CANDLEWOOD SUTIES
TRAFFIC IMPACT ANALYSIS

SeaTac, WA

05/12/2022

Prepared for: Imad Bahbah
IHB Architects
21620 84th Ave S, Suite 200
Kent, WA 98032

May 2022

CANDLEWOOD SUITES
TRAFFIC IMPACT ANALYSIS

TABLE OF CONTENTS

1. Introduction 3
2. Project Description 3
3. Existing Conditions.....5
4. Forecast Traffic Demand and Analysis 9
5. Conclusions & Mitigation.....16

Appendix.....17

LIST OF TABLES

1. Bus Routes 6
2. Existing PM Peak Hour Level of Service.....8
3. Project Trip Generation 9
4. Forecast PM Peak Hour Level of Service 15

LIST OF FIGURES

1. Vicinity Map & Roadway System 3
2. Site Plan.....4
3. Existing PM Peak Hour Volumes 7
4. PM Peak Hour Trip Distribution & Assignment.....11
5. Forecast 2028 PM Peak Hour Background Volumes.....12
6. Forecast 2028 PM Peak Hour Volumes with Project 13
7. Forecast 2034 PM Peak Hour Volumes with Project 14

CANDLEWOOD SUITES
TRAFFIC IMPACT ANALYSIS

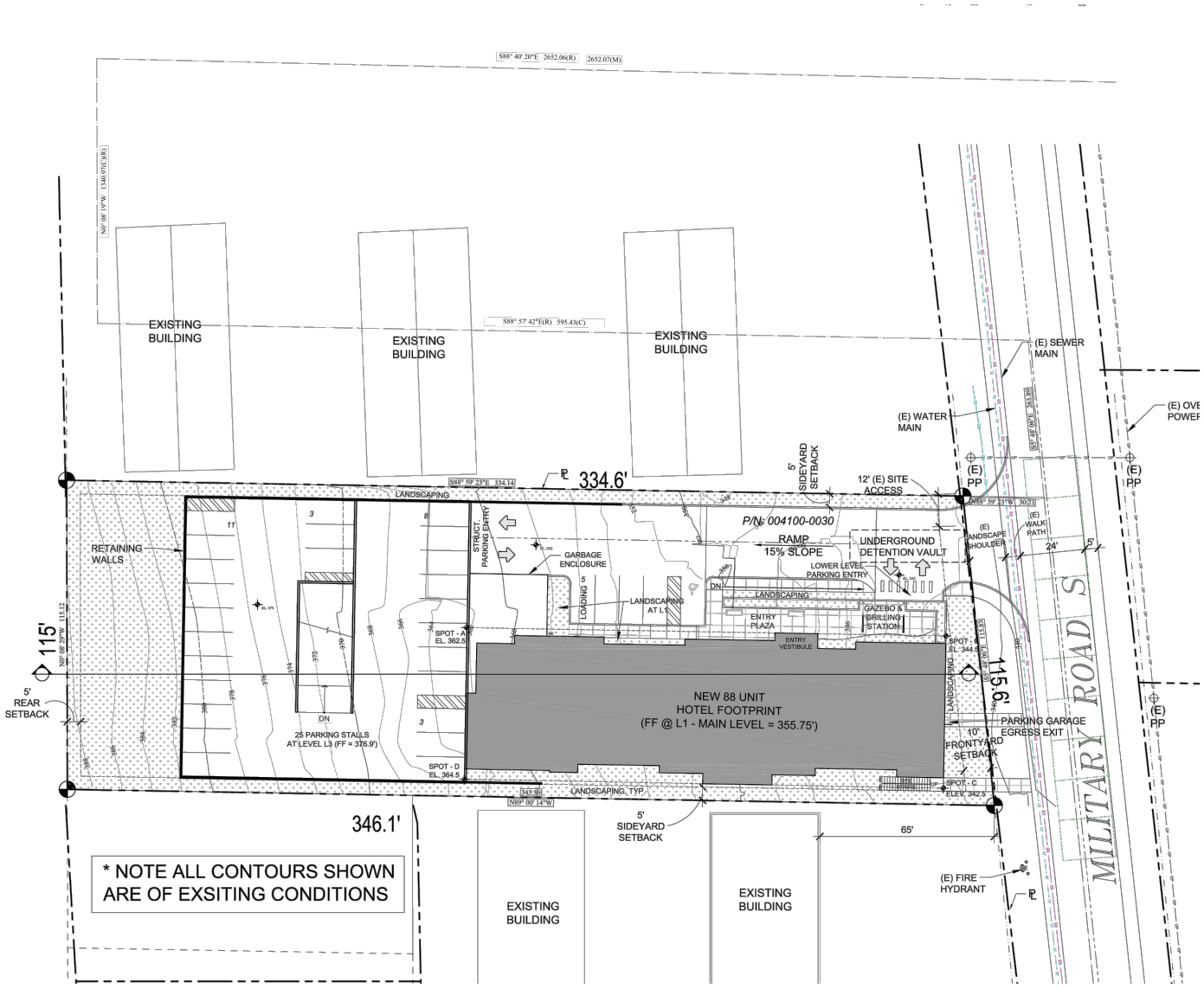
1. INTRODUCTION

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 streets serving the subject site and gathering existing vehicular volumes within a defined study area. 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

The Candlewood Suites project proposes for the construction of a six-story, 88-room hotel within the city of SeaTac. The subject site is bordered to the east by Military Road S, situated on 0.90-acres within tax parcel #: 0041000030. Currently a single-family unit exists on-site, which is to be demolished prior to new construction. Access to and from the project is proposed via one new driveway on the northeast corner of the subject property which is to extend west from Military Road S. On-site parking would be provided via at grade and within a structured parking garage. Access and overall project layout is shown within Figure 2 (site plan) on the following page. Figure 1 below shows the general site location with the subject parcel highlighted in blue.

Figure 1: Vicinity Map



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

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 defined in the study area are listed and described below.

Military Road S: is a two-lane, north-south, minor arterial bordering the subject site to the east. Travel lanes are approximately 10-to-11 feet in width with provided crosswalks located at major intersections. Shoulders are composed of 6-foot walkways along either side of the roadway. The roadway has a posted speed limit of 35-mph.

S 150th Street: is a two-lane, east-west, local roadway, located south of the proposed Candlewood Suite project. Travel lanes vary in width with provided street parking at designated areas only. Sidewalks are available east of the intersection with S Military Road and absent to the west. The roadway has a posted speed limit of 25-mph.

3.2 Roadway Improvements

A review of the current SeaTac Six-Year Transportation Improvement Plan (2022-2027) indicates that the following projects are currently planned in the vicinity. A summary of the identified projects are provided below:

International Boulevard Safety Improvements (ST-162): This project intends to conduct a corridor study to evaluate safety improvements for collision reduction. Possible improvements assumed in cost estimates include four near-side traffic signals and improvements to discourage illegal pedestrian crossings. The total estimated cost is $100,000.

S 152nd Street Improvements (ST-126): This project entails widening the existing roadway from 30th Avenue S to Military Road to construct sidewalks, bike lanes, street lighting, and storm drainage. Provide access and circulation improvements for vehicle and pedestrian movements in support of redevelopment. The total estimated cost is $6,008,000.

3.3 Existing Peak Hour Volumes

Field data for this study was obtained and collected in May of 2022 in order to establish baseline vehicular conditions near the subject site. Traffic counts were administered at the study intersection of Military Road S & S 150th Street between the PM peak period of 4:00-6:00 PM. The one-hour exhibiting highest overall volumes for the time period (peak

hour) was then derived and used for intersection capacity analysis to present worst case conditions. Existing PM peak hour volumes at the study intersection are illustrated in Figure 3 on the following page. Full-count sheets have been included in the appendix.

3.4 Non-Motorist Traffic

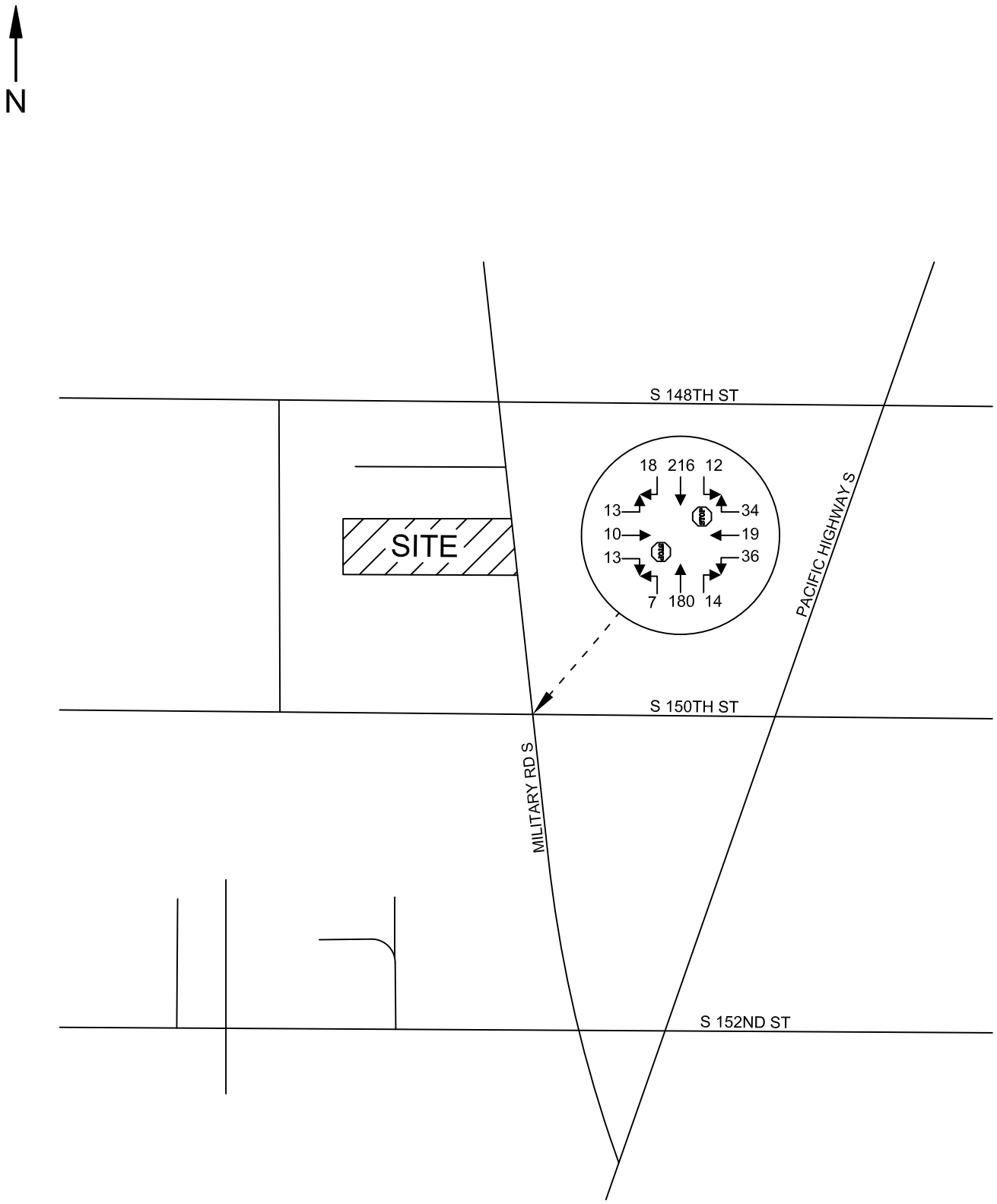
Pedestrian and bicycle activity were observed at the study intersection of Military Road S & 150th Street. During the PM peak hour, approximately two pedestrians and no bicyclists were observed. One pedestrian was observed crossing the north leg of the study intersection and the other pedestrian was noted crossing the west leg of the study intersection. As part of site development, the project proposal would construct frontage improvements that include curb, gutter, sidewalk, and a five-foot bike lane, further enhancing non-motorist infrastructure in the area.

3.5 Public Transit

A review of the King County Metro and Sound Transit service systems indicates the nearest bus lines to the subject site are served via Route 124-Tukwila International Blvd Station-Downtown Seattle and Route 128-Southcenter-North Admiral, which are located along Pacific Highway S/Tukwila International Boulevard adjacent to the Church By the Side of the Road (~1,290' walking distance east of the proposed project). The subject site is also in walking distance from the Tukwila International Boulevard Station (Angle Lake Station) located south of the subject site. The station serves Routes, A-Line, F-Line, 1-Line, 124 and 128. Route details are listed below in Table 1.

Table 1: Bus Routes

Route	Description	Weekday Service	Saturday	Sunday	Nearest Stop
124	Tukwila International Blvd Station -Downtown Seattle	4:54AM – 4:21 AM (every ~20 Min)	5:49 AM – 4:24 AM (every ~30 Min)	5:53 AM – 4:22 AM (every ~30 Min)	~1,290'
128	Southcenter-North Admiral	4:50 AM – 1:19 AM (every ~20 Min)	6:02 AM – 1:03 AM (every ~30 Min)	6:03 AM – 1:13 AM (every ~30 Min)	~1,290'
A Line	Federal Way TC - Tukwila Intl. Blvd Link Station	24 hours (every ~10 Min)	24 hours (every ~10 Min)	24 hours (every ~10 Min)	~2,900'
F Line	Burien TC Bay 6-The Landing	4:44 AM – 12:45 AM (every ~15 Min)	5:59 AM – 12:47 AM (every ~15 Min)	6:00 AM – 12:48 AM (every ~15 Min)	~2,900'
1 Line	Northgate-Angle Lake	4:11 AM – 2:14 AM (every ~10 Min)	4:11 AM – 2:14 AM (every ~10 Min)	5:06 AM – 1:05 AM (every ~10 Min)	~2,900'



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

EXISTING PM PEAK HOUR VOLUMES
FIGURE 3

3.6 Level of Service

Existing intersection delays were determined through the use of the *Highway Capacity Manual* 6th 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 11* analysis program for intersection analysis. For side-street, stop-controlled intersections, LOS is determined by the approach with the highest delay. Table 2 below portrays existing 2022 LOS delays for the key intersections of study.

Table 2: Existing PM Peak Hour Level of Service

Delays given in seconds per vehicle

Intersection	Control	Movement	LOS	Delay
Military Rd S & S 150th St	Stop	WB	B	13.3

Existing 2022 PM peak hour delays are shown to operate with LOS B conditions for the study intersection of Military Road S & S 150th Street, indicating stable operations during the critical PM peak hour of travel. No deficiencies are identified at the study intersection.

3.7 Site Access

Site access is proposed via one new driveway which is to extend west from Military Road S. Any new driveway shall be designed in accordance with City/AASHTO sight distance standards. Based on the 35-mph speed limit along Military Road S and AASHTO standards, 390 feet of unobstructed view is need for vehicles to enter the roadway system safely. Preliminary measurements of the proposed access location appear to be met. Looking to the south, sight lines are clear through the intersection of Military Road S & S

---

[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, 6th Edition

150th Street. Looking to the north, sight lines are clear through the intersection of Military Road S & S 148th Street. No deficiencies are identified with the proposed access location with minimum sight lines of 390 feet attained in either north and south directions.

4. FORECAST TRAFFIC DEMAND AND ANALYSIS

4.1 Trip Generation

Trip generation is used to determine the magnitude of project impacts on the surrounding street system. This is usually denoted by the quantity or specific number of new trips that enter and exit a project during a designated time period, such as a specific peak hour (AM or PM) or an entire day. Data presented in this report was taken from the Institute of Transportation Engineer's publication *Trip Generation,* 11th Edition. The designated land use for the proposed project is defined as LUC 310 – Hotel. The independent variable rooms (88) were used for trip determination. Table 3 below summarizes the estimated project trip generation using ITE rates. Included are the average weekday daily traffic (AWDT) and the AM and PM peak hour volumes.

Table 3: Project Trip Generation

Land Use	Rooms	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
LUC – 310 Hotel	88	703	22	18	40	26	26	52

Based on ITE data, the proposed Candlewood Suites project is estimated to generate 703 average daily trips with 40 trips (22 inbound/18 outbound) occurring in the AM peak hour and 52 trips (26 inbound/26 outbound) occurring in the PM peak hour.

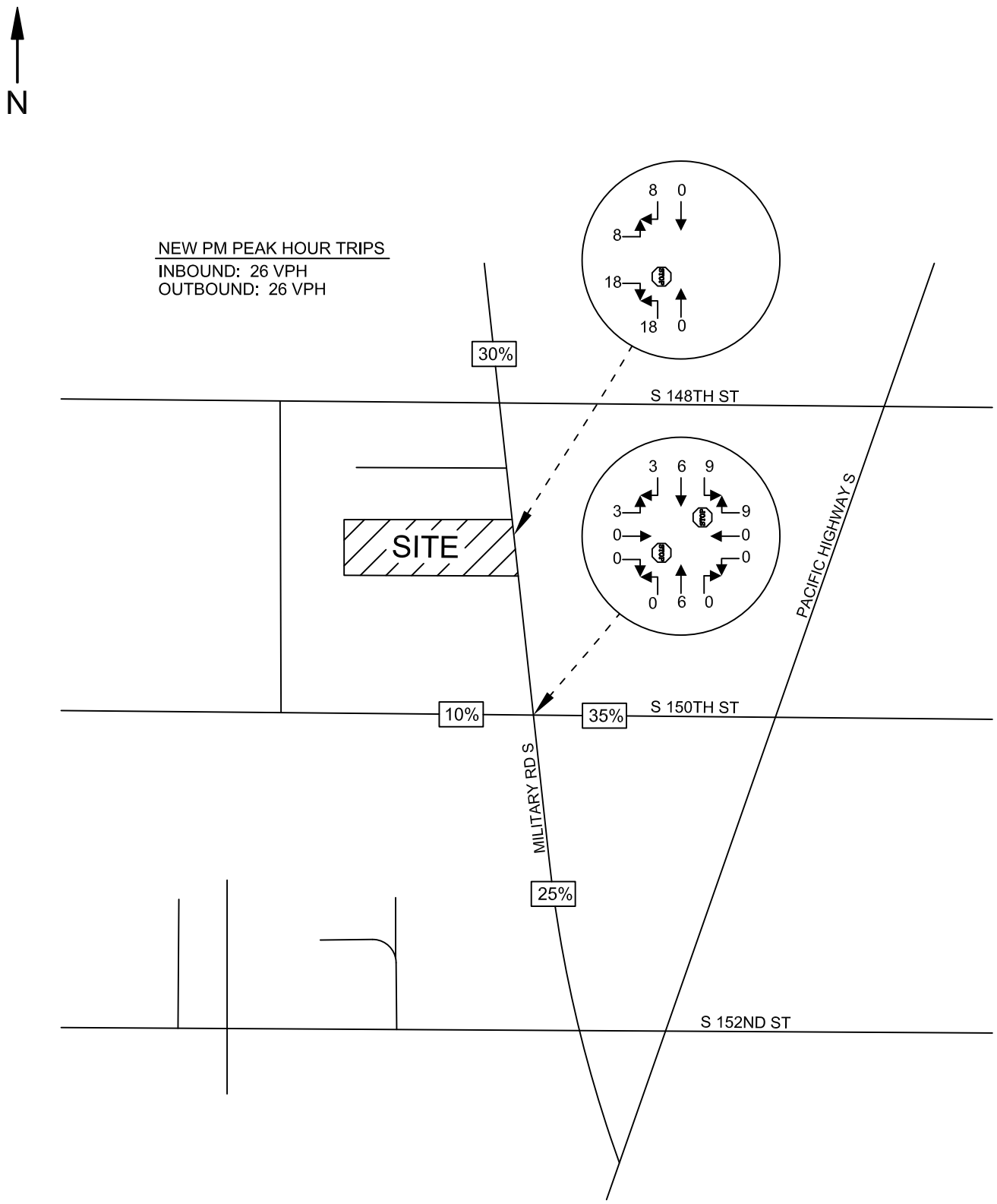
4.2 Distribution & Assignment

Trip distribution describes the anticipated travel routes for inbound and outbound project traffic during the peak hour study period. The specific destinations and origins of the generated traffic primarily influences the key intersections, which will effectively receive the bulk of project impacts. Anticipated distribution percentages and travel routes for the PM peak hour are illustrated in Figure 4. Percentages are primarily based on proximity to major arterials. It is important to note the hotel use of the proposed project, it is assumed that a majority of the project generated traffic would be to and from the south with access to freeways and the SeaTac International Airport.

4.3 Future Peak Hour Volumes

A 6-year horizon of 2028 was used for future traffic delay analysis. Forecast 2028 background traffic volumes were derived by applying a 3.0 percent compound annual growth rate per year to the existing PM peak hour traffic volumes shown in Figure 3. This growth rate has been utilized in previous reports within the City of SeaTac. Forecast 2028 PM peak hour volumes without project are shown in Figure 5. Figure 6 illustrates forecast 2028 PM peak hour volumes with the addition of project-generated traffic.

Additionally, Figure 7 has been provided for the City's long-term planning which illustrates forecast 2034 (12-year horizon) PM peak hour volumes with the project generated traffic.

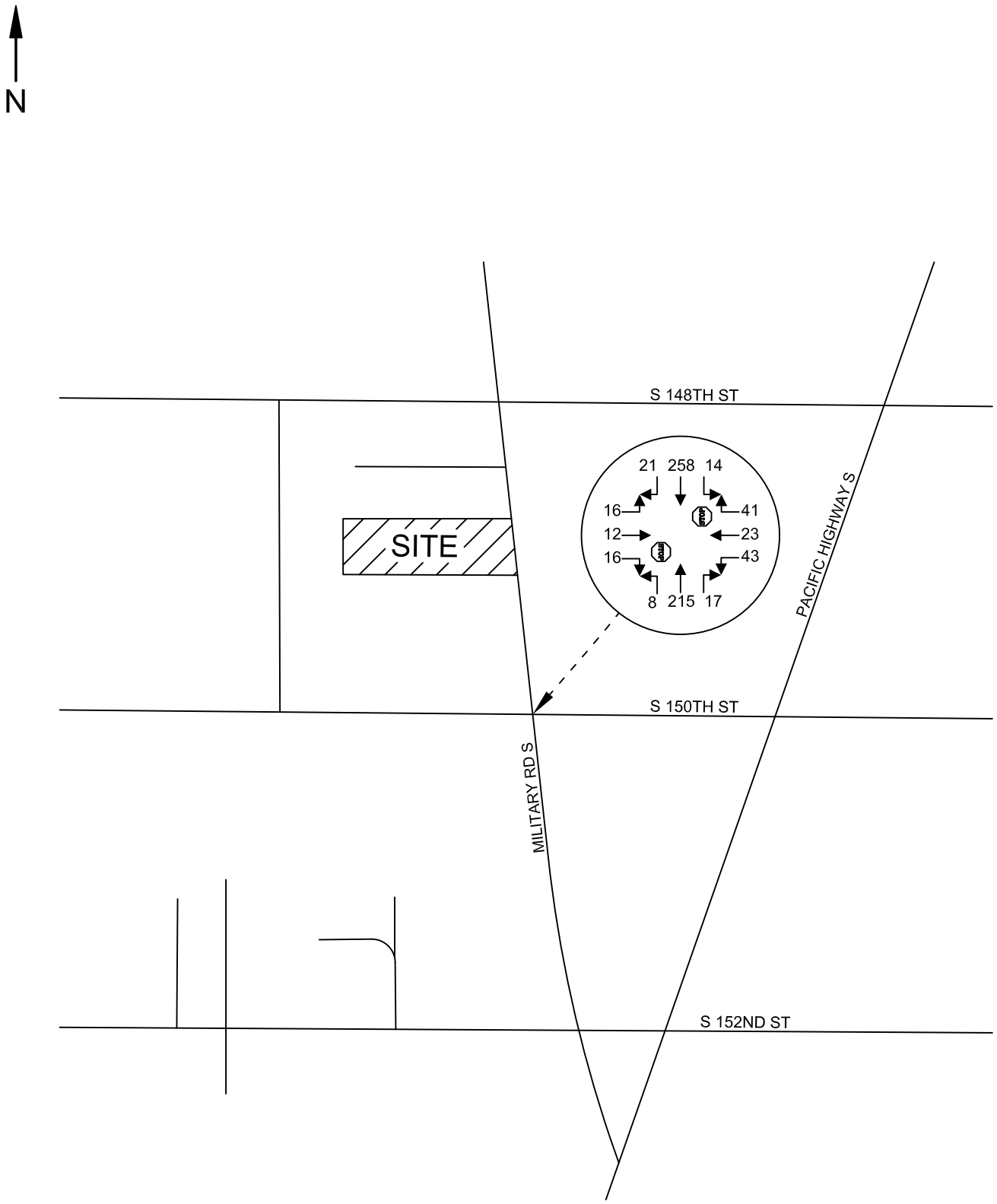


HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 4

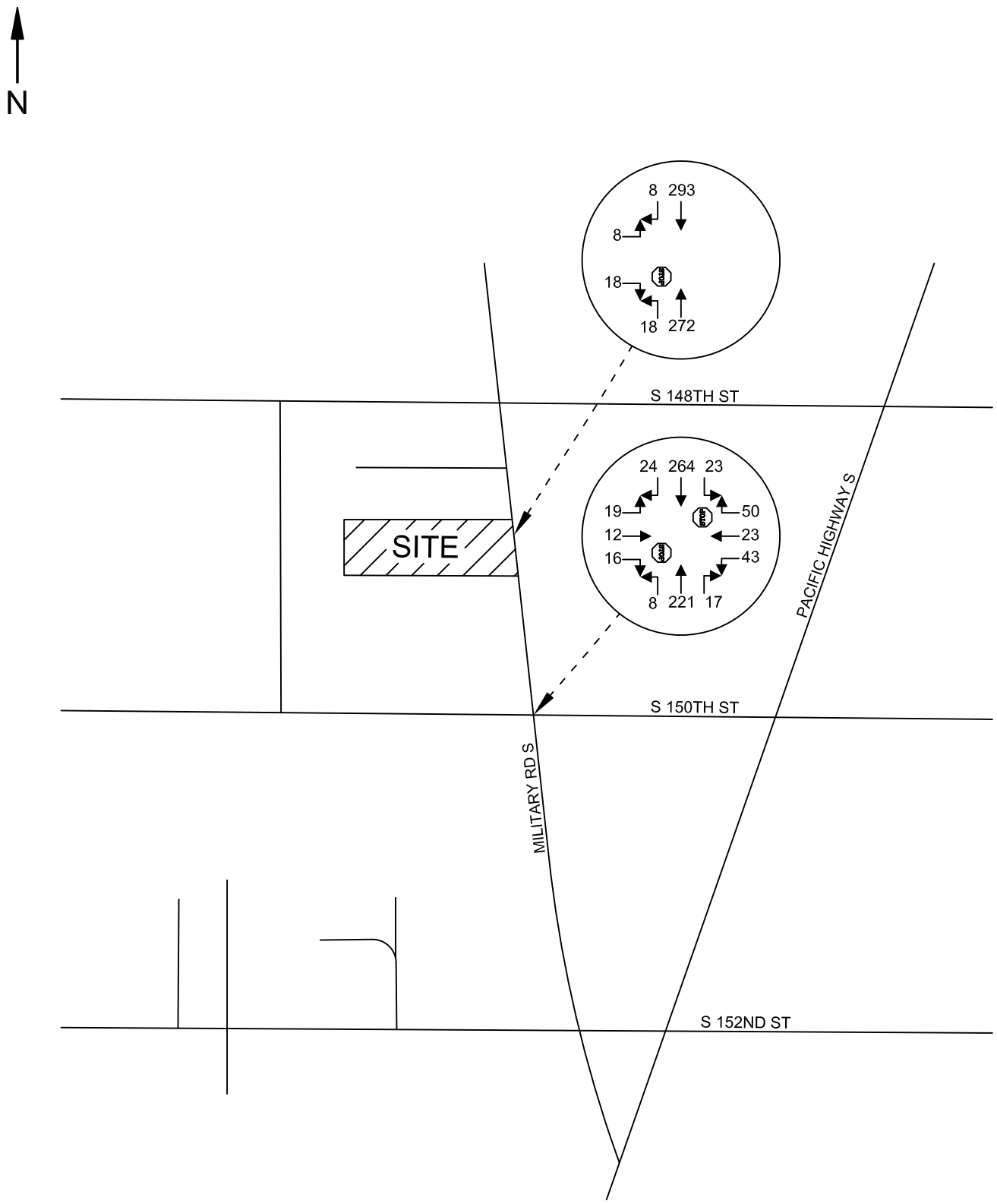


HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

FORECAST 2028 PM PEAK HOUR VOLUMES WITHOUT PROJECT
FIGURE 5

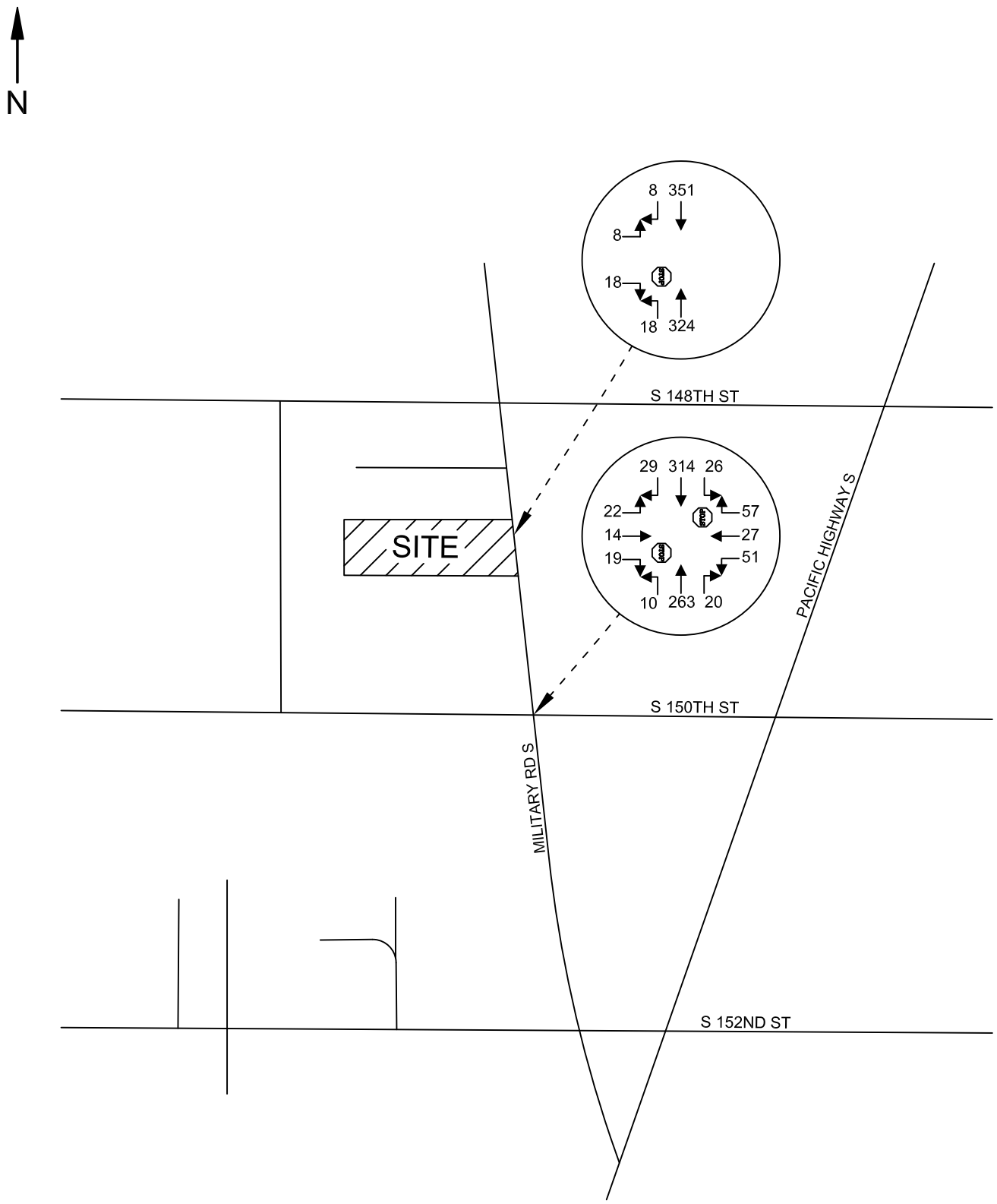


HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

FORECAST 2028 PM PEAK HOUR VOLUMES WITH PROJECT
FIGURE 6



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

CANDLEWOOD SUITES

FORECAST 2034 PM PEAK HOUR VOLUMES WITH PROJECT

FIGURE 7

4.4 Future Level of Service

Peak hour delays were determined through the use of the *Highway Capacity Manual* 6th Edition. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. 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 11* analysis program. Delays for the study intersection and proposed access intersection under future conditions during the PM peak hour are shown below in Table 4 below.

Table 4: Forecast PM Peak Hour Level of Service

Delays given in Seconds Per Vehicle

			2028 Without		*2028 With*		*2034 With*	
Intersection	**Control**	**Movement**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Military Rd S & S 150th St	Stop	WB	C	15.4	C	16.0	C	20.5
Military Rd S & Access	Stop	EB	-	-	B	11.5	B	12.3

The city has set concurrency standards at LOS E. As indicated in Table 4, forecast 2028 and 2034 PM peak hour delays with the project generated traffic are shown to operate with acceptable LOS C or better conditions. Based on forecast conditions, no LOS or capacity deficiencies are identified at the project access or study intersection as a result of the proposed development.

4.5 Left-Turn Warrant

Left turn lanes are a means of providing necessary storage space for left turning vehicles at intersections. For this impact study, procedures prescribed by the WSDOT Design Manual Exhibit 1310-7a were used to ascertain storage requirements at the access intersection of Military Road S & Project Access. Based on forecast 2034 PM peak hour volumes with project traffic – a left turn lane *would not be warranted* at the access intersection. Refer to the appendix for the warrant nomograph.

5. CONCLUSIONS AND MITIGATION MEASURES

Candlewood Suites is a proposed hotel encompassing 88 rooms within the city of SeaTac. The subject site located at, 14831 Military Road S, is situated on 0.90-acres within tax parcel #: 0041000030. The subject site is bordered to the east by Military Road S and is located between S 148th Street and S 150th Street. Existing on-site is a single-family residence which is to be demolish prior to new construction. Access is proposed via one driveway extending west from Military Road S. A site plan presenting the overall configuration of the project is illustrated in Figure 2.

Based on ITE data, the project is estimated to generate 703 average daily trips with 40 trips occurring in the AM peak hour and 52 trips occurring in the PM peak hour. A six-year (2028) and twelve-year (2034) horizon years were evaluated in terms of level of service (LOS) with and without the project generated traffic. The results indicate that the project would have a minimal impact to the adjacent street system. Level of service indicates the study intersection of Military Road S & S 150th Street to operate with LOS C conditions for each forecast scenario. The access intersection is shown to operate with LOS B conditions for each forecast scenario. A left-turn lane was found not warranted under 2034 PM peak hour conditions with the addition of the project generated traffic. A single-family home currently existing on-site in which credit could be received.

Based on the above analysis, the following mitigation is identified:

1. Pay traffic impact fees as required by the City of SeaTac. Exact fees and calculations will be determined by the city at the time of building permit issuance.

2. Construct frontage improvements in accordance with the City of SeaTac.

No other mitigation is identified at this time.

CANDLEWOOD SUITES
TRAFFIC IMPACT ANALYSIS

APPENDIX

LEVEL OF SERVICE

The following are excerpts from the *2016 Highway Capacity Manual - Transportation Research Board Special Report 209.*

Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

Level-of-Service definitions

Level of service A represents primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the arterial classification. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delay at signalized intersections is minimal.

Level of service B represents reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the arterial classification. The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome.

Level of service C represents stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the average free-flow speed for the arterial classification.

Level of service D borders on a range in which small increases in flow may cause substantial increases in approach delay and hence decreases in arterial speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free-flow speed.

Level of service E is characterized by significant delays and average travel speeds of one-third the free-flow speed or less. Such operations are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

Level of service F characterizes arterial flow at extremely low speeds, from less than one-third to one-quarter of the free-flow speed. Intersection congestion is likely at critical signalized locations, with long delays and extensive queuing.

Heath & Associates

PO Box 397
Puyallup, WA 98371

File Name : 4915a
Site Code : 00004915
Start Date : 5/5/2022
Page No : 1

Groups Printed- Passenger + - Heavy

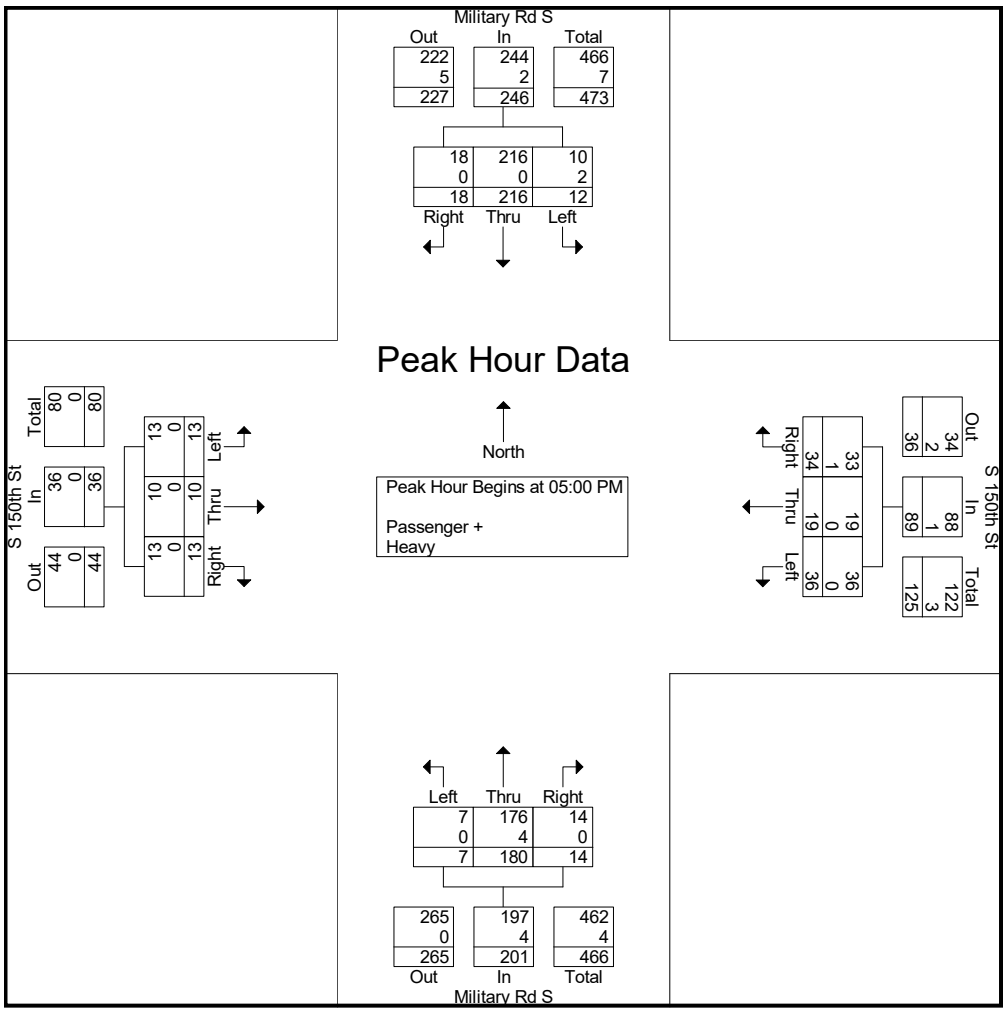
	Military Rd S Southbound				S 150th St Westbound				Military Rd S Northbound				S 150th St Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	3	64	2	69	13	8	16	37	3	33	1	37	0	1	1	2	145
04:15 PM	2	51	5	58	10	1	8	19	5	35	2	42	2	0	1	3	122
04:30 PM	2	51	6	59	11	3	7	21	3	45	1	49	6	1	3	10	139
04:45 PM	0	52	3	55	10	4	4	18	3	46	1	50	0	0	1	1	124
Total	7	218	16	241	44	16	35	95	14	159	5	178	8	2	6	16	530
05:00 PM	5	69	2	76	12	2	8	22	7	53	2	62	2	0	1	3	163
05:15 PM	6	48	4	58	8	7	6	21	4	47	4	55	1	2	0	3	137
05:30 PM	5	50	4	59	6	4	11	21	2	41	0	43	1	1	4	6	129
05:45 PM	2	49	2	53	8	6	11	25	1	39	1	41	9	7	8	24	143
Total	18	216	12	246	34	19	36	89	14	180	7	201	13	10	13	36	572
Grand Total	25	434	28	487	78	35	71	184	28	339	12	379	21	12	19	52	1102
Apprch %	5.1	89.1	5.7		42.4	19	38.6		7.4	89.4	3.2		40.4	23.1	36.5		
Total %	2.3	39.4	2.5	44.2	7.1	3.2	6.4	16.7	2.5	30.8	1.1	34.4	1.9	1.1	1.7	4.7	
Passenger +	25	432	26	483	77	34	70	181	28	332	12	372	21	11	19	51	1087
% Passenger +	100	99.5	92.9	99.2	98.7	97.1	98.6	98.4	100	97.9	100	98.2	100	91.7	100	98.1	98.6
Heavy	0	2	2	4	1	1	1	3	0	7	0	7	0	1	0	1	15
% Heavy	0	0.5	7.1	0.8	1.3	2.9	1.4	1.6	0	2.1	0	1.8	0	8.3	0	1.9	1.4

Heath & Associates

PO Box 397
Puyallup, WA 98371

File Name : 4915a
Site Code : 00004915
Start Date : 5/5/2022
Page No : 2

	Military Rd S Southbound				S 150th St Westbound				Military Rd S Northbound				S 150th St 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	5	**69**	2	**76**	**12**	2	8	22	**7**	**53**	2	**62**	2	0	1	3	**163**
05:15 PM	**6**	48	**4**	58	8	**7**	6	21	4	47	**4**	55	1	2	0	3	137
05:30 PM	5	50	4	59	6	4	**11**	21	2	41	0	43	1	1	4	6	129
05:45 PM	2	49	2	53	8	6	11	**25**	1	39	1	41	**9**	**7**	**8**	**24**	143
Total Volume	18	216	12	246	34	19	36	89	14	180	7	201	13	10	13	36	572
% App. Total	7.3	87.8	4.9		38.2	21.3	40.4		7	89.6	3.5		36.1	27.8	36.1		
PHF	.750	.783	.750	.809	.708	.679	.818	.890	.500	.849	.438	.810	.361	.357	.406	.375	.877
Passenger +	18	216	10	244	33	19	36	88	14	176	7	197	13	10	13	36	565
% Passenger +	100	100	83.3	99.2	97.1	100	100	98.9	100	97.8	100	98.0	100	100	100	100	98.8
Heavy	0	0	2	2	1	0	0	1	0	4	0	4	0	0	0	0	7
% Heavy	0	0	16.7	0.8	2.9	0	0	1.1	0	2.2	0	2.0	0	0	0	0	1.2



Hotel
(310)

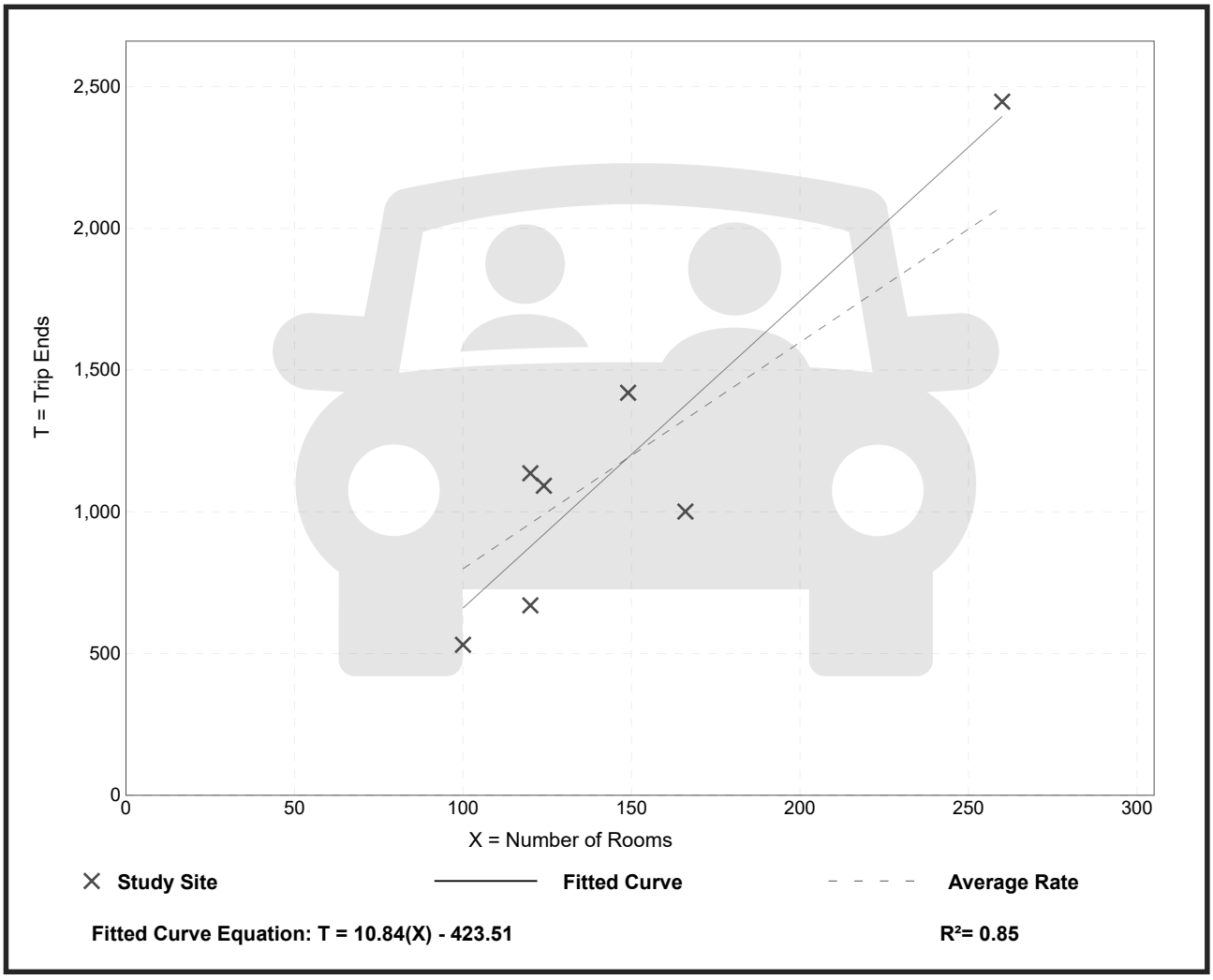
Vehicle Trip Ends vs: **Rooms**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Rooms: 148
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
7.99	5.31 - 9.53	1.92

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

PO Box 397, Puyallup, WA 98371 (253) 770-1401, heather@tfix.com

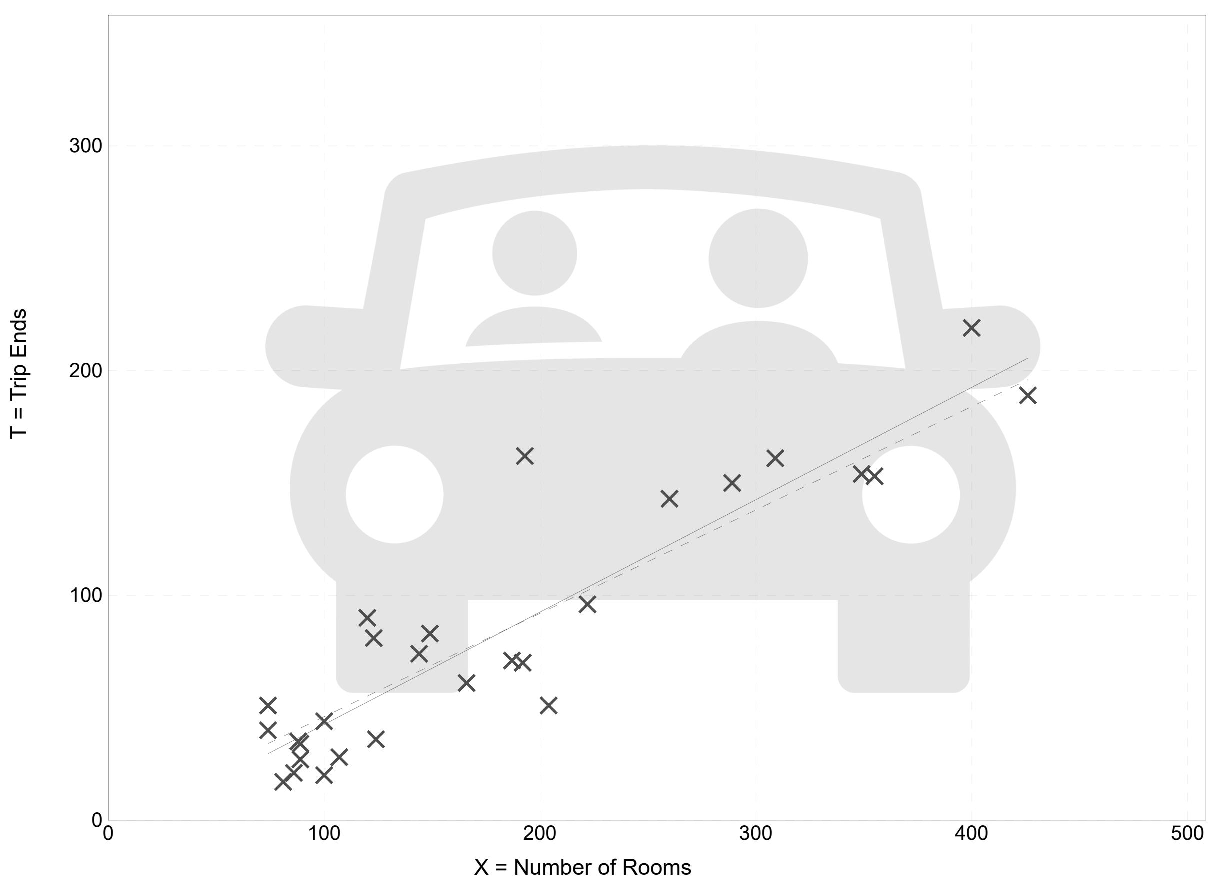
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 7 and 9 a.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	28
Avg. Num. of Rooms:	182
Directional Distribution:	56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



× **Study Site** —— **Fitted Curve** - - - **Average Rate**

Fitted Curve Equation: T = 0.50(X) - 7.45 **R^2= 0.84**

Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

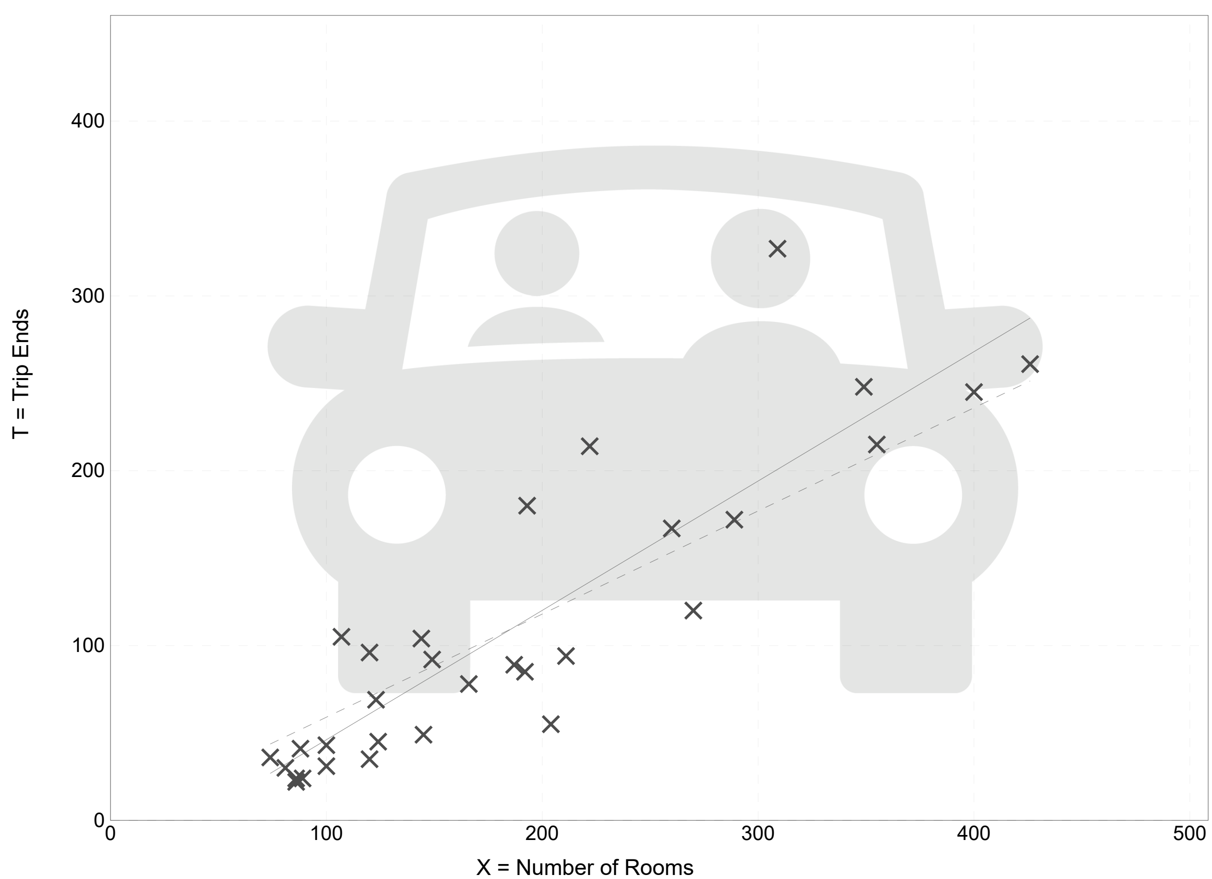
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 4 and 6 p.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	31
Avg. Num. of Rooms:	186
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



× **Study Site** —— **Fitted Curve** - - - **Average Rate**

Fitted Curve Equation: T = 0.74(X) - 27.89 **R^2= 0.78**

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Peak Hour Forecast Intersection Volumes

Annual Growth Rate: 3 %

2028

# of Years to Horizon: 6 12 yr

2034

PM

1. Military Rd S & S 150th St

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing 2022	18	216	12	34	19	36	14	180	7	13	10	13
Project Trips	3	6	9	9	0	0	0	6	0	0	0	3
Pipeline	0	0	0	0	0	0	0	0	0	0	0	0
Without	21	258	14	41	23	43	17	215	8	16	12	16
With	24	264	23	50	23	43	17	221	8	16	12	19
2034 With	29	314	26	57	27	51	20	263	10	19	14	22

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	13	10	13	36	19	34	7	180	14	12	216	18
Future Vol, veh/h	13	10	13	36	19	34	7	180	14	12	216	18
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	17	2	2	2	2	3	2	2	2	2	2	2
Mvmt Flow	15	11	15	41	22	39	8	205	16	14	245	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	547	524	259	529	526	217	267	0	0	223	0	0
Stage 1	285	285	-	231	231	-	-	-	-	-	-	-
Stage 2	262	239	-	298	295	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.52	6.22	7.12	6.52	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.018	3.318	3.518	4.018	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	425	458	780	460	457	820	1297	-	-	1346	-	-
Stage 1	691	676	-	772	713	-	-	-	-	-	-	-
Stage 2	711	708	-	711	669	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	383	447	777	435	446	817	1295	-	-	1343	-	-
Mov Cap-2 Maneuver	383	447	-	435	446	-	-	-	-	-	-	-
Stage 1	685	667	-	765	707	-	-	-	-	-	-	-
Stage 2	651	702	-	676	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	13.3	0.3	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1295	-	-	493	533	1343	-	-
HCM Lane V/C Ratio	0.006	-	-	0.083	0.19	0.01	-	-
HCM Control Delay (s)	7.8	0	-	13	13.3	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.7	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	12	16	43	23	41	8	215	17	14	258	21
Future Vol, veh/h	16	12	16	43	23	41	8	215	17	14	258	21
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	17	2	2	2	2	3	2	2	2	2	2	2
Mvmt Flow	18	14	18	49	26	47	9	244	19	16	293	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	649	622	309	629	625	258	319	0	0	265	0	0
Stage 1	339	339	-	274	274	-	-	-	-	-	-	-
Stage 2	310	283	-	355	351	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.52	6.22	7.12	6.52	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.018	3.318	3.518	4.018	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	363	403	731	395	401	778	1241	-	-	1299	-	-
Stage 1	645	640	-	732	683	-	-	-	-	-	-	-
Stage 2	669	677	-	662	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	392	728	367	390	775	1239	-	-	1297	-	-
Mov Cap-2 Maneuver	317	392	-	367	390	-	-	-	-	-	-	-
Stage 1	638	629	-	724	675	-	-	-	-	-	-	-
Stage 2	598	670	-	621	621	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	15.4	0.3	0.4
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1239	-	-	427	467	1297	-	-
HCM Lane V/C Ratio	0.007	-	-	0.117	0.26	0.012	-	-
HCM Control Delay (s)	7.9	0	-	14.5	15.4	7.8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1	0	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	19	12	16	43	23	50	8	221	17	23	264	24
Future Vol, veh/h	19	12	16	43	23	50	8	221	17	23	264	24
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	17	2	2	2	2	3	2	2	2	2	2	2
Mvmt Flow	22	14	18	49	26	57	9	251	19	26	300	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	690	658	318	665	662	265	329	0	0	272	0	0
Stage 1	368	368	-	281	281	-	-	-	-	-	-	-
Stage 2	322	290	-	384	381	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.52	6.22	7.12	6.52	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.018	3.318	3.518	4.018	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	340	384	723	374	382	771	1231	-	-	1291	-	-
Stage 1	622	621	-	726	678	-	-	-	-	-	-	-
Stage 2	659	672	-	639	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	289	369	720	344	367	768	1229	-	-	1289	-	-
Mov Cap-2 Maneuver	289	369	-	344	367	-	-	-	-	-	-	-
Stage 1	615	604	-	718	671	-	-	-	-	-	-	-
Stage 2	580	665	-	592	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	16	0.3	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1229	-	-	390	459	1289	-	-
HCM Lane V/C Ratio	0.007	-	-	0.137	0.287	0.02	-	-
HCM Control Delay (s)	8	0	-	15.7	16	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	18	18	272	293	8
Future Vol, veh/h	8	18	18	272	293	8
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
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	9	20	20	296	318	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	663	327	329	0	-	0
Stage 1	325	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	426	714	1231	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	416	711	1229	-	-	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	721	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1229	-	584	-	-
HCM Lane V/C Ratio	0.016	-	0.048	-	-
HCM Control Delay (s)	8	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	22	14	19	51	27	57	10	263	20	26	314	29
Future Vol, veh/h	22	14	19	51	27	57	10	263	20	26	314	29
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	17	2	2	2	2	3	2	2	2	2	2	2
Mvmt Flow	25	16	22	58	31	65	11	299	23	30	357	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	819	782	378	790	787	315	392	0	0	324	0	0
Stage 1	436	436	-	335	335	-	-	-	-	-	-	-
Stage 2	383	346	-	455	452	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.52	6.22	7.12	6.52	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.018	3.318	3.518	4.018	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	278	326	669	308	324	723	1167	-	-	1236	-	-
Stage 1	571	580	-	679	643	-	-	-	-	-	-	-
Stage 2	610	635	-	585	570	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	225	311	666	276	309	720	1165	-	-	1234	-	-
Mov Cap-2 Maneuver	225	311	-	276	309	-	-	-	-	-	-	-
Stage 1	563	561	-	669	634	-	-	-	-	-	-	-
Stage 2	521	626	-	532	551	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.9	20.5	0.3	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1165	-	-	321	384	1234	-	-
HCM Lane V/C Ratio	0.01	-	-	0.195	0.4	0.024	-	-
HCM Control Delay (s)	8.1	0	-	18.9	20.5	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	1.9	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

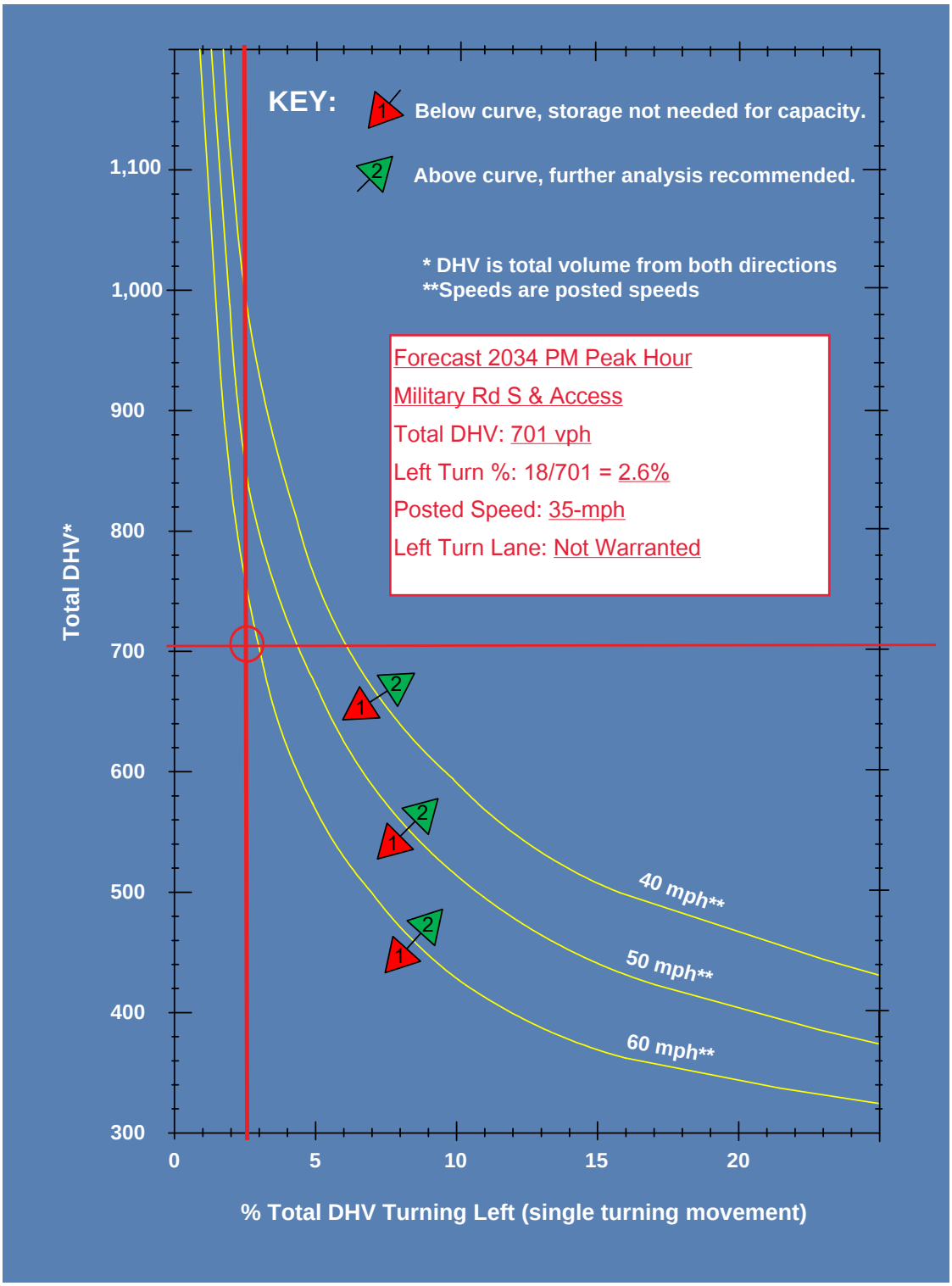
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	18	18	324	351	8
Future Vol, veh/h	8	18	18	324	351	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	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	9	20	20	352	382	9

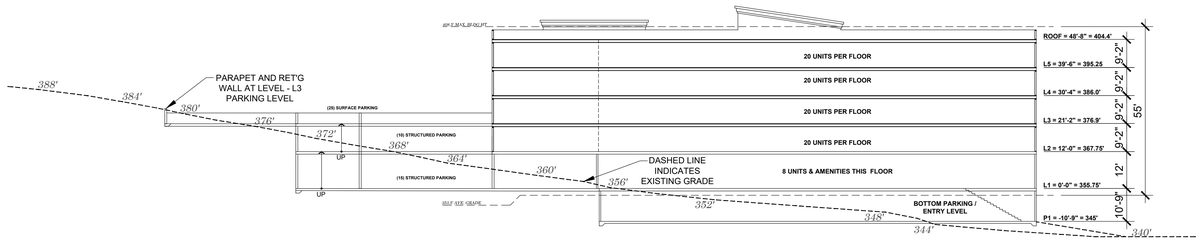
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	779	387	391	0	-	0
Stage 1	387	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	364	661	1168	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	356	661	1168	-	-	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1168	-	523	-	-
HCM Lane V/C Ratio	0.017	-	0.054	-	-
HCM Control Delay (s)	8.1	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

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

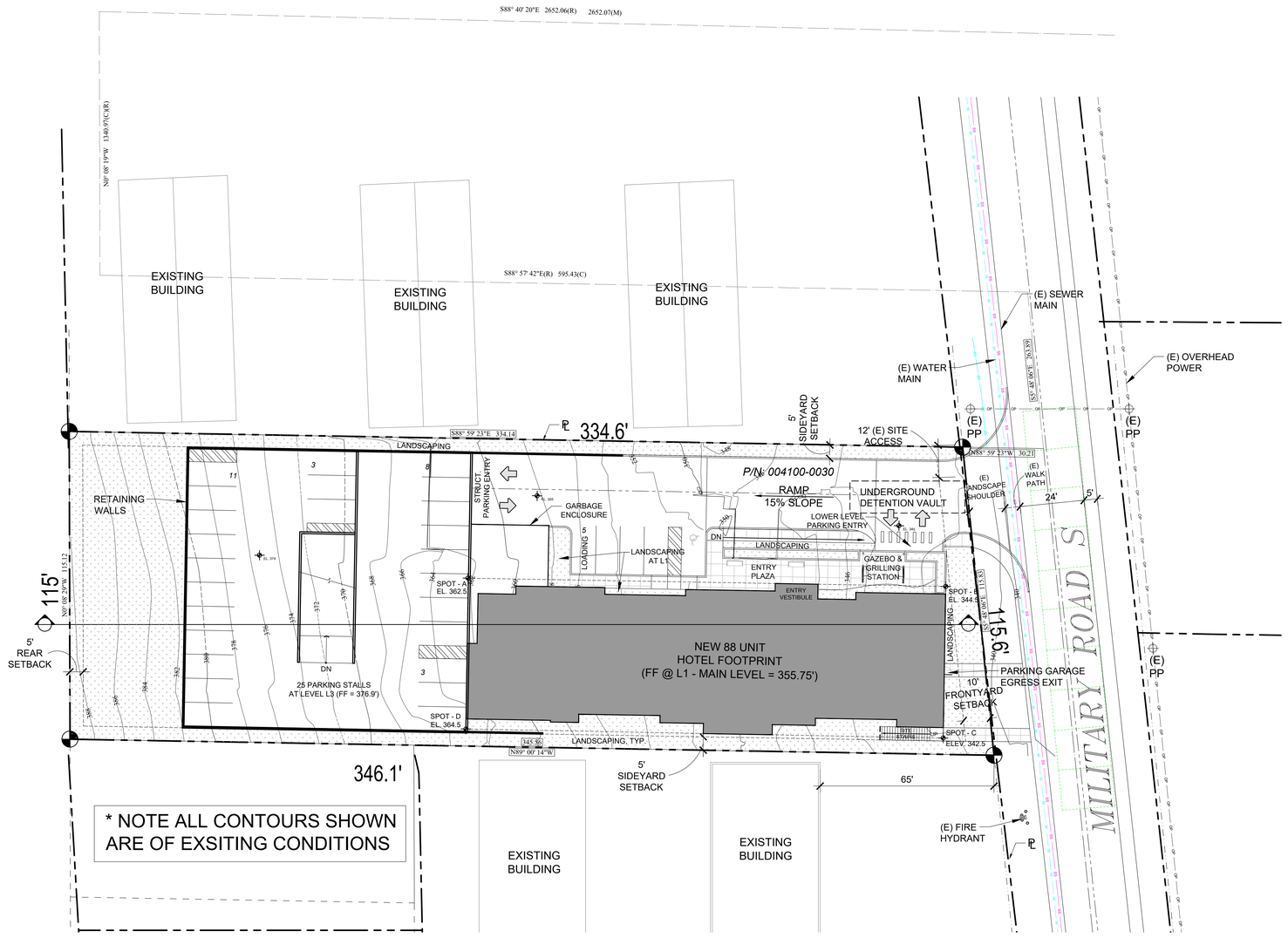




CONCEPTUAL BUILDING SECTION

SCALE: 1" = 20'-0"

0 10' 20' 40' 60'



SITE PLAN

SCALE: 1" = 20'-0"

0 10' 20' 40' 60'

N.

LEGEND:

- LANDSCAPING - SEE LANDSCAPE PLAN
- PARKING STRIPING
- CONCRETE WALKWAYS

AVERAGE GRADE CALCULATION:

SUMMATION OF THE FOUR FINISHED GRADE ELEVATIONS AT THE CORNERS OF THE SMALLEST RECTANGLE ENCOMPASSING ENTIRE BUILDING FOOTPRINT

ELEVATIONS:

A - 362.5'
B - 344.5'
C - 342.5'
D - 364.5'

(A+B+C+D) / 4 = AVERAGE GRADE PLAN

(362.5' + 344.5' + 342.5' + 364.5') / 4 = 353.5'

IHB ARCHITECTS
21620 84th Ave. S.
Ste. 200
Kent, WA 98032
(253) 468-7696
www.ihbarchitects.com

PARCEL NO. 004100-0030

CANDLEWOOD SUITES
14831 MILITARY RD S
SEATAC, WA 98168

A1.0 SITE PLAN

REVISIONS:

DATE:	April 21, 2022
DRAWN BY:	DW
REVIEWED BY:	IHB

A1.0