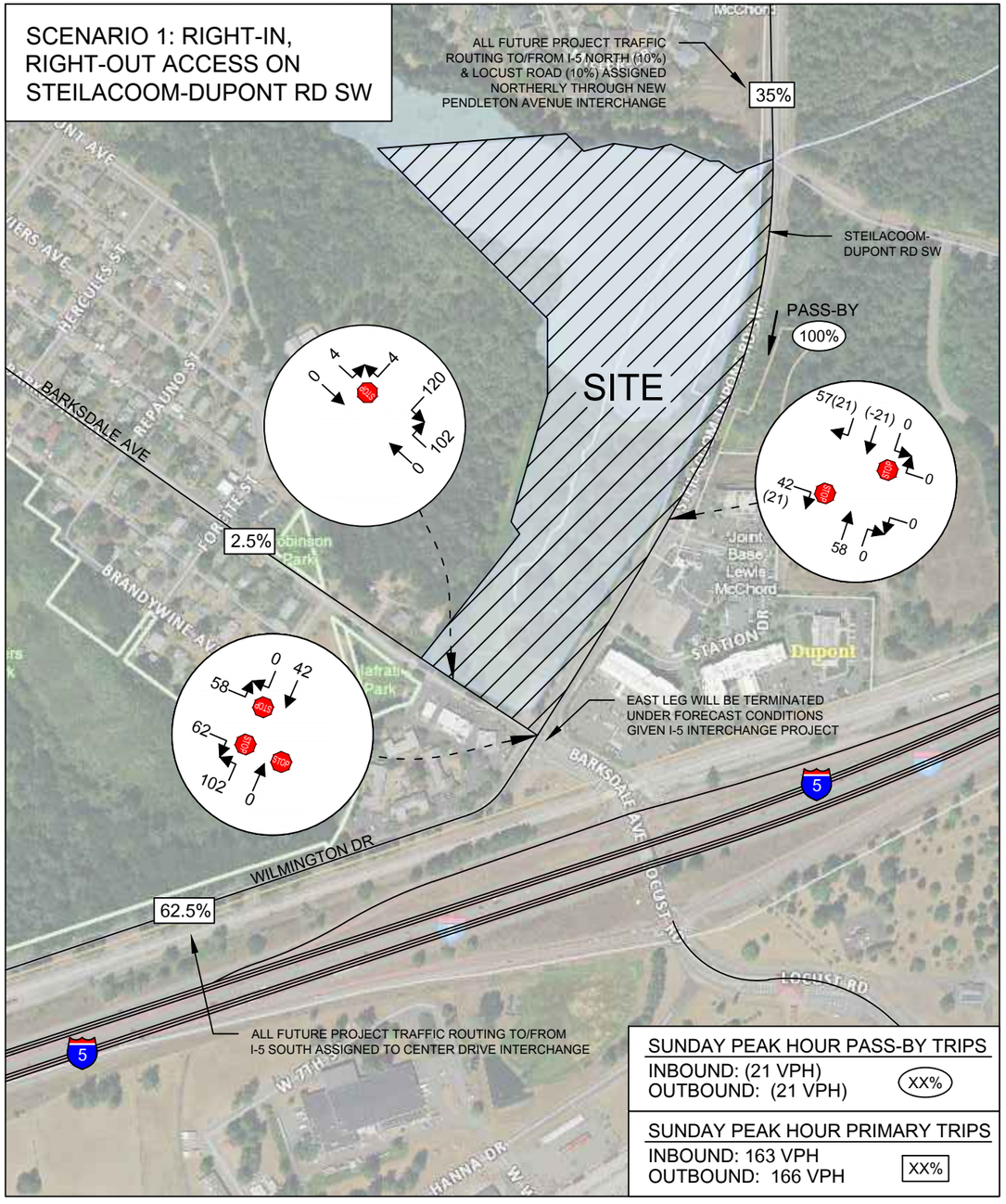
WEEKDAY PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 4

N

SCENARIO 1: RIGHT-IN, RIGHT-OUT ACCESS ON STEILACOOM-DUPONT RD SW



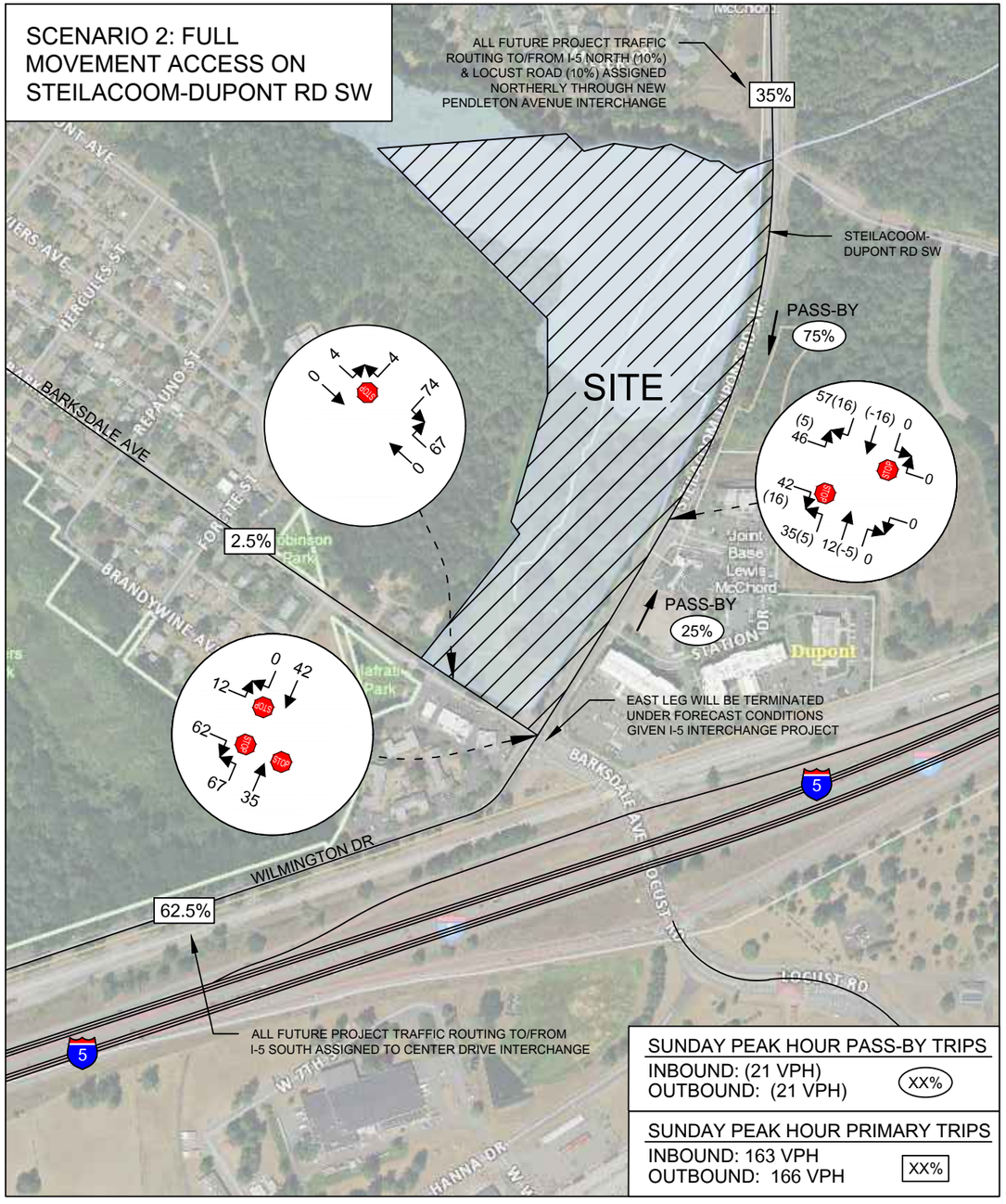
SUNDAY PEAK HOUR PASS-BY TRIPS

INBOUND: (21 VPH)
OUTBOUND: (21 VPH)
XX%

SUNDAY PEAK HOUR PRIMARY TRIPS

INBOUND: 163 VPH
OUTBOUND: 166 VPH
XX%

SCENARIO 2: FULL MOVEMENT ACCESS ON STEILACOOM-DUPONT RD SW



SUNDAY PEAK HOUR PASS-BY TRIPS

INBOUND: (21 VPH)
OUTBOUND: (21 VPH)
XX%

SUNDAY PEAK HOUR PRIMARY TRIPS

INBOUND: 163 VPH
OUTBOUND: 166 VPH
XX%

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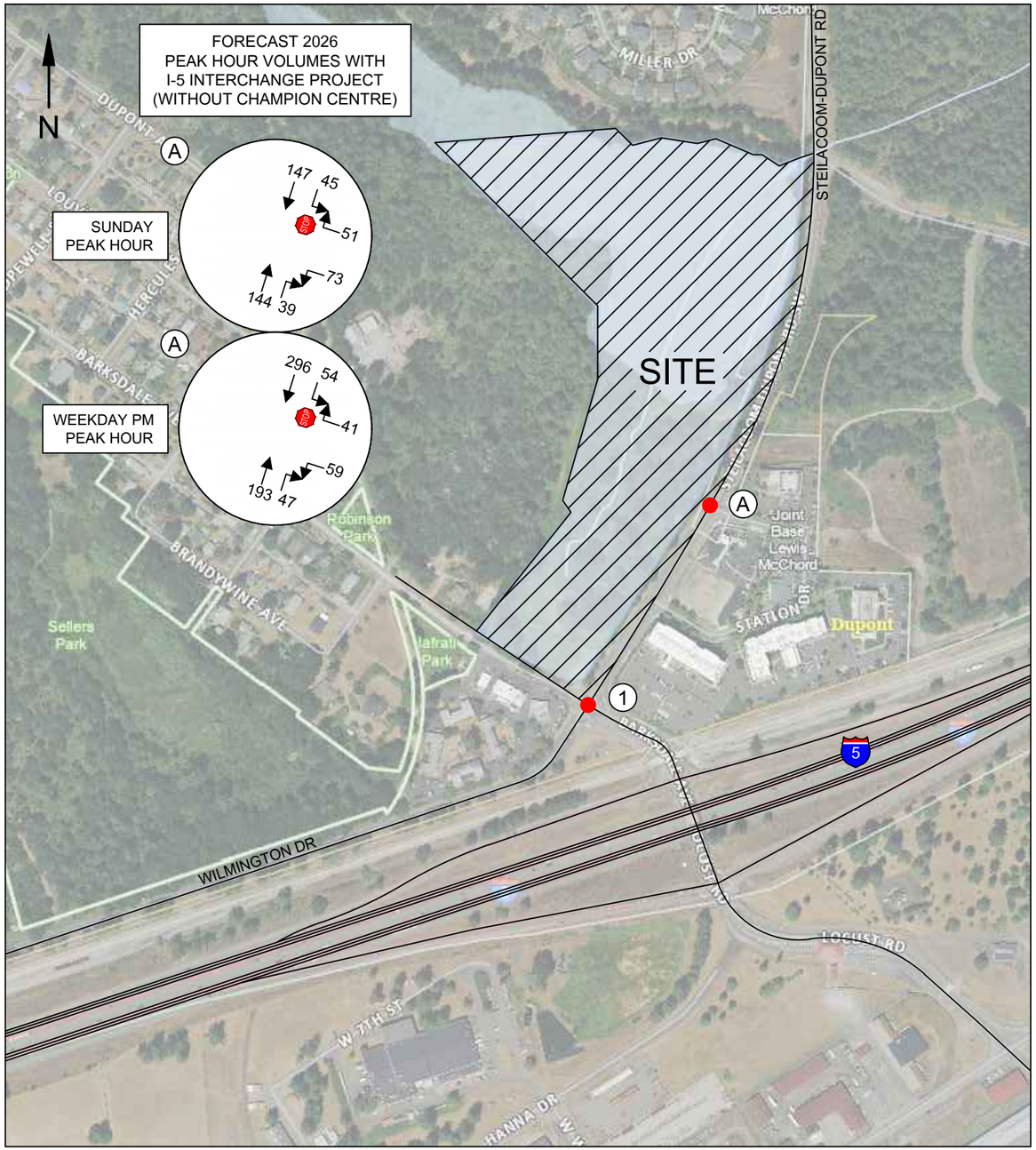
SUNDAY PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 5



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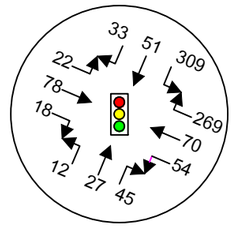
STEILACOOM-DUPONT RD/WILMINGTON DR & BARKSDALE AVE

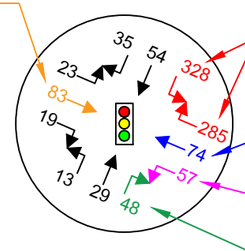
EXISTING SUNDAY PEAK HOUR VOLUMES



SUNDAY PEAK HOUR

EASTBOUND-THROUGH (83 VEHICLES) WILL BECOME EASTBOUND-LEFT MOVEMENTS

FORECAST 2026 SUNDAY PEAK HOUR VOLUMES WITH NO I-5 INTERCHANGE PROJECT



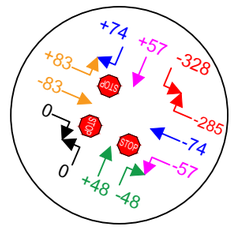
SOUTHBOUND-LEFT (328 VEHICLES) & WESTBOUND-RIGHT (285 VEHICLES) WILL NO LONGER BE TRAVELING THROUGH THE INTERSECTION

EASTBOUND-THROUGH (74 VEHICLES) WILL BECOME SOUTHBOUND-RIGHT MOVEMENTS

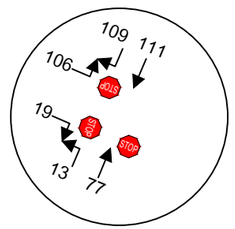
EASTBOUND-LEFT (57 VEHICLES) WILL BECOME SOUTHBOUND-THROUGH MOVEMENTS

NORTHBOUND-RIGHT (48 VEHICLES) WILL BECOME NORTHBOUND-THROUGH MOVEMENTS

FORECAST 2026 SUNDAY PEAK HOUR VOLUMES REROUTED AS A RESULT OF THE I-5 INTERCHANGE PROJECT



FORECAST 2026 SUNDAY PEAK HOUR VOLUMES WITH I-5 INTERCHANGE PROJECT (WITHOUT CHAMPION CENTRE)



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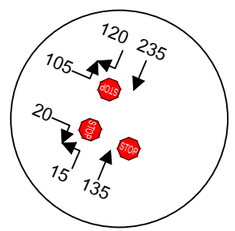
WEEKDAY PM PEAK HOUR



FORECAST 2026 WEEKDAY PM PEAK HOUR VOLUMES WITH I-5 INTERCHANGE PROJECT (WITHOUT CHAMPION CENTRE)

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FORECAST 2026 WEEKDAY PM & SUNDAY PEAK HOUR BACKGROUND VOLUMES
& REROUTED SUNDAY PEAK HOUR VOLUMES DUE TO I-5 INTERCHANGE PROJECT
FIGURE 6

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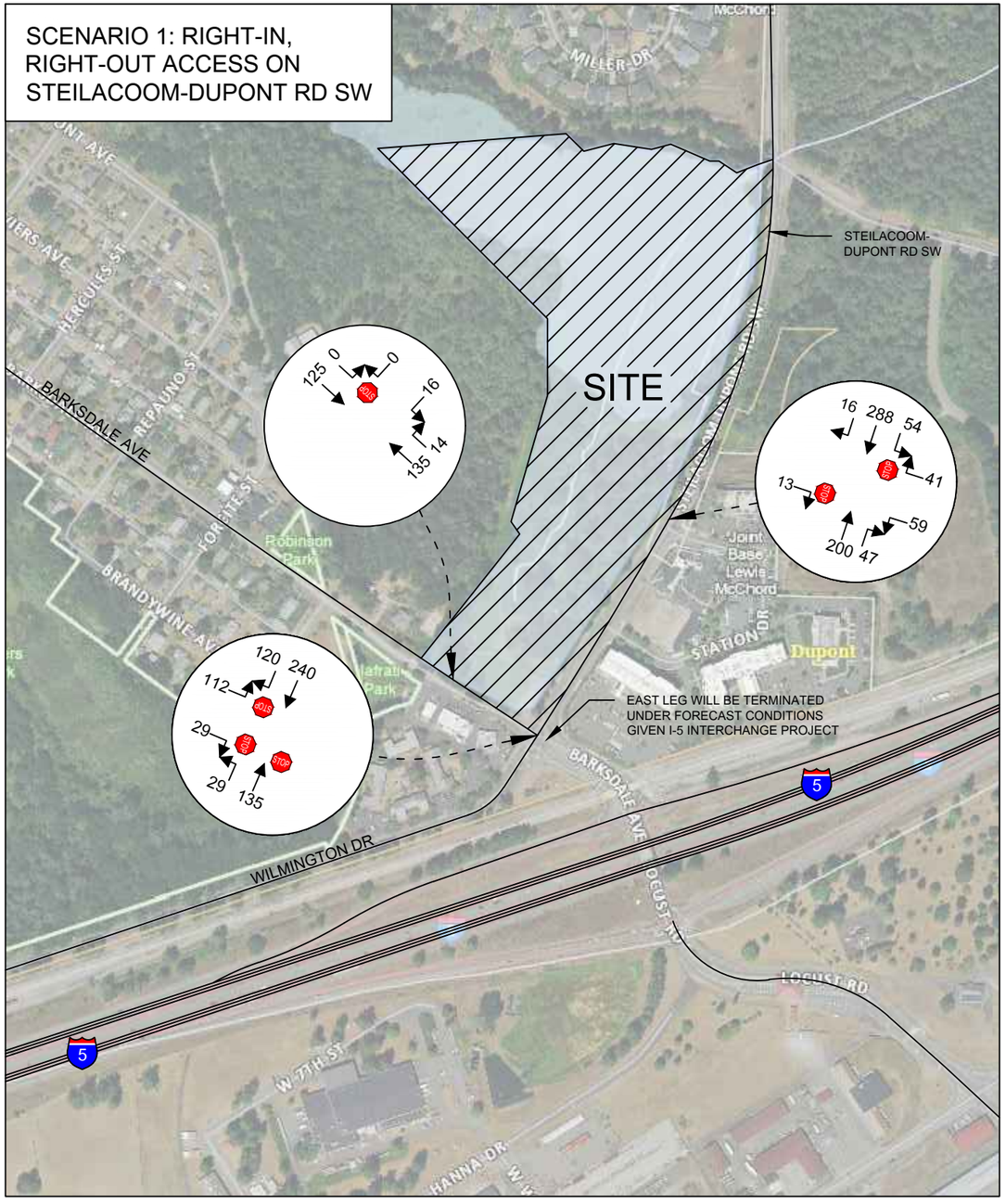
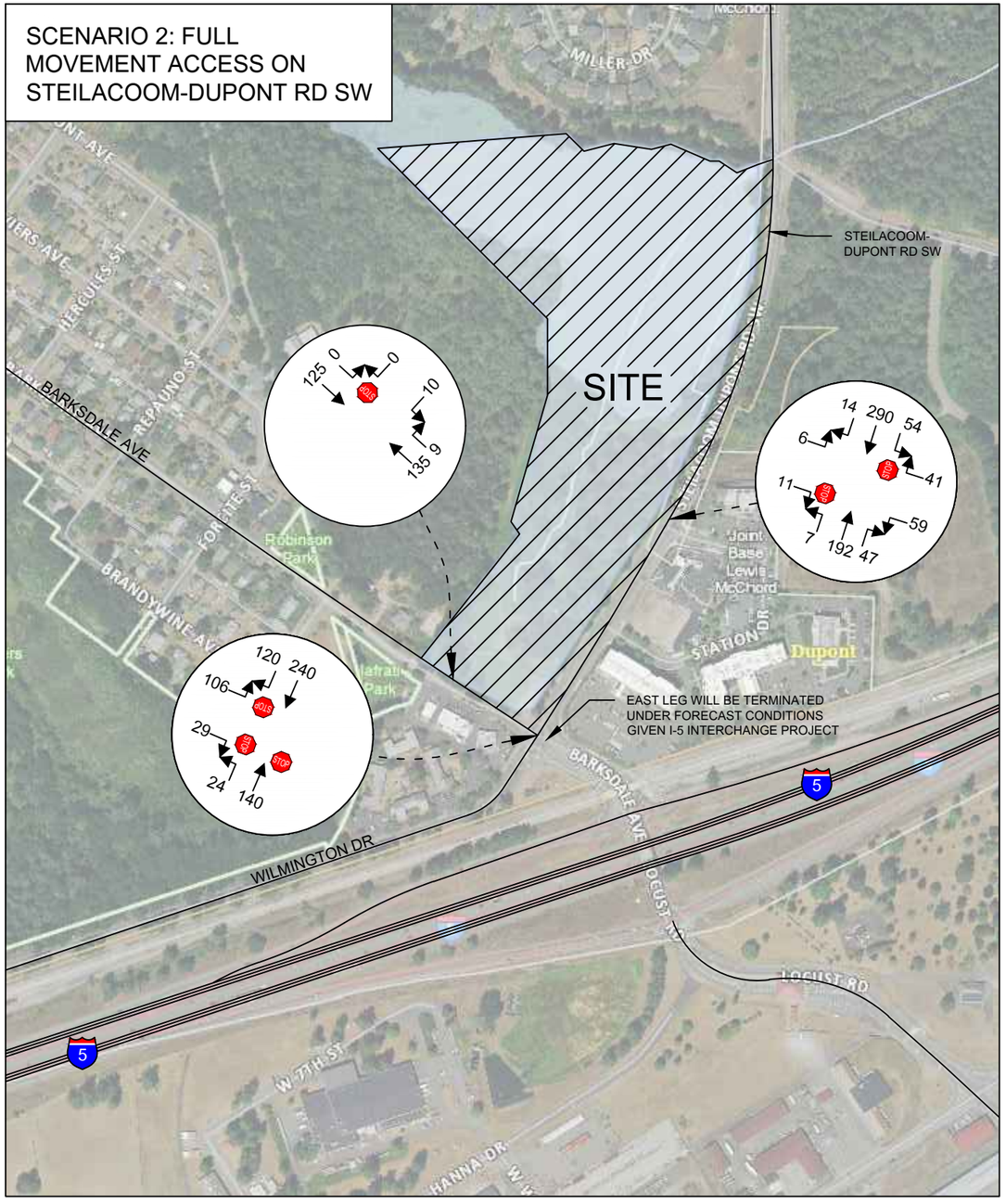
SCENARIO 1: RIGHT-IN, RIGHT-OUT ACCESS ON STEILACOOM-DUPONT RD SW



SCENARIO 2: FULL MOVEMENT ACCESS ON STEILACOOM-DUPONT RD SW



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FORECAST 2026 WEEKDAY PM PEAK HOUR VOLUMES WITH PROJECT
FIGURE 7

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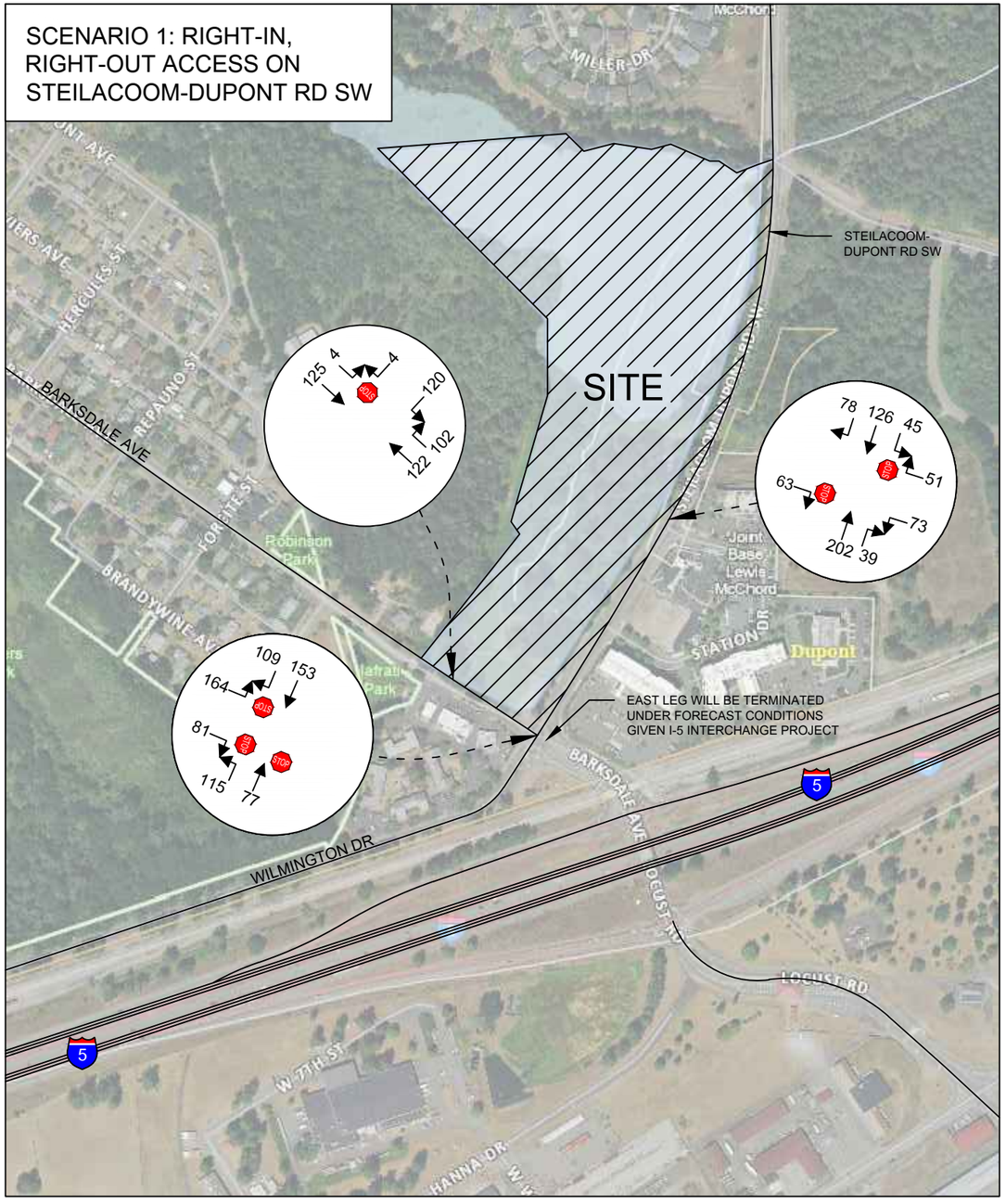
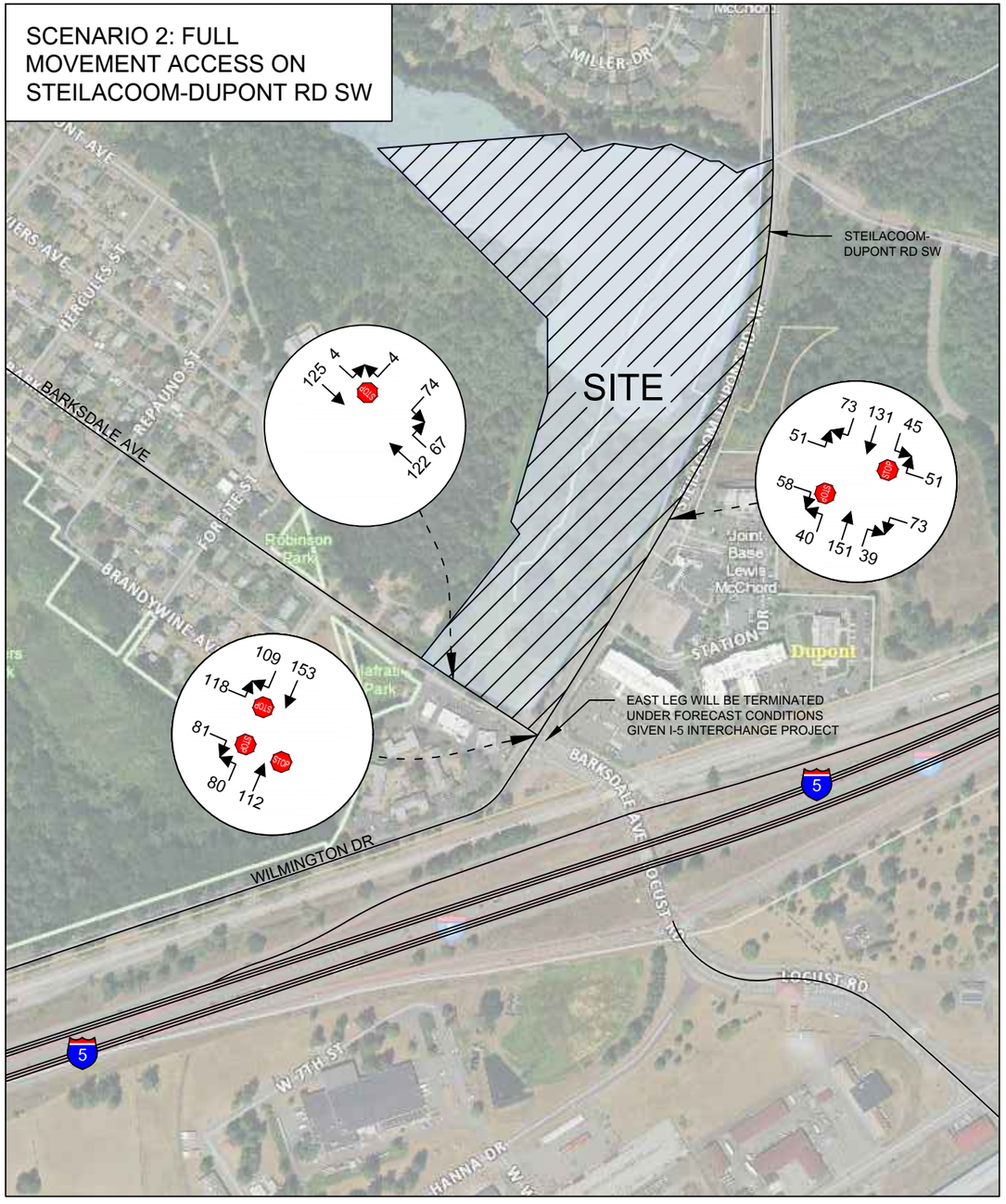
SCENARIO 1: RIGHT-IN, RIGHT-OUT ACCESS ON STEILACOOM-DUPONT RD SW



SCENARIO 2: FULL MOVEMENT ACCESS ON STEILACOOM-DUPONT RD SW



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CHAMPIONS CENTRE
FORECAST 2026 SUNDAY PEAK HOUR VOLUMES WITH PROJECT
FIGURE 8

4.5 Future Level of Service

Level of service analyses were made of the future weekday PM and Sunday peak hour volumes without (background) and with project related trips added to the key study intersection and accesses. Intersection delays were determined through the use of the *Highway Capacity Manual* 7th Edition. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. The range[1] for intersection level of service is LOS A to LOS F with the former indicating the best operating conditions with low control delays and the latter indicating the worst conditions with heavy control delays. Detailed descriptions of intersection LOS are given in the 2016 Highway Capacity Manual. Level of service calculations were made through the use of the *Synchro 12* analysis program. As previously noted, the I-5 Interchange project is going to modify Steilacoom-Dupont Road SW & Barksdale Avenue to all-way stop-control (AWSC). For AWSC intersections, LOS is determined by the intersection's overall weighted average delay for each approaching leg. Side-street stop-controlled (TWSC) intersection LOS is determined by the approach with the highest delay.

Table 2 presents future weekday PM and Sunday peak hour LOS delays. Illustrated are delays for future background conditions (2026 without). Moreover, the two access scenarios are analyzed. Scenario 1 entails a right-in, right-out project driveway on Steilacoom-Dupont Road SW while Scenario 2 comprises a full movement access.

Table 2: Forecast 2026 Weekday PM & Sunday Peak Hour Level of Service

Delays Given in Seconds per Vehicle

				Weekday PM		Sunday Peak	
Intersection	**Control**	**Scenario**	**Movement**	**LOS**	**Delay**	**LOS**	**Delay**
Steilacoom-DuPont Rd SW & Barksdale Ave	AWSC	2026 Without Project	Overall	B	11.1	A	9.3
		2026 With: Scen.1	Overall	B	11.3	B	10.7
		2026 With: Scen. 2	Overall	B	11.2	B	10.2
Steilacoom-DuPont Rd SW & Station Drive (N)/Access	TWSC	2026 Without Project	WB	B	11.5	B	10.5
		2026 With: Scen.1 (Ri-Ro)	WB	B	12.1	B	11.4
		2026 With: Scen. 2 (Full)	EB	B	12.2	B	13.0
Access & Barksdale Ave	TWSC	2026 Without Project	-	-	-	-	-
		2026 With: Scen.1	SB	B	10.3	B	11.8
		2026 With: Scen. 2	SB	B	10.2	B	11.0

[1] *Signalized Intersections - Level of Service*

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Stop Controlled Intersections – Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Highway Capacity Manual, 7th Edition

The City of Dupont currently has a LOS D threshold for peak hour traffic flow. However, LOS E conditions are permitted at Dupont-Steilacoom Road SW/ Wilmington Drive & Barksdale Avenue (under existing signalized control setting). As shown, forecast service levels with the all-way stop and relocated I-5 interchange as projected to operate with acceptable LOS B or better conditions under all scenarios.

The proposed accesses are similarly projected to operate with LOS B conditions under all scenarios. Overall, no intersection or capacity deficiencies are identified.

4.6 Project Access & Sight Distance

Two driveways are proposed to serve the subject site. One driveway is proposed to extend north from Barksdale Avenue and another driveway is proposed to extend west from Steilacoom-Dupont Road SW, opposite Station Drive (North). While the Steilacoom-Dupont Road SW access is currently depicted as right-in, right-out in the conceptual site plan, it was additionally evaluated under a full turning movement scenario. Available entering sight lines were therefore evaluated at both driveways.

In accordance with AASHTO standards, the 35-mph posted speed limits (45-mph design speed) on Steilacoom-Dupont Road SW would require approximately 530-feet[2] of entering sight lines. Initial review indicate sight lines can be achieved. Frontage improvements would further increase visibility by removing vegetation along the right-of-way. Looking south, sight lines are available to the roadway's intersection with Barksdale Avenue.

At the proposed Barksdale Avenue access, the 25-mph posted speed limit (30-mph design speed) would require approximately 335-feet of entering sight lines. Sight lines are available southeasterly to the roadway's intersection with Steilacoom-Dupont Road SW/Wilmington Drive. To the northwest, sight lines are available in excess of 350-feet. Overall, no sight distance deficiencies are identified at this time with the access proposal. Sight lines may need to be verified upon final site plan and approved access points, however.

[2] Given the additional center lane that must be crossed, an additional 0.50-seconds was added to the time gap (8.0-second total) for calculation inputs.

4.7 Queuing Analysis

The proposed Barksdale Avenue access is located approximately 165-feet northwest of Steilacoom-Dupont Road SW/Wilmington Drive. Moreover, the left-turn lane at the west leg of the intersection currently comprises a storage length of ~40-feet. The proposed development is anticipated to contribute additional traffic to the west leg of the intersection. As such, the adequacy of the eastbound left-turn storage on Barksdale Avenue was evaluated under forecast weekday PM and Sunday peak hour conditions. This evaluation was also performed to determine if any blockage to the proposed site access or existing nearby driveways may occur.

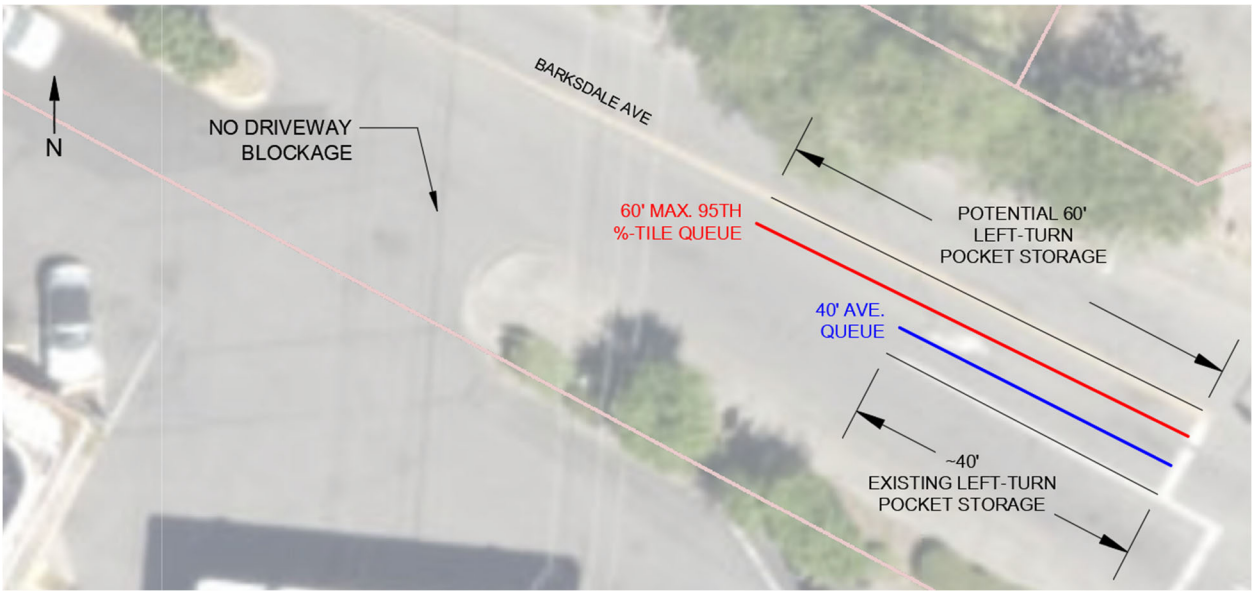
Eastbound left-turn lane queues were examined at Steilacoom-Dupont Road SW/Wilmington Drive & Barksdale Avenue using *SimTraffic* modeling software. A total of five, one-hour simulations were conducted under Scenario 1 as they present more conservative traffic volumes at the west leg of the intersection. Table 3 summarizes the average queues within the noted eastbound left-turn pocket.

Table 3: Forecast 2026 Weekday PM & Sunday Peak Hour Queuing

Intersection	Movement	Turn Pocket Storage	Scenario	Ave. Queue	95th Queue
Steilacoom-DuPont Rd SW & Barksdale Ave	EB L	~40′	Weekday PM Sunday Peak	**35′** **40′**	**55′** **60′**

Under forecast 2026 conditions with project traffic, an average queue of approximately 2 vehicles (35- to 40-feet) was estimated during the critical peak periods of study. The average queues are contained within the existing 40-foot turn pocket. A 95th percentile queue of approximately 3 vehicles (60-feet) was projected during the Sunday peak hour. Figure 9 below depicts forecast 2026 weekday PM peak hour queues at the eastbound left-turn pocket.

Figure 9: Forecast 2026 Sunday Peak Hour with Project Queues



The 95th percentile queues are estimated to exceed storage capacity by approximately 20-feet. However, the nearest driveway at 80-feet west of the intersection is not anticipated to be blocked during peak conditions.

Overall, it is recommended to restripe Barksdale Avenue west of Steilacoom-DuPont Road SW/Wilmington Drive to provide a minimum 60-foot left-turn pocket and up to 75-feet (as allowable within the existing cross-section and pavement width). By providing increased storage length of at least 60-feet, sufficient queuing capacity will be provided, and no driveway blockage is anticipated.

4.8 Left Turn Warrant Analysis

Turn lanes are a means of providing necessary storage space for left turning vehicles at intersections. Left turn warrants were analyzed at the proposed Barksdale Avenue driveway under both Scenario 1 and 2 conditions. Moreover, to further determine the potential adequacy of providing a full turning-movement access on Steilacoom-Dupont Road SW, a left-turn warrant analysis was conducted under Scenario 2 conditions.

For this impact study, procedures described by the WSDOT Design Manual Exhibit 1310-7a were used to ascertain storage requirements at both driveways. Based on the criteria set forth in the warrant calculations, a left turn lane *would not be warranted* under forecast 2026 weekday PM or Sunday peak hour conditions at the either of the proposed accesses under either Scenario 1 or 2 conditions. Turn lane exhibit sheets have been included in the appendix.

5. CONCLUSIONS & MITIGATION

Champions Centre proposes for the development of a 25,480 square foot religious assembly building, a 3,000 square foot dining/commercial building, and 14 EV charging stalls located within the city of Dupont. The subject site comprises a cumulative 21.42-acres within tax parcel #'s: 011936-2039; -2009; -2012; & -2043. Access is proposed via a single driveway to Barksdale Avenue and a single driveway to Steilacoom-Dupont Road SW opposite Station Drive (North). A conceptual site plan illustrating the overall configuration of the project and access proposal is provided in Figure 2.

Based on ITE and local trip generation data, the proposed development is anticipated to generate approximately 360 average weekday daily primary trips with 10 new weekday AM peak hour and 43 weekday PM primary trips. Moreover, approximately 329 Sunday peak hour primary trips are anticipated. A level of service (LOS) analysis was performed using a three-year horizon which included a background growth rate and accounts for traffic rerouting associated with the I-5 Interchange relocation project.

Forecast 2026 level of service (LOS) for the proposed access points, under both ingress/egress scenarios, are shown to operate with LOS B conditions, meeting City LOS D standards. Moreover, the reconfigured Steilacoom-Dupont Road SW/Wilmington Drive & Barksdale Avenue intersection to an all-way stop (due to I-5 Interchange relocation) is projected to operate with LOS A/B conditions. Volumes are estimated to significantly reduce through the intersection due to the new Interchange location. Overall, no capacity issues are identified.

Queues for the eastbound left-turn from Barksdale Avenue to Steilacoom-Dupont SW were examined under forecast conditions. Based on forecast conditions with project traffic and the modified intersection to all-way stop, max queues are estimated to approximately 60-feet. The current storage capacity of ~40-feet therefore should increase to a minimum of 60-feet and up to 75-feet—terminating just before a commercial driveway.

Based on the analysis above, the following mitigations and conclusions are identified:

1. All access points shall be designed in accordance with City standards and shall meet sight distance requirements.

2. The 3,000 square foot commercial building was evaluated under fast casual dining. Should the actual tenant occupancy change to a higher-generating use, additional evaluation may be required.

3. The existing eastbound left-turn pocket storage length along Barksdale Avenue to Steilacoom-Dupont shall extend to a minimum of 60-feet (existing ~40-feet) to accommodate future queuing demands. The queuing analysis takes into consideration the future all-way stop intersection configuration.

4. The project access onto Steilacoom-Dupont Road SW was evaluated under restricted (right-turns only) and unrestricted (full-movement) scenarios. Actual driveway configuration is subject to City review and any potential corridor improvements/modifications as a result of the WSDOT I-5 Interchange relocation project.

No other mitigation is identified at this time.

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

SUNDAY PEAK
INTERSECTION COUNT SHEETS

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5174a
Site Code : 00005174
Start Date : 7/23/2023
Page No : 1

Groups Printed- Passenger + - Heavy

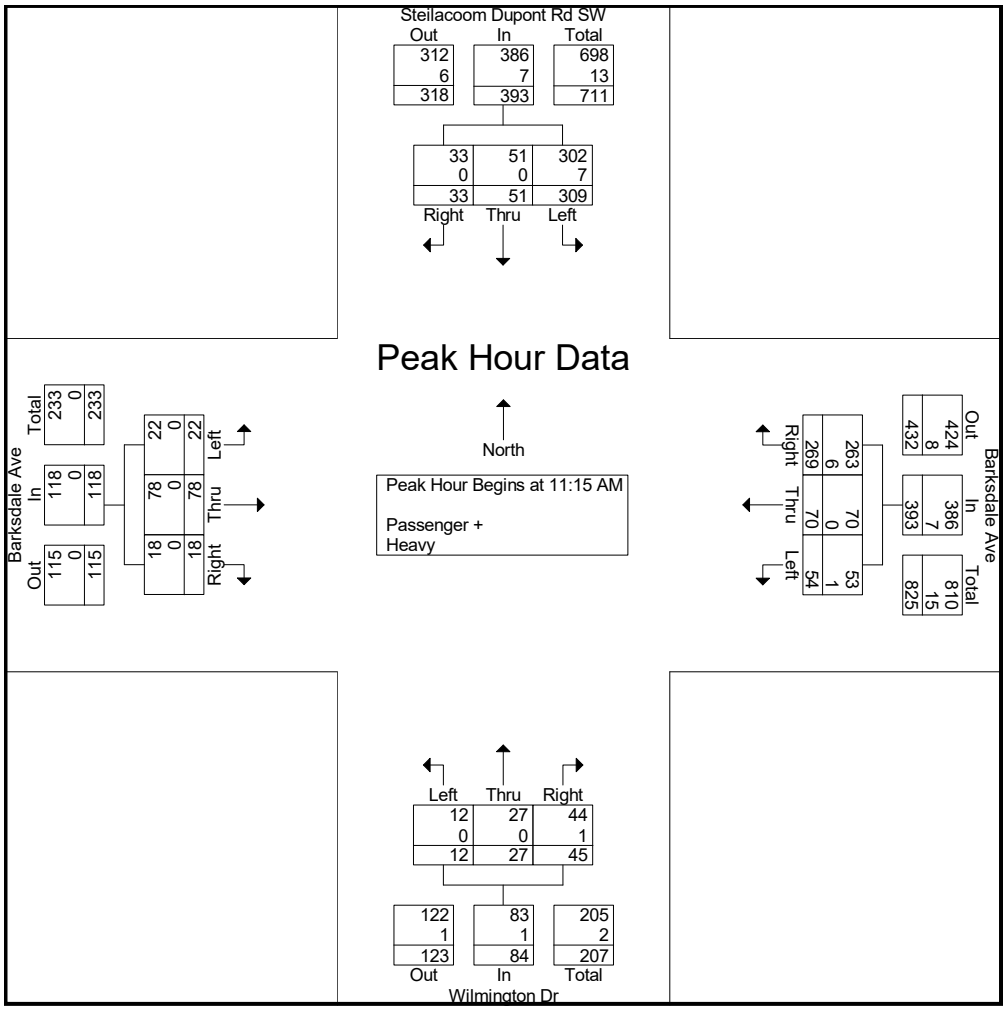
	Steilacoom Dupont Rd SW Southbound				Barksdale Ave Westbound				Wilmington Dr Northbound				Barksdale Ave Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
09:30 AM	8	6	65	79	60	8	10	78	15	7	2	24	3	11	2	16	197
09:45 AM	3	10	60	73	74	14	8	96	10	8	2	20	3	15	5	23	212
Total	11	16	125	152	134	22	18	174	25	15	4	44	6	26	7	39	409
10:00 AM	8	5	66	79	51	19	16	86	14	7	3	24	3	12	2	17	206
10:15 AM	10	11	69	90	54	16	13	83	14	4	7	25	3	19	7	29	227
10:30 AM	10	9	64	83	47	8	10	65	16	9	4	29	2	22	4	28	205
10:45 AM	4	5	67	76	53	9	7	69	17	6	5	28	3	16	2	21	194
Total	32	30	266	328	205	52	46	303	61	26	19	106	11	69	15	95	832
11:00 AM	4	11	80	95	70	15	11	96	17	10	3	30	4	15	8	27	248
11:15 AM	8	10	90	108	65	13	13	91	17	7	2	26	4	15	6	25	250
11:30 AM	5	15	82	102	65	10	8	83	10	3	1	14	2	15	3	20	219
11:45 AM	11	13	67	91	71	24	15	110	10	12	6	28	6	21	8	35	264
Total	28	49	319	396	271	62	47	380	54	32	12	98	16	66	25	107	981
12:00 PM	9	13	70	92	68	23	18	109	8	5	3	16	6	27	5	38	255
12:15 PM	11	7	70	88	67	12	17	96	13	3	2	18	5	19	5	29	231
Grand Total	91	115	850	1056	745	171	146	1062	161	81	40	282	44	207	57	308	2708
Apprch %	8.6	10.9	80.5		70.2	16.1	13.7		57.1	28.7	14.2		14.3	67.2	18.5		
Total %	3.4	4.2	31.4	39	27.5	6.3	5.4	39.2	5.9	3	1.5	10.4	1.6	7.6	2.1	11.4	
Passenger +	88	114	818	1020	726	171	144	1041	159	81	40	280	44	204	56	304	2645
% Passenger +	96.7	99.1	96.2	96.6	97.4	100	98.6	98	98.8	100	100	99.3	100	98.6	98.2	98.7	97.7
Heavy	3	1	32	36	19	0	2	21	2	0	0	2	0	3	1	4	63
% Heavy	3.3	0.9	3.8	3.4	2.6	0	1.4	2	1.2	0	0	0.7	0	1.4	1.8	1.3	2.3

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5174a
Site Code : 00005174
Start Date : 7/23/2023
Page No : 2

	Steilacoom Dupont Rd SW Southbound				Barksdale Ave Westbound				Wilmington Dr Northbound				Barksdale Ave Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 09:30 AM to 12:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	8	10	**90**	**108**	65	13	13	91	**17**	7	2	26	4	15	6	25	250
11:30 AM	5	**15**	82	102	65	10	8	83	10	3	1	14	2	15	3	20	219
11:45 AM	**11**	13	67	91	**71**	**24**	15	**110**	10	**12**	**6**	**28**	**6**	21	**8**	35	**264**
12:00 PM	9	13	70	92	68	23	**18**	109	8	5	3	16	6	**27**	5	**38**	255
Total Volume	33	51	309	393	269	70	54	393	45	27	12	84	18	78	22	118	988
% App. Total	8.4	13	78.6		68.4	17.8	13.7		53.6	32.1	14.3		15.3	66.1	18.6		
PHF	.750	.850	.858	.910	.947	.729	.750	.893	.662	.563	.500	.750	.750	.722	.688	.776	.936
Passenger +	33	51	302	386	263	70	53	386	44	27	12	83	18	78	22	118	973
% Passenger +	100	100	97.7	98.2	97.8	100	98.1	98.2	97.8	100	100	98.8	100	100	100	100	98.5
Heavy	0	0	7	7	6	0	1	7	1	0	0	1	0	0	0	0	15
% Heavy	0	0	2.3	1.8	2.2	0	1.9	1.8	2.2	0	0	1.2	0	0	0	0	1.5



Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5174b
Site Code : 00005174
Start Date : 7/23/2023
Page No : 1

Groups Printed- Passenger + - Heavy

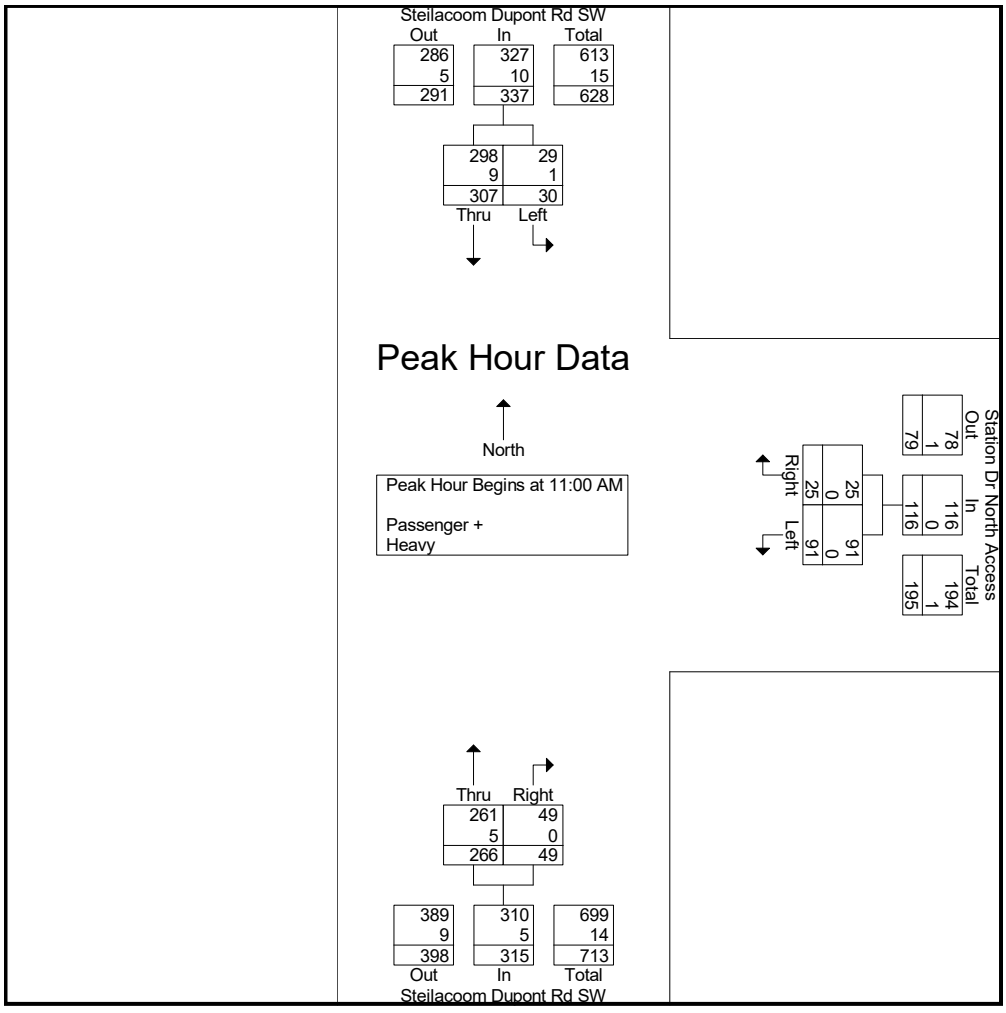
	Steilacoom Dupont Rd SW Southbound			Station Dr North Access Westbound			Steilacoom Dupont Rd SW Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
09:30 AM	52	7	59	3	20	23	11	63	74	156
09:45 AM	54	7	61	8	16	24	9	75	84	169
Total	106	14	120	11	36	47	20	138	158	325
10:00 AM	60	4	64	3	17	20	7	51	58	142
10:15 AM	64	0	64	4	22	26	21	53	74	164
10:30 AM	68	5	73	4	10	14	9	51	60	147
10:45 AM	53	6	59	3	18	21	13	59	72	152
Total	245	15	260	14	67	81	50	214	264	605
11:00 AM	71	4	75	8	25	33	16	68	84	192
11:15 AM	84	11	95	7	25	32	10	65	75	202
11:30 AM	79	10	89	4	13	17	9	58	67	173
11:45 AM	73	5	78	6	28	34	14	75	89	201
Total	307	30	337	25	91	116	49	266	315	768
12:00 PM	71	5	76	3	17	20	11	63	74	170
12:15 PM	78	6	84	4	17	21	11	61	72	177
Grand Total	807	70	877	57	228	285	141	742	883	2045
Apprch %	92	8		20	80		16	84		
Total %	39.5	3.4	42.9	2.8	11.1	13.9	6.9	36.3	43.2	
Passenger +	773	69	842	56	228	284	140	718	858	1984
% Passenger +	95.8	98.6	96	98.2	100	99.6	99.3	96.8	97.2	97
Heavy	34	1	35	1	0	1	1	24	25	61
% Heavy	4.2	1.4	4	1.8	0	0.4	0.7	3.2	2.8	3

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5174b
Site Code : 00005174
Start Date : 7/23/2023
Page No : 2

	Steilacoom Dupont Rd SW Southbound			Station Dr North Access Westbound			Steilacoom Dupont Rd SW Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 09:30 AM to 12:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	71	4	75	**8**	25	33	**16**	68	84	192
11:15 AM	**84**	**11**	**95**	7	25	32	10	65	75	**202**
11:30 AM	79	10	89	4	13	17	9	58	67	173
11:45 AM	73	5	78	6	**28**	**34**	14	**75**	**89**	201
Total Volume	307	30	337	25	91	116	49	266	315	768
% App. Total	91.1	8.9		21.6	78.4		15.6	84.4		
PHF	.914	.682	.887	.781	.813	.853	.766	.887	.885	.950
Passenger +	298	29	327	25	91	116	49	261	310	753
% Passenger +	97.1	96.7	97.0	100	100	100	100	98.1	98.4	98.0
Heavy	9	1	10	0	0	0	0	5	5	15
% Heavy	2.9	3.3	3.0	0	0	0	0	1.9	1.6	2.0



CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

FORECAST 2026 WEEKDAY PM PEAK HOUR
BACKGROUND TRAFFIC VOLUMES

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	15	135	235	120
Future Vol, veh/h	105	20	15	135	235	120
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	1	1	3	3
Mvmt Flow	109	21	16	141	245	125
Number of Lanes	1	0	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.4	9.1	11
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	84%	0%
Vol Thru, %	0%	100%	0%	66%
Vol Right, %	0%	0%	16%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	135	125	355
LT Vol	15	0	105	0
Through Vol	0	135	0	235
RT Vol	0	0	20	120
Lane Flow Rate	16	141	130	370
Geometry Grp	7	7	2	5
Degree of Util (X)	0.025	0.201	0.188	0.451
Departure Headway (Hd)	5.657	5.153	5.19	4.388
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	632	695	689	821
Service Time	3.398	2.894	3.24	2.421
HCM Lane V/C Ratio	0.025	0.203	0.189	0.451
HCM Control Delay	8.5	9.2	9.4	11
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.7	0.7	2.4

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

ELECTRIC VEHICLE PARKING
TRIP GENERATION DATA

LOCAL TRIP GENERATION – EV CHARGING STATIONS:

Trip generation is typically derived using the Institute of Transportation Engineering Manual, *Trip Generation*. However, no applicable land use code in the 11th Edition manual was identified for electric vehicle charging stations. Therefore, a sample site trip generation analysis of several existing EV charging station sites was performed to provide a more accurate forecast. Three existing EV charging sites were sampled in terms of PM peak hour vehicular demands that were considered similar in nature and operation to that of the proposed. Specifications for the sample sites were obtained through Pierce County GIS. Below are the summaries of each sample site.

A. EVgo Charging Station
   Address: 1112 S M St, Tacoma, WA 98405
   Charging Station Capacity: 4 stalls
   Date Sampled: 11/22/2022 and 11/23/2022

B. Electrify America Charging Station
   Address: 1401 Galaxy Dr NE, Lacey, WA 98516
   Charging Station Capacity: 6 stalls
   Date Sampled: 12/6/2022 and 12/7/2022

C. Tesla Supercharger
   Address: 655 Sleater-Kinney Rd SE, Lacey, WA 98503
   Charging Station Capacity: 12 stalls
   Date Sampled: 12/6/2022 and 12/7/2022

Data collection at each sample site was gathered via physical field counts and consisted of tracking each inbound/outbound movement. Counts were performed for a two-hour period between 4:00-6:00 PM. The one-hour reflecting the highest observed total inbound and outbound movements was then used for calculations and is considered the "peak hour." A spreadsheet outlining volumes observed at each sample site has been attached on the following page. The spreadsheet illustrates the calculated inbound and outbound trip generation rates for the PM peak hour at each sample site. Rates are based on trips per EV charging stall.

Project File #: 4506
Project Name: Dos Lagos EV Study
Sample Parameters: 3 Locations , 2-Days each
Study Timeframe: 4:00 PM to 6:00 PM

EVgo Charging Station - 4 Stalls
Address: 1112 S M St, Tacoma, WA 98405
(Safeway Parking lot)

Day 1: 11/22/2022		Day 2: 11/23/2022	
4:07 In	**5:08 Out**	**5:10 In**	**5:21 Out**
5:15 In	**5:39 Out**		
2 in	2 Out	1 in	1 out

Peak Hour begins at 5:00 PM — Peak Hour begins at 5:00 PM
3 PM peak hour trips (1 In/2 Out) **2 PM peak hour trips (1 In/1 Out)**

Electrify America Charging Station - 6 Stalls
Address: 1401 Galaxy Dr NE, Lacey, WA 98516
(Walmart Parking Lot)

Day 1: 12/6/2022		Day 2: 12/7/2022	
4:25 In	**5:15 Out**	Pre-peak	**4:37 Out**
4:59 In	**5:14 Out**	**4:35 In**	**5:09 Out**
5:46 In	-	**4:42 In**	5:39 Out
		5:18 In	-
		5:29 In	-
3 in	2 out	4 In	3 Out

Peak Hour begins at 4:45 PM — Peak Hour begins at 4:30 PM
3 PM peak hour trips (1 In/2 Out) **6 PM peak hour trips (4 In/2 Out)**

Tesla Supercharger - 12 Stalls
Address: 655 SleaterKinney Rd SE, Lacey, WA 98503
(Shopping Center)

Day 1: 12/6/2022		Day 2: 12/7/2022	
Pre-Peak	4:01 Out	Pre-Peak	4:16 Out
Pre-Peak	4:05 Out	Pre-Peak	4:19 Out
Pre-Peak	4:07 Out	Pre-Peak	4:24 Out
Pre-Peak	**4:52 Out**	4:13 In	4:39 Out
4:30 In	**4:53 Out**	4:20 In	**5:24 Out**
4:48 In	**5:11 Out**	4:26 In	**5:09 Out**
4:49 in	**5:10 Out**	**5:02 In**	**5:27 Out**
5:09 In	5:56 Out	**5:05 In**	**5:28 Out**
5:16 In	5:46 Out	**5:18 In**	**5:29 Out**
5:21 In	5: 57 Out	**5:19 In**	**5:58 Out**
5:48 In	-	**5:22 In**	-
		5:30 in	**5:38 Out**
		5:33 in	-
		5:44 In	-
		5:48 In	-
		5:59 in	-
7 In	10 Out	13 In	11 Out

Peak Hour begins at 4:30 PM — Peak Hour begins at 5:00 PM
10 PM peak hour trips (6 In/4 Out) 17 PM peak hour trips (10 In/7 Out)

Evgo Charging Station Trip Rates (Site 1)						
Day	Peak Hour	Stall Count	Inbound Trips	Inbound Trip Rate	Outbound Trips	Outbound Trip Rate
Day 1	5:00-6:00 PM	4	1	0.25	2	0.5
Day 2	5:00-6:00 PM	4	1	0.25	1	0.25

Electrify America Charging Station Trip Rates (Site 2)						
Day	Peak Hour	Stall Count	Inbound Trips	Inbound Trip Rate	Outbound Trips	Outbound Trip Rate
Day 1	4:45-5:45 PM	6	1	0.17	2	0.33
Day 2	4:30-5:30 PM	6	4	0.67	2	0.33

Tesla Supercharger Trip Rates (Site 3)						
Day	Peak Hour	Stall Count	Inbound Trips	Inbound Trip Rate	Outbound Trips	Outbound Trip Rate
Day 1	4:30-5:30 PM	12	6	0.50	4	0.33
Day 2	5:00-6:00 PM	12	10	0.83	7	0.58

Average Trip Rates					
Site	**# of Stalls**	**Day**	**Inbound**	**Outbound**	**Total**
1	4	1	0.25	0.5	0.75
		2	0.25	0.25	0.50
2	6	1	0.17	0.33	0.50
		2	0.67	0.33	1.00
3	12	1	0.50	0.33	0.83
		2	0.83	0.58	1.41
		Average	**0.45**	**0.39**	**0.83**
		Weighted Average	**0.52**	**0.41**	**0.93**

Average Trip Rates Applied to Project		
Proposed # of charging stalls	Inbound Trips	Outbound Trips
10	**5.2**	**4.1**

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

TRIP GENERATION SUMMARY

Heath & Associates Transportation Engineering
Project: Champion Centre
Jurisdiction: Dupont

Trip Generation Summary

Average Weekday Daily

Development	Land Use	LUC	Variable	Value	Rate	Distribution		Total Trips			Internal Capture		Pass-by Trips		Primary Trips		
						In	Out	In	Out	Total	%	Total	%	Total	In	Out	Total
	Church	#560	1000 sqft	25.48	7.6	50%	50%	96.8	96.8	193.6	0.0%	0.0	0%	0.0	96.8	96.8	193.6
Full Build-Out	Fast Casual Restaurant	#930	1000 sqft	3	97.14	50%	50%	145.7	145.7	291.4	0.0%	0.0	43%	125.3	83.1	83.1	166.1
	EV Charging Stations	N/A	Stall	10							0.0%	0.0	0%	0.0			
							Totals	**242.5**	**242.5**	**485.1**	**Totals**	**0.0**	**Totals**	**125.3**	**179.9**	**179.9**	**359.8**

Weekday AM Peak Hour

Development	Land Use	LUC	Variable	Value	Rate	Distribution		Total Trips			Internal Capture		Pass-by Trips		Primary Trips		
						In	Out	In	Out	Total	%	Total	%	Total	In	Out	Total
	Church	#560	1000 sqft	25.48	0.32	62%	38%	5.1	3.1	8.2	0.0%	0.0	0%	0.0	5.1	3.1	8.2
Full Build-Out	Fast Casual Restaurant	#930	1000 sqft	3	1.43	50%	50%	2.1	2.1	4.3	0.0%	0.0	43%	1.8	1.2	1.2	2.4
	EV Charging Stations	N/A	Stall	10							0.0%	0.0	0%	0.0			
							Totals	**7.2**	**5.2**	**12.4**	**Totals**	**0.0**	**Totals**	**1.8**	**6.3**	**4.3**	**10.6**

Weekday PM Peak Hour

Development	Land Use	LUC	Variable	Value	Rate	Distribution		Total Trips			Internal Capture		Pass-by Trips		Primary Trips		
						In	Out	In	Out	Total	%	Total	%	Total	In	Out	Total
	Church	#560	1000 sqft	25.48	0.49	44%	56%	5.5	7.0	12.5	0.0%	0.0	0%	0.0	5.0	6.7	12.0
Full Build-Out	Fast Casual Restaurant	#930	1000 sqft	3	12.55	55%	45%	20.7	16.9	37.7	0.0%	0.0	43%	16.2	11.8	9.7	21.5
	EV Charging Stations	N/A	Stall	10	0.93	56%	44%	5.2	4.1	9.3	0.0%	0.0	0%	0.0	5.2	4.1	9.3
							Totals	**31.4**	**28.0**	**59.4**	**Totals**	**0.0**	**Totals**	**16.2**	**22.0**	**20.5**	**42.8**

Sunday Peak Hour

Development	Land Use	LUC	Variable	Value	Rate	Distribution		Total Trips			Internal Capture		Pass-by Trips		Primary Trips		
						In	Out	In	Out	Total	%	Total	%	Total	In	Out	Total
	Church	#560	1000 sqft	25.48	10.36	48%	52%	126.7	137.3	264.0	0.0%	0.0	0%	0.0	126.7	137.3	264.0
Full Build-Out	Fast Casual Restaurant	#930	1000 sqft	3	32.64	55%	45%	53.9	44.1	97.9	0.0%	0.0	43%	42.1	30.7	25.1	55.8
	EV Charging Stations	N/A	Stall	10	0.93	56%	44%	5.2	4.1	9.3	0.0%	0.0	0%	0.0	5.2	4.1	9.3
							Totals	**185.8**	**185.4**	**371.2**	**Totals**	**0.0**	**Totals**	**42.1**	**162.6**	**166.5**	**329.1**

Sources:
Institute of Transportation Engineers, *Trip Generation Manual,* 11th Edition, (2021).
Pass-by rates were derived from the Institute of Transportation Engineers, 2021 Pass-By Tables for ITE Trip Gen Appendices (2021). No pass-by rate is available for LUC 930 - Fast Casual Restaurant. As such, rates for a similar land use, LUC 932 - High-Turnover (Sit-Down) Restaurant were applied to the proposed land use.
NCHRP 8-51 Internal Trip Capture Estimation Tool

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

FORECAST 2026 PEAK HOUR LEVEL OF SERVICE
WITHOUT PROJECT

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	15	135	235	120
Future Vol, veh/h	105	20	15	135	235	120
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	1	1	3	3
Mvmt Flow	109	21	16	141	245	125
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.1	9.2	12.2
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	66%
Vol Right, %	0%	0%	0%	100%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	135	105	20	355
LT Vol	15	0	105	0	0
Through Vol	0	135	0	0	235
RT Vol	0	0	0	20	120
Lane Flow Rate	16	141	109	21	370
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.025	0.204	0.191	0.029	0.487
Departure Headway (Hd)	5.738	5.234	6.282	5.072	4.74
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	623	683	569	701	758
Service Time	3.485	2.981	4.048	2.837	2.776
HCM Lane V/C Ratio	0.026	0.206	0.192	0.03	0.488
HCM Control Delay, s/veh	8.6	9.3	10.5	8	12.2
HCM Lane LOS	A	A	B	A	B
HCM 95th-tile Q	0.1	0.8	0.7	0.1	2.7

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	41	193	47	54	296
Future Vol, veh/h	59	41	193	47	54	296
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	185	90	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	1	3	3
Mvmt Flow	62	43	203	49	57	312

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	628	203	0	0	253	0
Stage 1	203	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	448	840	-	-	1307	-
Stage 1	833	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	429	840	-	-	1307	-
Mov Cap-2 Maneuver	515	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.54	0	1.22
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	515	840	1307	-
HCM Lane V/C Ratio	-	-	0.121	0.051	0.043	-
HCM Control Delay (s/veh)	-	-	12.9	9.5	7.9	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	106	19	13	77	111	109
Future Vol, veh/h	106	19	13	77	111	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	2	2	2
Mvmt Flow	113	20	14	82	118	116
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	9.4	8.5	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	50%
Vol Right, %	0%	0%	0%	100%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	77	106	19	220
LT Vol	13	0	106	0	0
Through Vol	0	77	0	0	111
RT Vol	0	0	0	19	109
Lane Flow Rate	14	82	113	20	234
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.022	0.116	0.181	0.026	0.295
Departure Headway (Hd)	5.599	5.113	5.794	4.588	4.539
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	640	702	619	779	793
Service Time	3.323	2.837	3.529	2.322	2.558
HCM Lane V/C Ratio	0.022	0.117	0.183	0.026	0.295
HCM Control Delay, s/veh	8.4	8.5	9.8	7.4	9.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.7	0.1	1.2

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	51	144	39	45	147
Future Vol, veh/h	73	51	144	39	45	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	185	90	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	1	3	3
Mvmt Flow	77	54	152	41	47	155

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	401	152	0	0	193	0
Stage 1	152	-	-	-	-	-
Stage 2	249	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	607	897	-	-	1375	-
Stage 1	879	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	586	897	-	-	1375	-
Mov Cap-2 Maneuver	637	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.54	0	1.81
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	637	897	1375	-
HCM Lane V/C Ratio	-	-	0.121	0.06	0.034	-
HCM Control Delay (s/veh)	-	-	11.4	9.3	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.1	-

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

FORECAST 2026 PEAK HOUR LEVEL OF SERVICE
WITH PROJECT: SCENARIO 1

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	112	29	29	135	240	120
Future Vol, veh/h	112	29	29	135	240	120
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	1	1	3	3
Mvmt Flow	117	30	30	141	250	125
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.2	9.3	12.6
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	67%
Vol Right, %	0%	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	135	112	29	360
LT Vol	29	0	112	0	0
Through Vol	0	135	0	0	240
RT Vol	0	0	0	29	120
Lane Flow Rate	30	141	117	30	375
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.049	0.207	0.205	0.043	0.501
Departure Headway (Hd)	5.801	5.296	6.336	5.126	4.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	615	675	564	693	746
Service Time	3.554	3.05	4.112	2.9	2.85
HCM Lane V/C Ratio	0.049	0.209	0.207	0.043	0.503
HCM Control Delay, s/veh	8.9	9.4	10.8	8.1	12.6
HCM Lane LOS	A	A	B	A	B
HCM 95th-tile Q	0.2	0.8	0.8	0.1	2.8

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	13	59	0	41	0	200	47	54	288	16
Future Vol, veh/h	0	0	13	59	0	41	0	200	47	54	288	16
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	-	-	-	50	-	0	-	-	185	90	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	92	95	92	95	95	95	95	92
Heavy Vehicles, %	2	2	2	1	2	1	2	2	1	3	3	2
Mvmt Flow	0	0	14	62	0	43	0	211	49	57	303	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	312	627	-	211	-	0	0	260	0	0
Stage 1	-	-	-	211	-	-	-	-	-	-	-	-
Stage 2	-	-	-	417	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.11	-	6.21	-	-	-	4.13	-	-
Critical Hdwy Stg 1	-	-	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.509	-	3.309	-	-	-	2.227	-	-
Pot Cap-1 Maneuver	0	0	728	397	0	832	0	-	-	1299	-	-
Stage 1	0	0	-	794	0	-	0	-	-	-	-	-
Stage 2	0	0	-	615	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	728	372	-	832	-	-	-	1299	-	-
Mov Cap-2 Maneuver	-	-	-	466	-	-	-	-	-	-	-	-
Stage 1	-	-	-	794	-	-	-	-	-	-	-	-
Stage 2	-	-	-	577	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.04	12.13	0	1.19
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	728	466	832	1299	-	-
HCM Lane V/C Ratio	-	-	0.019	0.133	0.052	0.044	-	-
HCM Control Delay (s/veh)	-	-	10	13.9	9.6	7.9	-	-
HCM Lane LOS	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.5	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	125	135	14	16	0
Future Vol, veh/h	0	125	135	14	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	136	147	15	17	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	162	0	-	0	290	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1417	-	-	-	700	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1417	-	-	-	700	892
Mov Cap-2 Maneuver	-	-	-	-	700	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	10.27
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1417	-	-	-	700
HCM Lane V/C Ratio	-	-	-	-	0.025
HCM Control Delay (s/veh)	0	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	164	81	115	77	153	109
Future Vol, veh/h	164	81	115	77	153	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	2	2	2
Mvmt Flow	174	86	122	82	163	116
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.6	9.9	11.4
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	58%
Vol Right, %	0%	0%	0%	100%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	77	164	81	262
LT Vol	115	0	164	0	0
Through Vol	0	77	0	0	153
RT Vol	0	0	0	81	109
Lane Flow Rate	122	82	174	86	279
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.205	0.126	0.302	0.12	0.393
Departure Headway (Hd)	6.04	5.552	6.222	5.012	5.076
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	590	640	572	707	702
Service Time	3.824	3.336	4.011	2.801	3.147
HCM Lane V/C Ratio	0.207	0.128	0.304	0.122	0.397
HCM Control Delay, s/veh	10.4	9.1	11.7	8.5	11.4
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	0.8	0.4	1.3	0.4	1.9

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	0	0	63	73	0	51	0	202	39	45	126	78
Future Vol, veh/h	0	0	63	73	0	51	0	202	39	45	126	78
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	-	-	-	50	-	0	-	-	185	90	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	92	95	92	95	95	95	95	92
Heavy Vehicles, %	2	2	2	1	2	1	2	2	1	3	3	2
Mvmt Flow	0	0	68	77	0	54	0	213	41	47	133	85

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	175	440	-	213	-	0	0	254	0	0
Stage 1	-	-	-	213	-	-	-	-	-	-	-	-
Stage 2	-	-	-	227	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.11	-	6.21	-	-	-	4.13	-	-
Critical Hdwy Stg 1	-	-	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.509	-	3.309	-	-	-	2.227	-	-
Pot Cap-1 Maneuver	0	0	868	529	0	830	0	-	-	1306	-	-
Stage 1	0	0	-	792	0	-	0	-	-	-	-	-
Stage 2	0	0	-	778	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	868	470	-	830	-	-	-	1306	-	-
Mov Cap-2 Maneuver	-	-	-	548	-	-	-	-	-	-	-	-
Stage 1	-	-	-	792	-	-	-	-	-	-	-	-
Stage 2	-	-	-	690	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.5	11.4	0	1.41
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	868	548	830	1306	-	-
HCM Lane V/C Ratio	-	-	0.079	0.14	0.065	0.036	-	-
HCM Control Delay (s/veh)	-	-	9.5	12.6	9.6	7.9	-	-
HCM Lane LOS	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.5	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	125	122	102	120	4
Future Vol, veh/h	4	125	122	102	120	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	136	133	111	130	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	243	0	-	0	333	188
Stage 1	-	-	-	-	188	-
Stage 2	-	-	-	-	145	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1323	-	-	-	662	854
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1323	-	-	-	660	854
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	883	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.24	0	11.79
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	56	-	-	-	665
HCM Lane V/C Ratio	0.003	-	-	-	0.203
HCM Control Delay (s/veh)	7.7	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

FORECAST 2026 PEAK HOUR LEVEL OF SERVICE
WITH PROJECT: SCENARIO 2

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	106	29	24	140	240	120
Future Vol, veh/h	106	29	24	140	240	120
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	1	1	3	3
Mvmt Flow	110	30	25	146	250	125
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.1	9.4	12.5
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	67%
Vol Right, %	0%	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	140	106	29	360
LT Vol	24	0	106	0	0
Through Vol	0	140	0	0	240
RT Vol	0	0	0	29	120
Lane Flow Rate	25	146	110	30	375
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.04	0.214	0.194	0.043	0.499
Departure Headway (Hd)	5.775	5.271	6.333	5.122	4.786
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	618	678	563	693	750
Service Time	3.528	3.024	4.106	2.895	2.828
HCM Lane V/C Ratio	0.04	0.215	0.195	0.043	0.5
HCM Control Delay, s/veh	8.8	9.5	10.6	8.1	12.5
HCM Lane LOS	A	A	B	A	B
HCM 95th-tile Q	0.1	0.8	0.7	0.1	2.8

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	11	59	0	41	7	192	47	54	290	14
Future Vol, veh/h	6	0	11	59	0	41	7	192	47	54	290	14
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	-	-	-	50	-	0	-	-	185	90	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	92	95	92	95	95	95	95	92
Heavy Vehicles, %	2	2	2	1	2	1	2	2	1	3	3	2
Mvmt Flow	7	0	12	62	0	43	8	202	49	57	305	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	644	693	313	636	-	202	320	0	0	252	0	0
Stage 1	427	427	-	217	-	-	-	-	-	-	-	-
Stage 2	217	267	-	419	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.11	-	6.21	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.509	-	3.309	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	386	367	727	392	0	841	1239	-	-	1308	-	-
Stage 1	606	586	-	787	0	-	-	-	-	-	-	-
Stage 2	785	688	-	614	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	348	348	727	366	-	841	1239	-	-	1308	-	-
Mov Cap-2 Maneuver	348	348	-	459	-	-	-	-	-	-	-	-
Stage 1	580	560	-	782	-	-	-	-	-	-	-	-
Stage 2	739	683	-	577	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.11	12.2	0.23	1.19
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1239	-	-	525	459	841	1308	-	-
HCM Lane V/C Ratio	0.006	-	-	0.035	0.135	0.051	0.043	-	-
HCM Control Delay (s/veh)	7.9	-	-	12.1	14.1	9.5	7.9	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	125	135	9	10	0
Future Vol, veh/h	0	125	135	9	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	136	147	10	11	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	157	0	-	0	288	152
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1423	-	-	-	703	895
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1423	-	-	-	703	895
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1423	-	-	-	703
HCM Lane V/C Ratio	-	-	-	-	0.015
HCM Control Delay (s/veh)	0	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	118	81	80	112	153	109
Future Vol, veh/h	118	81	80	112	153	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	2	2	2
Mvmt Flow	126	86	85	119	163	116
Number of Lanes	1	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	9.8	9.4	11
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	58%
Vol Right, %	0%	0%	0%	100%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	112	118	81	262
LT Vol	80	0	118	0	0
Through Vol	0	112	0	0	153
RT Vol	0	0	0	81	109
Lane Flow Rate	85	119	126	86	279
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.139	0.178	0.216	0.119	0.381
Departure Headway (Hd)	5.873	5.386	6.195	4.985	4.919
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	608	662	576	713	727
Service Time	3.636	3.148	3.968	2.758	2.974
HCM Lane V/C Ratio	0.14	0.18	0.219	0.121	0.384
HCM Control Delay, s/veh	9.6	9.3	10.7	8.4	11
HCM Lane LOS	A	A	B	A	B
HCM 95th-tile Q	0.5	0.6	0.8	0.4	1.8

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	0	58	73	0	51	40	151	39	45	131	73
Future Vol, veh/h	51	0	58	73	0	51	40	151	39	45	131	73
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	-	-	-	50	-	0	-	-	185	90	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	92	95	92	95	95	95	95	92
Heavy Vehicles, %	2	2	2	1	2	1	2	2	1	3	3	2
Mvmt Flow	55	0	63	77	0	54	43	159	41	47	138	79

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	518	559	178	479	-	159	217	0	0	200	0	0
Stage 1	272	272	-	246	-	-	-	-	-	-	-	-
Stage 2	246	287	-	233	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.11	-	6.21	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.509	-	3.309	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	468	437	865	499	0	889	1352	-	-	1366	-	-
Stage 1	734	684	-	760	0	-	-	-	-	-	-	-
Stage 2	758	674	-	773	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	409	407	865	430	-	889	1352	-	-	1366	-	-
Mov Cap-2 Maneuver	409	407	-	508	-	-	-	-	-	-	-	-
Stage 1	708	661	-	732	-	-	-	-	-	-	-	-
Stage 2	686	650	-	691	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.99	11.68	1.38	1.38
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	387	-	-	569	508	889	1366	-	-
HCM Lane V/C Ratio	0.032	-	-	0.208	0.151	0.06	0.035	-	-
HCM Control Delay (s/veh)	7.8	0	-	13	13.3	9.3	7.7	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.5	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	125	122	67	74	4
Future Vol, veh/h	4	125	122	67	74	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	136	133	73	80	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	205	0	-	0	314	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	145	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1366	-	-	-	679	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1366	-	-	-	677	875
Mov Cap-2 Maneuver	-	-	-	-	677	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	883	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.24	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	56	-	-	-	685
HCM Lane V/C Ratio	0.003	-	-	-	0.124
HCM Control Delay (s/veh)	7.6	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

FORECAST 2026 PEAK HOUR QUEUING
WITH PROJECT

Intersection: 1: Wilmington Dr/Steilacoom-Dupont Rd SW & Barksdale Ave

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (ft)	58	68	45	73	111
Average Queue (ft)	35	22	20	41	60
95th Queue (ft)	55	52	45	64	89
Link Distance (ft)		387		217	638
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	40		65		
Storage Blk Time (%)	5	1	0	1	
Queuing Penalty (veh)	2	1	0	0	

Intersection: 1: Wilmington Dr/Steilacoom-Dupont Rd SW & Barksdale Ave

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (ft)	66	70	69	66	137
Average Queue (ft)	39	33	35	34	63
95th Queue (ft)	58	52	55	56	107
Link Distance (ft)		423		217	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	40		65		
Storage Blk Time (%)	8	4	0	0	
Queuing Penalty (veh)	7	6	0	0	

CHAMPIONS CENTRE
TRAFFIC IMPACT ANALYSIS

APPENDIX

LEFT TURN LANE WARRANTS

Exhibit 1310-7 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

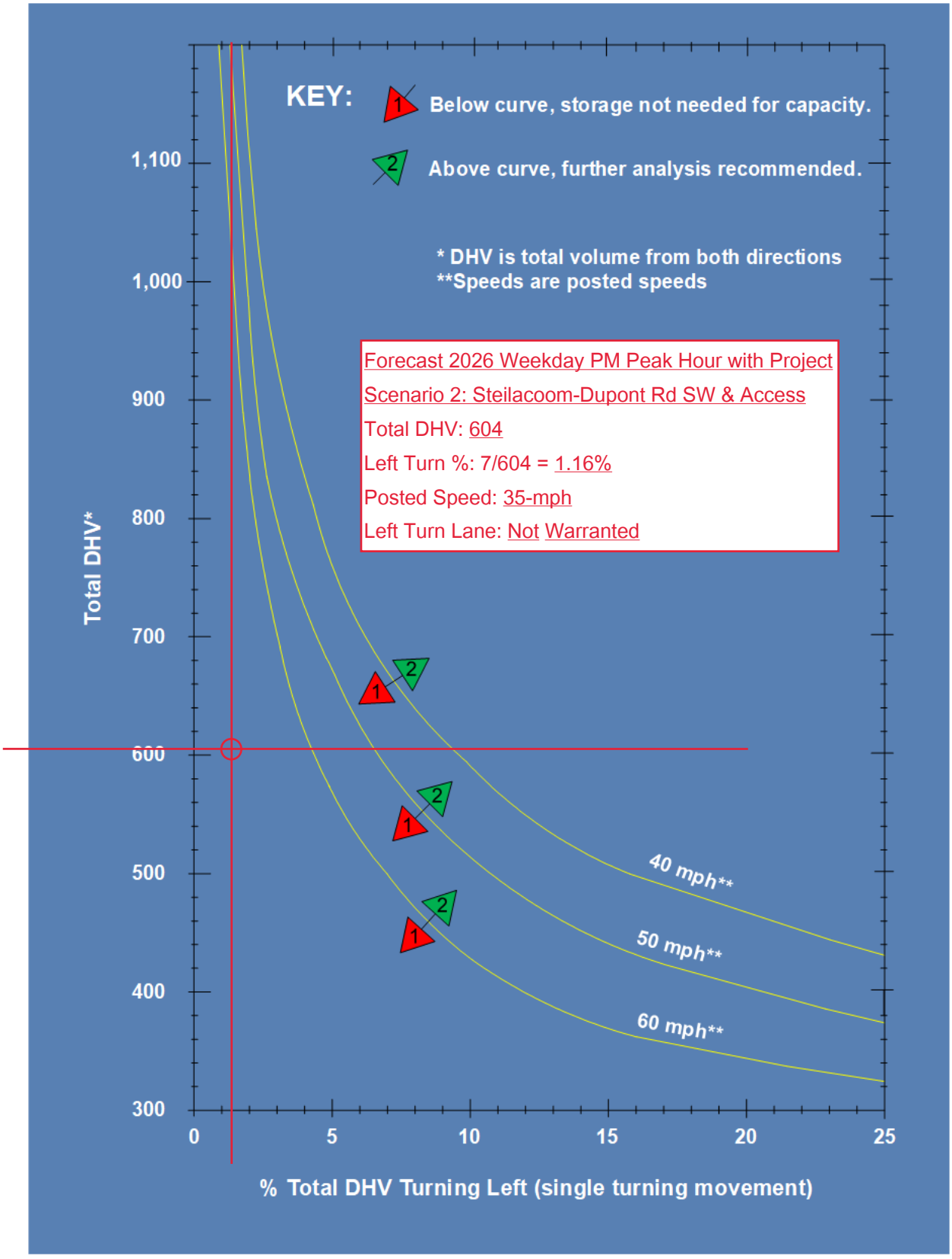


Exhibit 1310-7 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

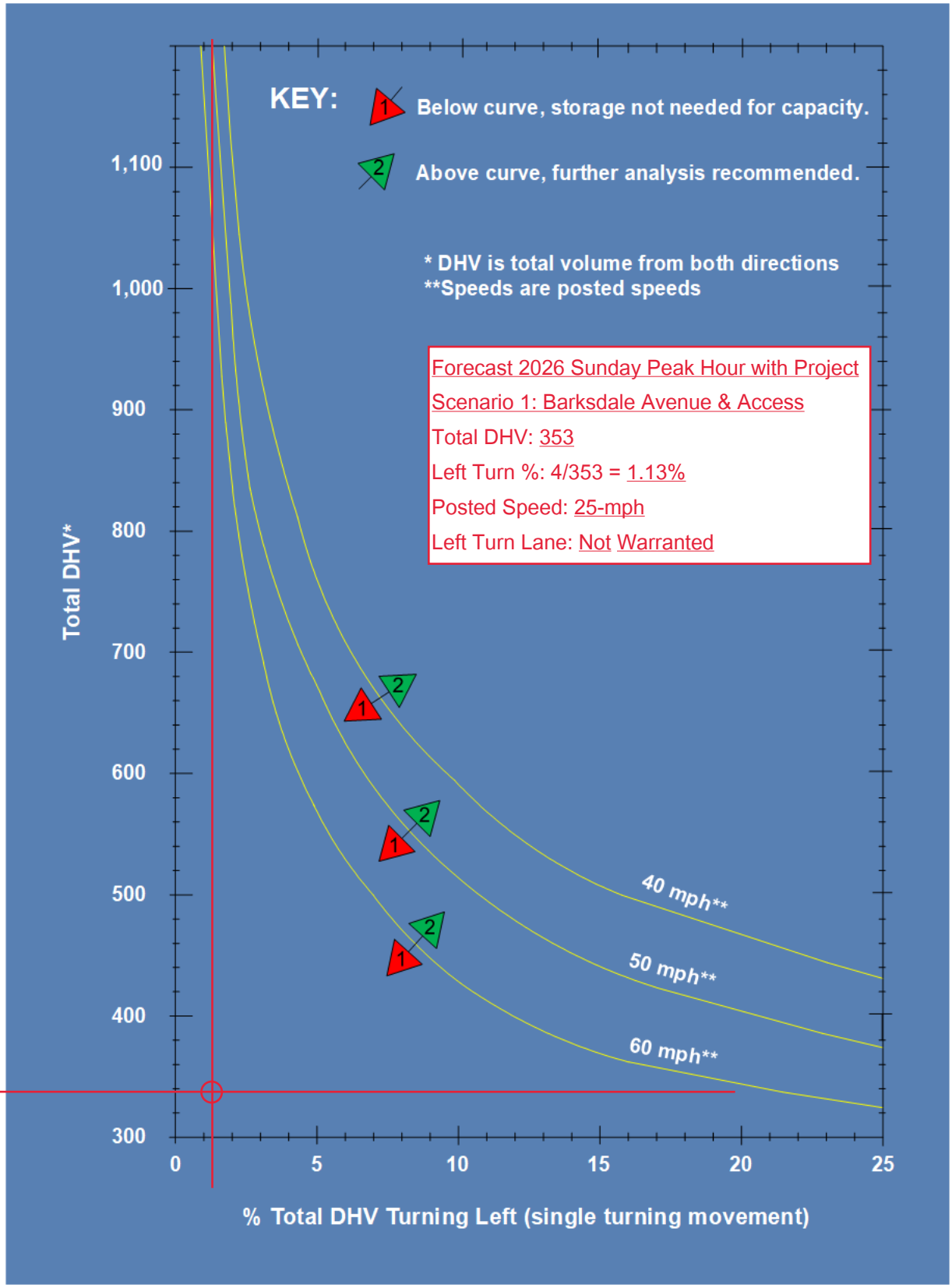


Exhibit 1310-7 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

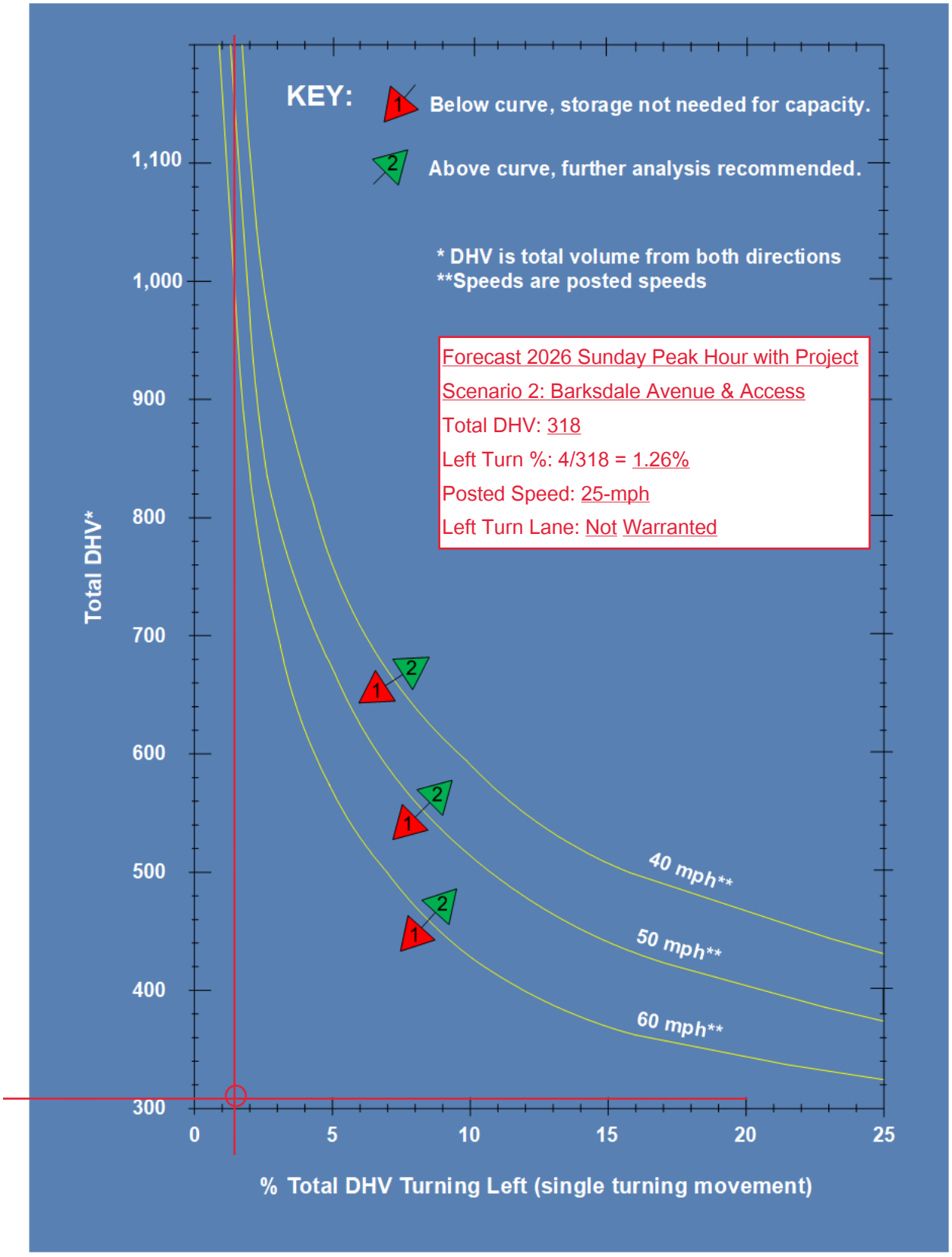


Exhibit 1310-7 Left-Turn Storage Guidelines: Two-Lane, Unsignalized