

## MEMORANDUM

<b>Date:</b>	February 6, 2024	<b>TG:</b>	1.23278.00
<b>To:</b>	Patrick Yamashita, PE – City of Mercer Island		
<b>From:</b>	Dan McKinney, Jr.		
<b>Subject:</b>	HNT JDS – TIA Preliminary Analysis		

This memorandum provides a summary of preliminary transportation related information for the proposed private school development on the Herzl (HNT) property in Mercer Island, Washington. The following sections provide a brief description of the proposed project, an estimate of the project's vehicular trip generation and distribution throughout the adjacent roadway network, and a summary of the recommended study intersections and broader analysis scope for the Transportation Impact Analysis (TIA) report.

### Project Description

The proposed project is located at 3700 E Mercer Way. The proposed project includes approximately 14,051 gross square feet of private school and 12,300 gross square feet of general office. The project site location is shown in Figure 1. The private school will enroll up to 150 students in the PK-8 grade levels. The private school space would be occupied by the Jewish Day School (JDS), which is currently located in Bellevue and intends to move to the proposed site.

Vehicular access to the project site would be provided along the northern site limits where a driveway would be provided onto Frontage Rd, as illustrated in Figure 1.

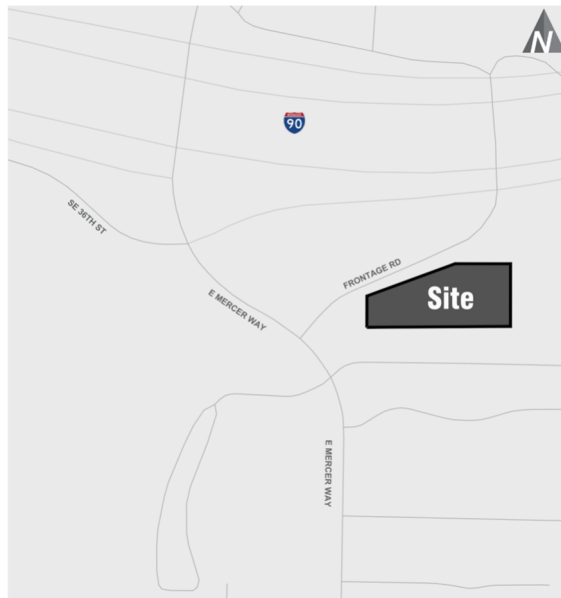


Figure 1 – Project Vicinity

# Existing Conditions

This section describes existing condition within the identified study area. Characteristics are provided for the roadway network, non-motorized facilities, transit service, existing traffic volumes, traffic operations, and traffic safety.

## Roadway Network

The project site is located in northeast Mercer Island, and is bounded by E Mercer Way to the west, Frontage Road to the north, and SE 40th Street to the south. The major roadways within the study area include:

**SE 36th Street** is a two-lane roadway classified as an arterial. This roadway provides east-west access with sidewalks located on the south side and a center two-way left-turn lane. SE 36th Street serves as a connection to eastbound and westbound Interstate 90 (I-90) with freeway access at the N Mercer Way and E Mercer Way intersections. The posted speed limit is 30 miles per hour (mph) in the vicinity of the project.

**E Mercer Way** is a two-lane roadway classified as an arterial with sidewalks. This roadway provides north-south access and a connection to I-90 with a freeway connection at the SE 36th Street intersection. The posted speed limit is 30 mph in the vicinity of the project.

**SE 40th Street** is an east-west residential roadway located south of the project site area. The road provides one lane in each direction and no sidewalks. The posted speed limit is 25 mph in the vicinity of the project.

**Frontage Road** is an east-west city facility roadway located north of the project site area. The road provides one lane in each direction and no sidewalks. Access to the project site is provided via a driveway along the south side of Frontage Road.

## Non-Motorized Facilities

Sidewalks are provided along SE 36th Street and E Mercer Way with crosswalks located at major intersections allowing safe pedestrian mobility throughout the area. Signalized crossings are provided at the SE 36th Street/E Mercer Way intersection. Unsignalized crossings are located along E Mercer Way at the north and south legs of the Jewish Community Center Access Road intersection. Additional pedestrian circulation near the site is discussed below.

No marked bicycle facilities are provided along roadways in the project vicinity, but E Mercer Way and SE 36th Street are considered bicycle-friendly roadways.

## Transit Service

No public transit routes utilize study area roadways, including E Mercer Way, SE 36th Street, and SE 40th Street. The nearest transit stop to the project site is located at the N Mercer Way/Fortuna Drive intersection approximately 0.6 miles northwest of the project site which is served by King County Metro Route 204 Dial-a-Ride Transit (DART) service providing service between North Mercer Island and the Mercer Village Shopping Center. DART service offers both fixed and variable routing on N Mercer Way between the hours of 9 am and 3 pm on weekdays, and 9 am to 7 pm on Saturdays.

The East Link is a planned Sound Transit Link Light Rail extension that would provide service from Downtown Seattle to Mercer Island to Redmond. The segment of the East Link between Bellevue and Redmond is expected to open in April 2024, with the remainder of the link extension, including the segment running through Mercer Island, being scheduled to open in 2025.

Although limited public service is available under existing conditions, the JDS does provide bus service for families of the school. During the 2023-2024 school year, the JDS provided four buses, with a total of 25 students using the bus.

## Project Trip Generation

Project trip generation estimates were developed for the project based on information contained in the Institute of Transportation Engineers (ITE) *Trip Generation* (11th Edition, 2021). Trip Generation is a nationally recognized and locally accepted method for determining trip generation for private and public developments. Trips were calculated using the Private School (K-8) (LU #530) and General Office (ITE LU #710) land uses. The following paragraphs summarize the preliminary trip generation estimate for the remaining proposed uses.

Table 1 summarizes the project’s estimated trip generation for weekday AM peak hour, PM peak hour, and school peak hour time periods. School peak hour trip generation is based on the PM peak hour of generator for the private school land use. Detailed trip generation calculation worksheets are provided in Attachment A.

**Table 1. Estimated Trip Generation**

Land Use	Size	Weekday AM Peak Hour			Weekday PM Peak Hour			School PM Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
<b>Proposed Uses</b>										
Private School (LU #530)	150 students	71	55	126	18	21	39	44	50	94
General Office (LU #710)	12,300 sf	25	3	28	5	24	29	7	8	15
<b>Total</b>		<b>96</b>	<b>58</b>	<b>154</b>	<b>23</b>	<b>45</b>	<b>68</b>	<b>51</b>	<b>58</b>	<b>109</b>

## Project Trip Distribution & Assignment

Vehicular trip distribution for the private school land use is based on information provided by the JDS regarding the ZIP code locations where students currently attending the school lived. It is assumed that the trip distribution of the proposed private school will match the current trip distribution at JDS. A separate primary vehicular trip distribution was determined for office trips consistent with Mercer Island General Traffic Impact Analysis Requirements. Vehicular trip distribution for the office land use is based on the U.S. Census Bureau's *OnTheMap* tool. *OnTheMap* is a web-based mapping and reporting application, which shows where workers are employed and where they live based on census data. The school and office trip distributions are provided in Attachment B. Table 2 summarizes the general primary trip distribution patterns assumed by land use as shown in Attachment B.

**Table 2. Weekday AM & PM Peak Hour Trip Distribution by Land Use**

Location	School Trips	Office Trips
East of Mercer Island	65%	45%
West of Mercer Island	25%	40%
Within Mercer Island	10%	15%

Primary project trips for each site use were assigned to the study intersections based on these general travel patterns. The resulting distribution and assignment of primary vehicular trips are shown in Attachment B.

## Study Intersections & Analysis Scope

Based on the forecast trip assignment to the adjacent roadway network, the following intersections could be considered for analysis under weekday AM and PM peak hour conditions:

1. SE 40th Street/E Mercer Way
2. Frontage Road/E Mercer Way
3. SE 36th Street/E Mercer Way
4. I-90 EB Off-Ramp/E Mercer Way
5. I-90 WB Ramps/E Mercer Way
6. Site Access/Frontage Rd

Weekday AM peak hour, PM peak hour, and school peak hour volumes were collected at all study intersections during the week of March 25th, 2024.

In addition, an evaluation of traffic operations related impacts, the TIA will also include an evaluation of non-motorized facilities, transit service, and the collision history within the project vicinity. Please identify whether any of the intersection within the project vicinity should be removed or added to the above list of potential study intersection, other whether other specific elements should also considered in the evaluation of potential transportation related impacts.

## Attachment A: Trip Generation Worksheets

## Attachment B: Trip Generation

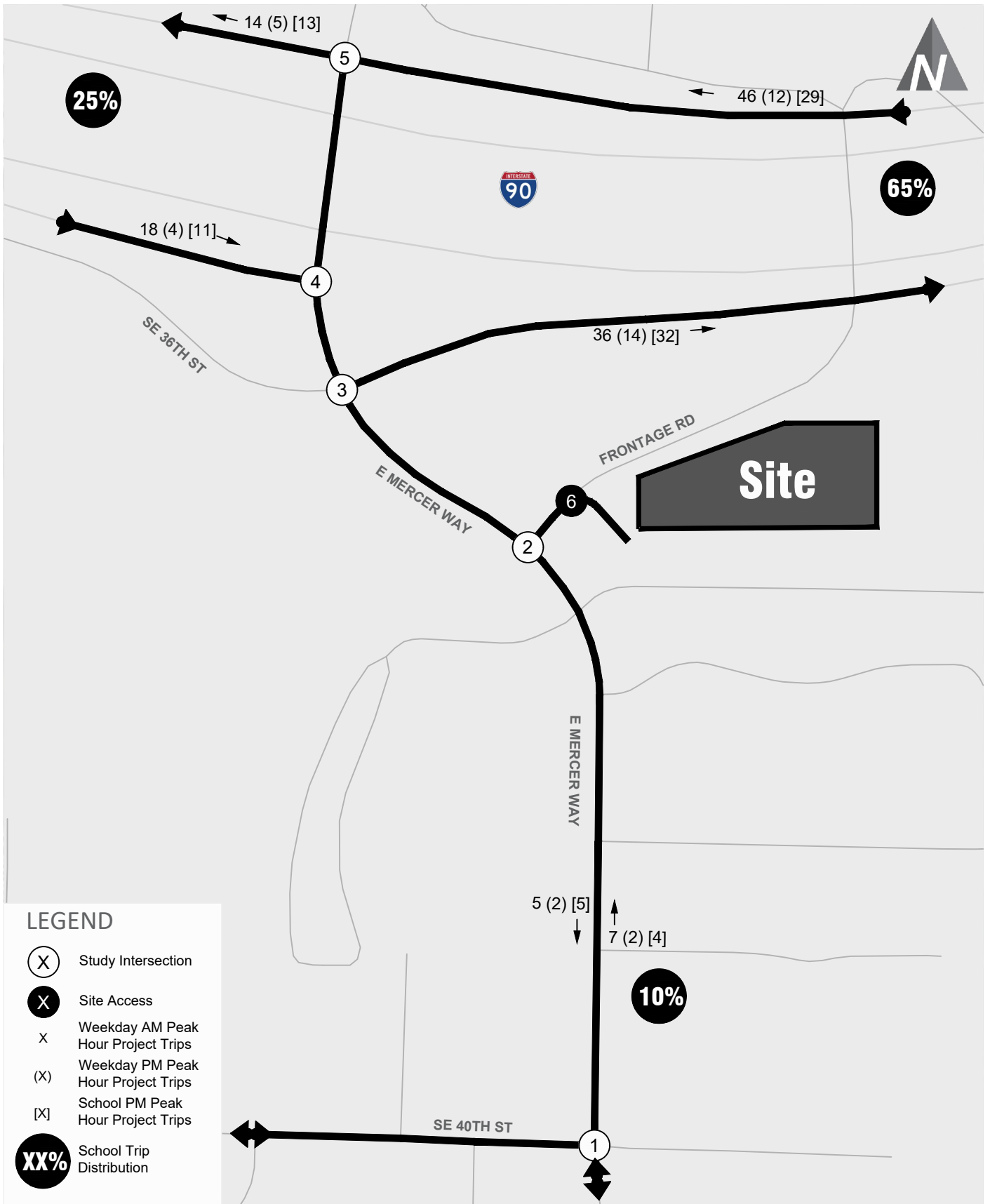
### Herzl Private School

<u>Proposed Use</u>															
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Inbound %	Gross Trips			Total Net New			
									Inbound	Outbound	Subtotal	Inbound	Outbound	Total	
<b>Private School (K-8) (LU 530)</b>		150 students													
School Peak Hour				Equation (log)	$\ln(T) = 0.98 \cdot \ln(x) - 0.38$	-	-	47%	44	50	94	44	50	94	
AM Peak Hour				Equation (lin)	$T = 1.11x - 40.99$	-	-	56%	71	55	126	71	55	126	
PM Peak Hour				Rate	-	0.26	per student	46%	18	21	39	18	21	39	
<b>General Office Building (LU 710)</b>		12,300 sf													
School Peak Hour				Equation (log)	$\ln(T) = 0.87 \cdot \ln(x) + 3.05$	-	-	50%	7	8	15	7	8	15	
AM Peak Hour				Equation (log)	$\ln(T) = 0.86 \cdot \ln(x) + 1.16$	-	-	88%	25	3	28	25	3	28	
PM Peak Hour				Equation (log)	$\ln(T) = 0.83 \cdot \ln(x) + 1.29$	-	-	17%	5	24	29	5	24	29	
<b><u>Subtotal</u></b>															
PM Peak Hour of Generator									51	58	109	51	58	109	
AM Peak Hour									96	58	154	96	58	154	
PM Peak Hour									23	45	68	23	45	68	
<u>Net New Trips</u>															
PM Peak Hour of Generator												51	58	109	
AM Peak Hour												96	58	154	
PM Peak Hour												23	45	68	

#### Notes:

- Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
- AVO = average vehicle occupancy. Retail and Residential AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate.
- School Peak Hour trips for LU 530 based on PM peak hour of generator. School Peak Hour trips for LU 710 calculated based on time of day distributions at 3-4 pm given in ITE Trip Generation 11th Edition appendices, and daily trips given from equation. Inbound trips for school peak hour are 7.3% of 94 daily inbound trips. Outbound school peak hour trips are 8.4% of 94 daily outbound trips. Total school peak hour trips are 7.8% of 188 total daily trips.

## Attachment B: Trip Distribution & Assignment



# School Trip Distribution and Assignment

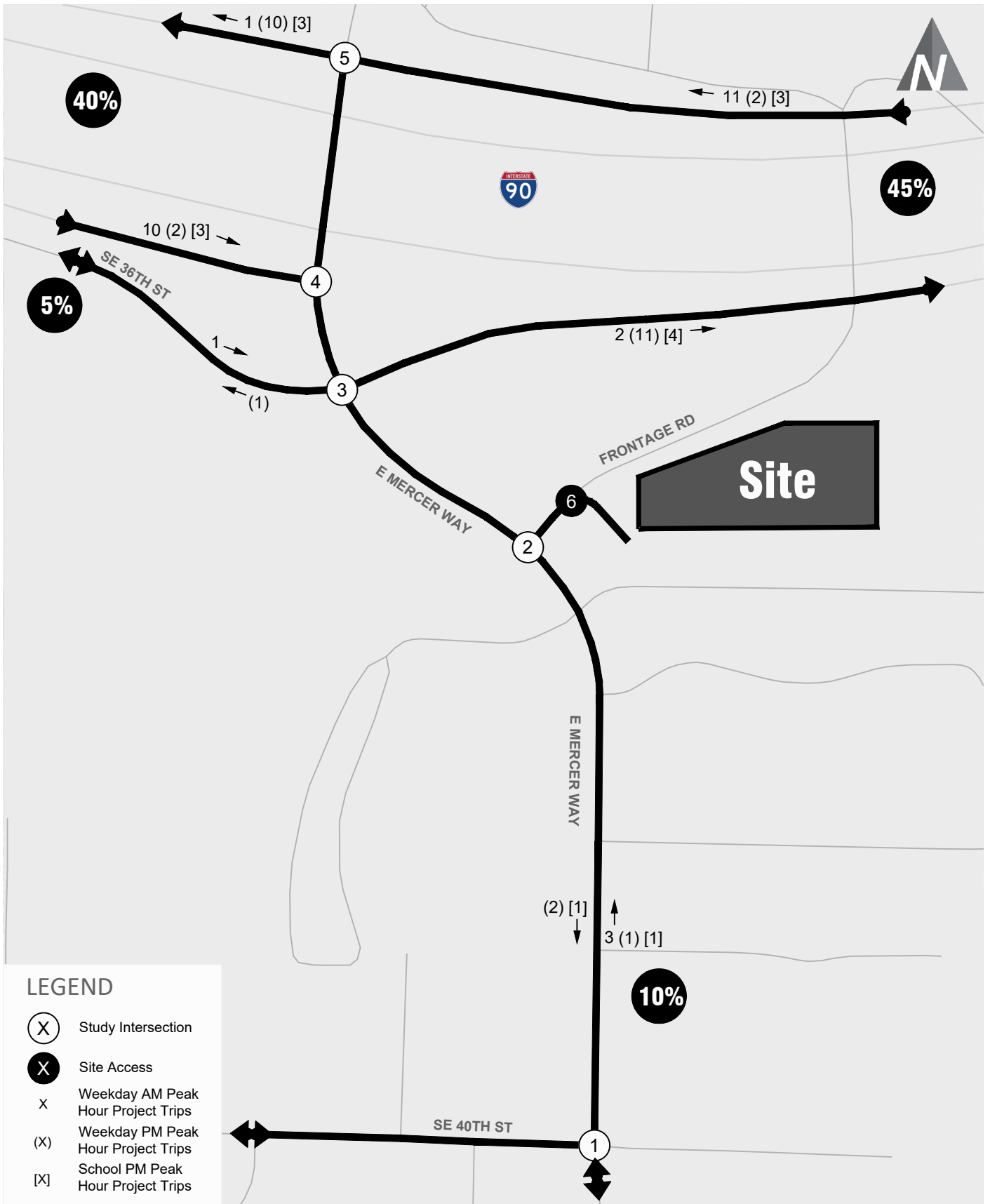
ATTACHMENT

Herzl Private School



**B**





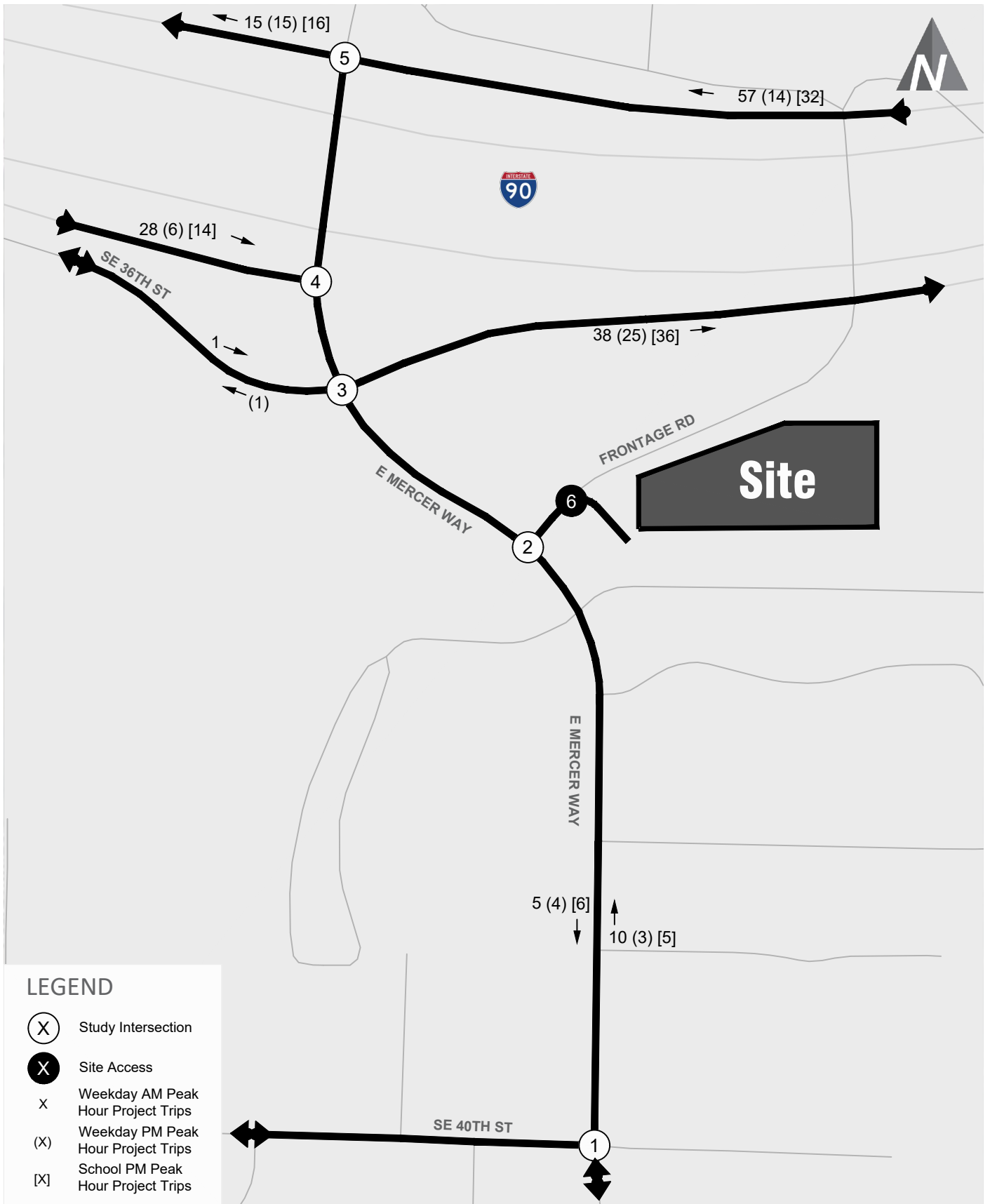
# Office Trip Distribution and Assignment

ATTACHMENT

Herzl Private School



**B**



# Total Trip Distribution and Assignment

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Herzl Private School



**B**