

March 21, 2024

To: Carlana Aguon, Project Manager
Driftmier Architects

From: Jeff Hee, Sr. Transportation Engineer

Subject: WAFD Bank Mercer Island Traffic Impact Analysis



This traffic impact analysis summarizes the traffic impacts associated with a tenant improvement at Tabit Village Square for a 1,366-square foot walk-in WAFD bank branch.

The site is on land parcel no. 5315101445, at 7633 SE 27th Street. The site is at the southwest corner of SE 27th Street and 77th Ave SE. The underlying property is zoned Town Center. The proposed bank branch will reoccupy the existing commercial building area formerly occupied by a dry-cleaning business.

Figure 1 includes a vicinity map. **Figure 2** includes a site plan.

The commercial site includes 36 onsite parking spaces. The onsite circulation is oriented one-way with access inbound from 77th Ave SE and outbound to SE 27th Street. The parcel also includes access to an alley at the west end of the existing building. There is also an existing curb cut just east of the alley, formerly used as a drop-off access for the former dry-cleaning business.

PROJECT IMPACTS

Project trips were forecast using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. **Table 1** summarizes the trip generation forecast.

Table 1: Trip Generation – ITE Walk-In Bank (LU 911)

Period	1,000 sf gfa	Trip Rate	Trips-In	Trips-Out	Trips-Total
Weekday	1.366	57.94 / 1,000 sf gfa ¹	40	39	79
AM Peak	1.366	5.74 / 1,000 sf gfa ²	4	4	8
PM Peak	1.366	12.13 / 1,000 sf gfa ³	7	10	17

1. No ITE data. Rate estimated by dividing the daily rate for a Drive-In Bank (LU 912) by the PM peak hour rate for a Drive-In Bank multiplied by the PM peak hour rate for a Walk-In Bank. = 100.35 / 21.01 X 12.13
2. No ITE data. Rate estimated by dividing the daily rate for a Drive-In Bank (LU 912) by the PM peak hour rate for a Drive-In Bank multiplied by the PM peak hour rate for a Walk-In Bank. = 9.95 / 21.01 X 12.13
3. Average ITE trip rate.

Figure 3 illustrates the PM peak hour trip distribution and assignment. For this analysis, the trips were distributed to intersections impacted by 10 or more peak hour trips. PM peak hour project trips were distributed based on the site's proximity to other commercial uses, residential homes, and the freeway.

The study area was reviewed with Mercer Island staff and focuses on the existing two one-way driveways and the intersection of SE 27th Street and 77th Ave SE.

EXISTING CONDITIONS

The City of Mercer Island's Comprehensive Plan classifies SE 27th Street and 77th Ave SE as Secondary Arterials. Near the site both roadways have 3-lane cross-sections with center turn lanes, and curb, gutter, and sidewalk. 77th Ave SE includes marked bicycle lanes. The posted speed limit in downtown Mercer Island is 25-mph.

The intersection of SE 27th Street and 77th Ave SE is signalized.

The site is within a ¼-mile south from the future light rail station and within ½-mile south of the Mercer Island Park and Ride.

The nearest transit stop is on 77th Ave SE north of SE 27th Street. The stop is served by King County Transit Route 204, Mercer Island DART. Peak hour headways are approximately every hour with service Mondays through Saturdays.

For this analysis, PM peak hour traffic volumes were collected at the signalized intersection of SE 27th Street and 77th Ave SE and one-way site accesses on Thursday, February 29, 2024. Copies of the data collection are attached. The peak hour for all three intersections was 4:30-5:30 PM.

Existing and future traffic volumes are illustrated in **Figure 4**.

FUTURE CONDITIONS

Future traffic conditions include planned transportation improvements and non-project traffic growth through the study area. The analysis horizon is 2025, the year of opening.

The city's 6-year Transportation Improvement Program (2024-2029) includes the following public improvements in the vicinity of the site:

- SE 27th St (76th Ave SE - 80th Ave SE). This is a resurfacing project in the Town Center anticipated in 2024 at an estimated cost of \$805,072 (#SP0110).
- 77th Ave SE channelization (SE 32nd - North Mercer Way). This project includes removing bike lanes to create on-street parking and sharrows in the Town Center to comply with current standards. The project is anticipated by 2026 at an estimated cost of \$53,600 (SP0136).

Both city projects are not anticipated to significantly change access and traffic circulation to Tabit Village Square.

The City of Mercer Island's traffic consultant identified one pipeline project in the study area, Xing Hua development, at the northwest corner of 78th Ave SE and SE 29th Street. Copies of the peak hour pipeline trip figures are attached. Future traffic conditions without the project were forecast by applying a 1.5-percent annual growth rate to the existing traffic volumes and adding pipeline project trips.

Traffic conditions with the project were forecast by adding project trips to the future traffic volumes without the project.

Existing and future traffic volumes are illustrated in **Figure 4**.

LEVEL OF SERVICE ANALYSIS

Intersection level of service (LOS) was evaluated at the study intersection and project driveways for existing and future conditions without and with the project using methodology from the Highway Capacity Manual and Synchro computer program. **Table 2** summarizes the LOS results and copies of the analysis output are attached.

The PM peak hour signal timing at SE 27th Street and 77th Ave SE was reviewed in the field.

The intersection LOS in the Town Center is LOS D. The study intersections operate at LOS B or better with the project and level of service and delay mitigation is not warranted.

Table 2: Intersection Level of Service Analysis

Intersection	Control	2024 Existing		20XX w/o the Project		20XX with the Project	
		LOS	Delay	LOS	Delay	LOS	Delay
1. SE 27th St / Out Dwy	NB Stop	B	13.2	B	13.4	B	13.4
2. SE 27th St / 77th Ave SE	Signal	B	12.9	B	13.1	B	13.2
3. In Dwy / 77th Ave SE	Free	A	-	A	-	A	-

- SE 27th St / Out Dwy. The driveway operates at LOS A. The 95th-percentile vehicle queues outbound from the site are less than 1 vehicle. Queueing is not anticipated to adversely impact onsite circulation.
- SE 27th St / 77th Ave SE. Overall, the signalized intersection operates at LOS D, and satisfies the city's Town Center LOS standard.
 - The eastbound left-turn lane has approximately 60 feet of storage before merging into a two-way left-turn lane across the site frontage. The outbound driveway is approximately 155 feet west of the signalized intersection. The eastbound left-turn 95th-percentile queue is less than one vehicle, in the future with the project, and the 95th-percentile queue in the through-right turn lane is 6.6 vehicles, or 165 feet, now, and 7.1 vehicles, or approximately 178 feet, in the future with the project. The through-right lane queue extends past the outbound site driveway. The outbound driveway operates at LOS B showing that there are adequate gaps in the eastbound traffic for vehicles to exit the site.
 - The westbound left-turn lane has approximately 60 feet of storage before merging into a two-way left-turn lane across the Walgreens frontage. The Walgreens driveway is approximately 95 feet east of the intersection. The westbound left-turn 95th-percentile queue is 1.1 vehicles, or 28 feet, in the future with the project, and the 95th-percentile queue in the through-right turn lane is 3.6 vehicles, or 90 feet, in the future with the project. The through-right lane queue does not extend to the Walgreens driveway.
 - The northbound left-turn lane has approximately 60 feet of storage before merging into a two-way left-turn lane across the site frontage. The inbound driveway is within 20 feet south of the signalized intersection. The northbound left-turn 95th-percentile queue is 1.3 vehicles, or 33 feet, now and in the future with the project, and the 95th-percentile queue in the through-right turn lane is 2.2 vehicles, or 55 feet, now and in the future with the project. The northbound queues extend past the inbound driveway. The one-way inbound driveway does not impact generate delay outbound. Vehicles entering the driveway are required to wait for a gap in the traffic flow south of SE 27th Street to enter the site; this condition does not change with the proposed project.
 - The southbound left-turn lane has approximately 50 feet of storage before merging into a two-way left-turn lane north of the intersection. The southbound left-turn 95th-percentile queue is 1.4 vehicles, or 35 feet, in the future with the project, and the 95th-percentile queue in the through-right turn lane is 2.6 vehicles, or 65 feet, in the future with the project.
- In Dwy / 77th Ave SE. The driveway is restricted to inbound movements only from 77th Ave SE. Currently, vehicle queues northbound on 77th Ave SE extend past the driveway. There are no plans to change the driveway restrictions or driveway location.

PARKING

The former dry-cleaning use required between 2 and 3 spaces per 1,000 square feet of retail space. The resulting minimum parking required for the former retail use was 3 parking spaces.

The proposed bank requires between 3 and 5 spaces per 1,000 square feet of financial services space. The resulting minimum parking required for the proposed bank is 4 parking spaces, +1 more parking spaces than the former dry-cleaning business.

The Applicant proposes to reuse the one (1) drop-off parking space off SE 27th Street north of the existing building for short-term parking and to mitigate the use's parking needs. **Figure 5** includes a street view photograph of the former dry-cleaning business' drop-off space that is proposed to be reused for short-term parking for the bank.

Access to the proposed short-term parking space will be via the existing driveway (easement) on the west side of the building and an existing curb cut about 20 feet from the driveway (easement). The proposed location includes drivers entering from the west and departing to the east. A new curb section is shown in the site plan between the existing curb cuts.

A sightline analysis is included in **Figures 6 and 7**, for stopping and intersection sight distance.

- Stopping sight distance is the distance needed for a driver to identify an object at the edge of the roadway, apply the vehicle's brakes, and stop the vehicle. The AASHTO Green Book recommends 200 feet of stopping sight distance for a roadway with a design speed of 30-mph. The center of the exiting driveway at the loading location meets the stopping sight distance recommendation.
- Intersection sight distance is the distance recommended for a car to enter the travel way without vehicles on the mainline slowing down to more than 70-percent of their initial speed. The AASHTO Green Book recommends 335 feet of intersection sight distance for vehicles to make a left-turn maneuver on a roadway with a design speed of 30-mph. The proposed loading location meets the intersection sight distance recommendation. For this analysis, the decision point is offset from the edge of SE 27th Street by 14.5 feet but curved to represent the approximate location of where the driver's eye would be for a vehicle departing the site.

Overall, there appear to be no sightline impediments at the proposed loading location. Signage is recommended to notify pedestrians and others of the parking space.

The proposed short-term parking space mitigates the bank's parking needs of +1 parking spaces more than the former dry-cleaning business.

CONSTRUCTION PARKING

Temporary construction parking will be limited to short term loading in the alley on the west side of the building. For this tenant improvement, at most only 3 construction vehicles are anticipated on the site.

CONCLUSIONS

The proposed project includes a tenant improvement to convert 1,366 square feet of building area occupied by a former dry-cleaning business to a walk-in WAFD bank branch.

The project is forecast to generate 8 AM peak hour and 17 PM peak hour trips. Study intersections are forecast to operate at LOS B, or better with the project. There are no study intersection improvements recommended.

The project proposes to reuse a former drop-off space for the dry-cleaning business for short-term parking. There are no sight distance impediments for a driver exiting the short-term parking space.



Google



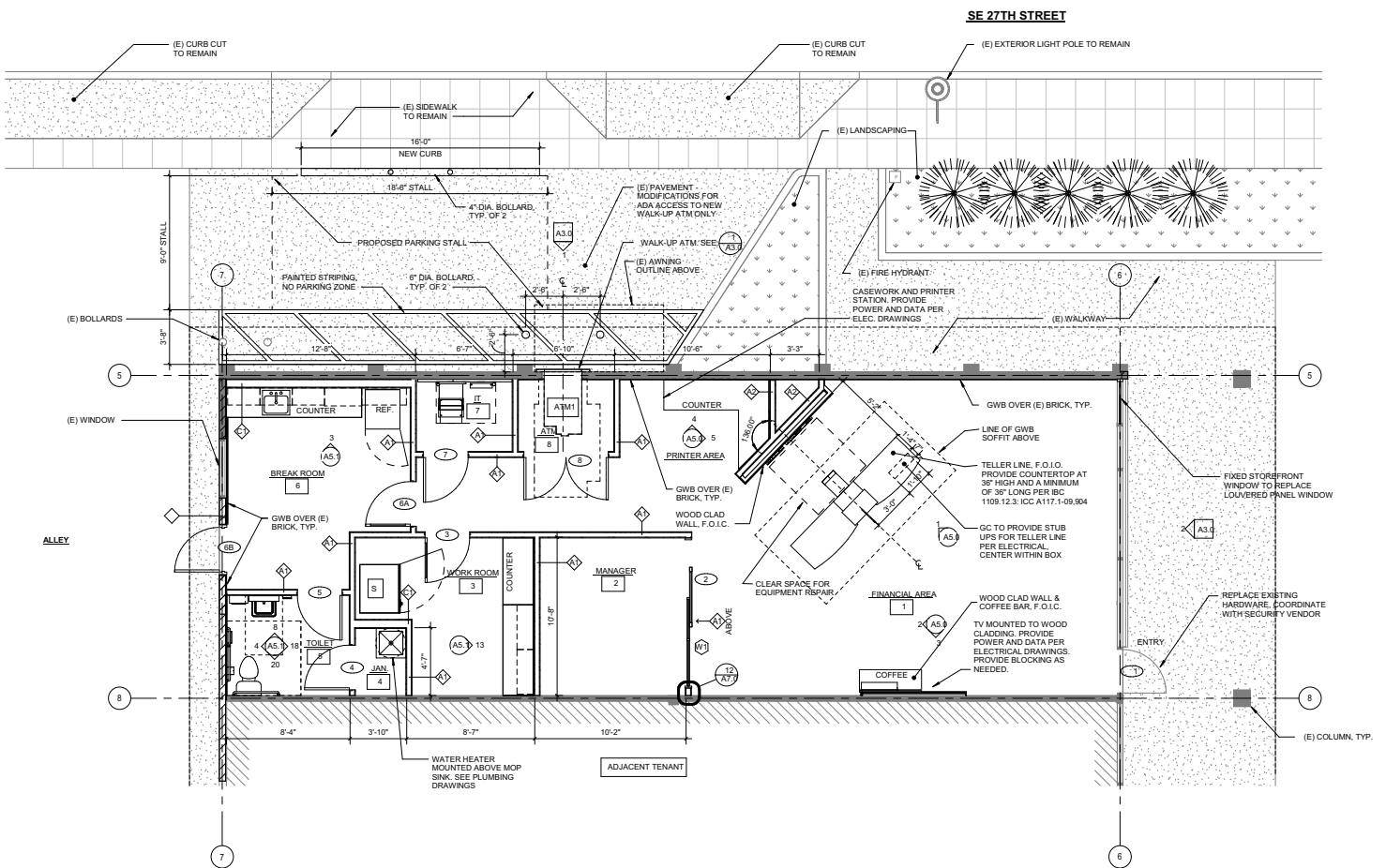
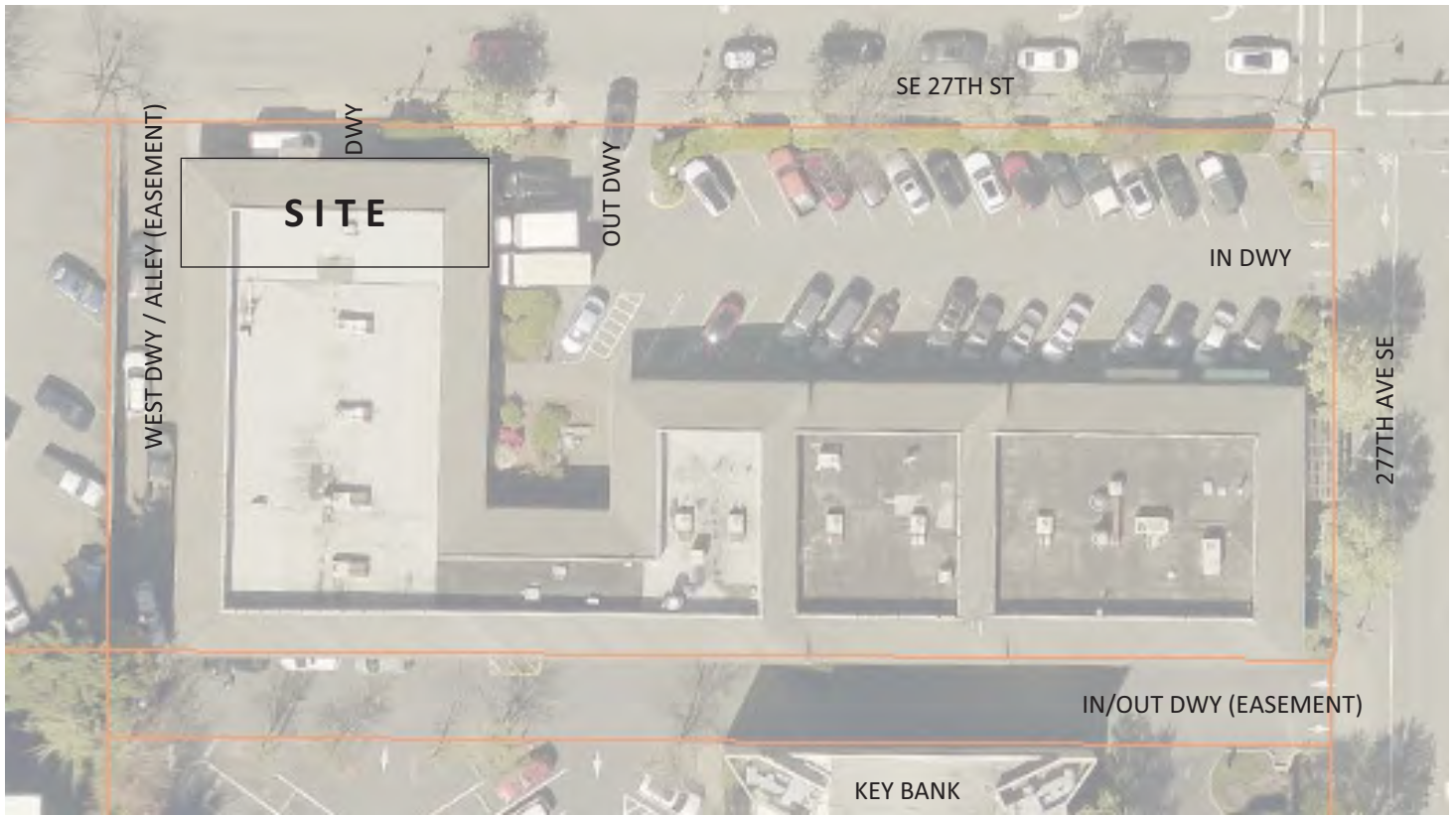
approximate scale feet



Figure 1:
Vicinity Map

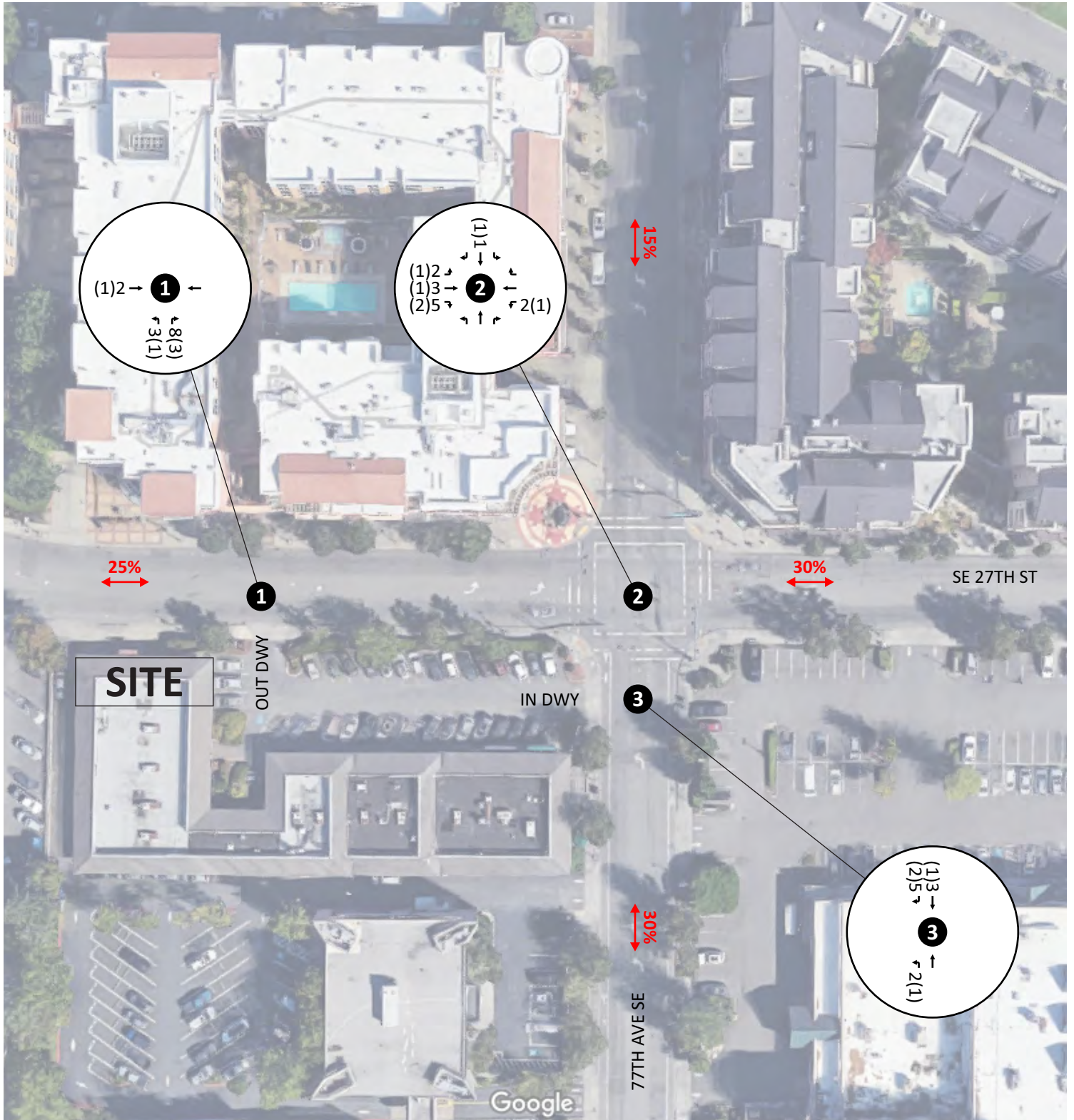
WAFD Bank Mercer Island
Traffic Impact Analysis





**Figure 2:
Site Plan**

WAFD Bank Mercer Island
Traffic Impact Analysis



Trips	In	Out	Total
(AM)	(4)	(4)	(8)
PM	7	10	17

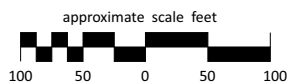


Figure 3:
Trip Distribution and Assignment

WAFD Bank Mercer Island
Traffic Impact Analysis



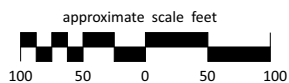
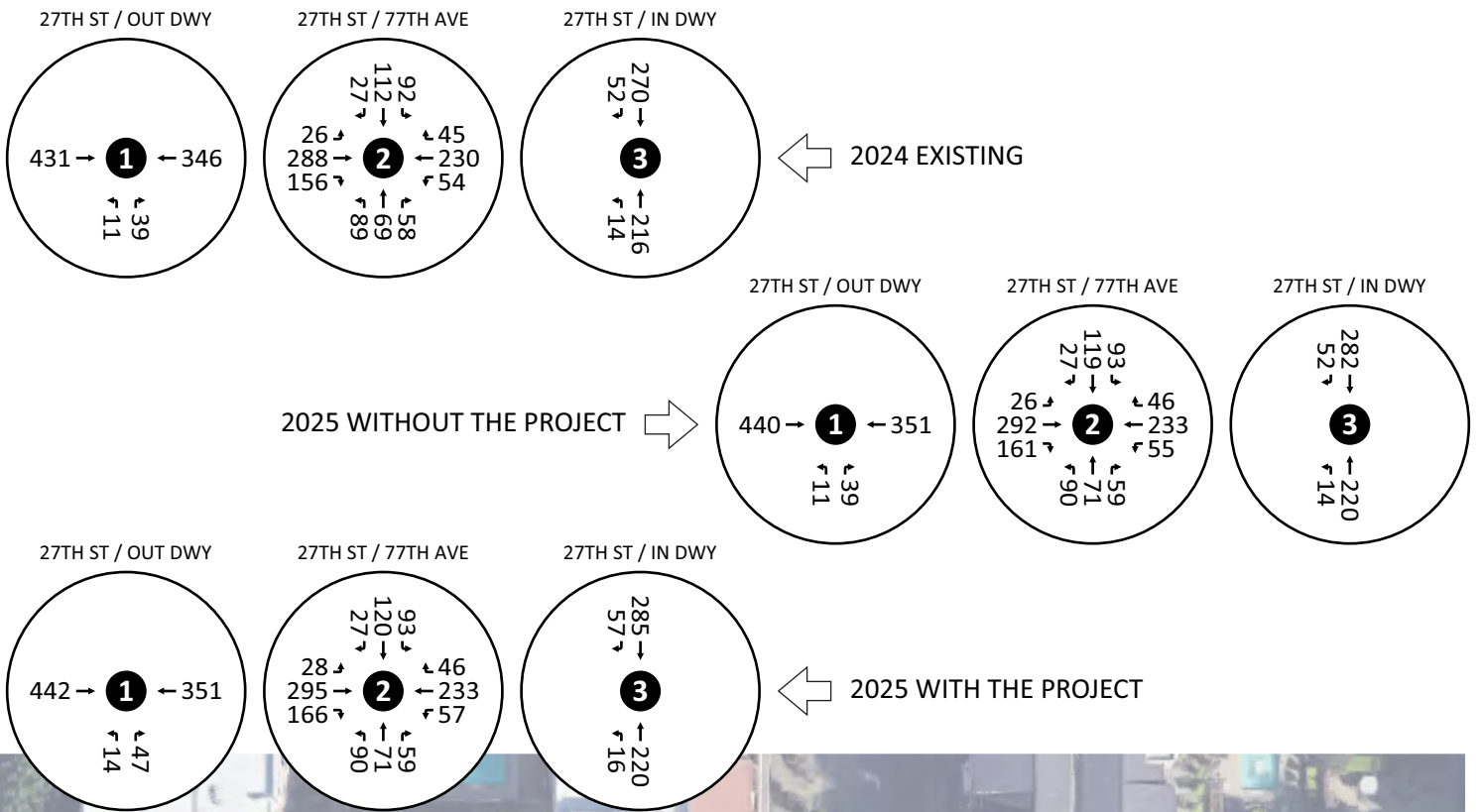


Figure 4:
PM Peak Hour Traffic Volumes

WAFD Bank Mercer Island
Traffic Impact Analysis



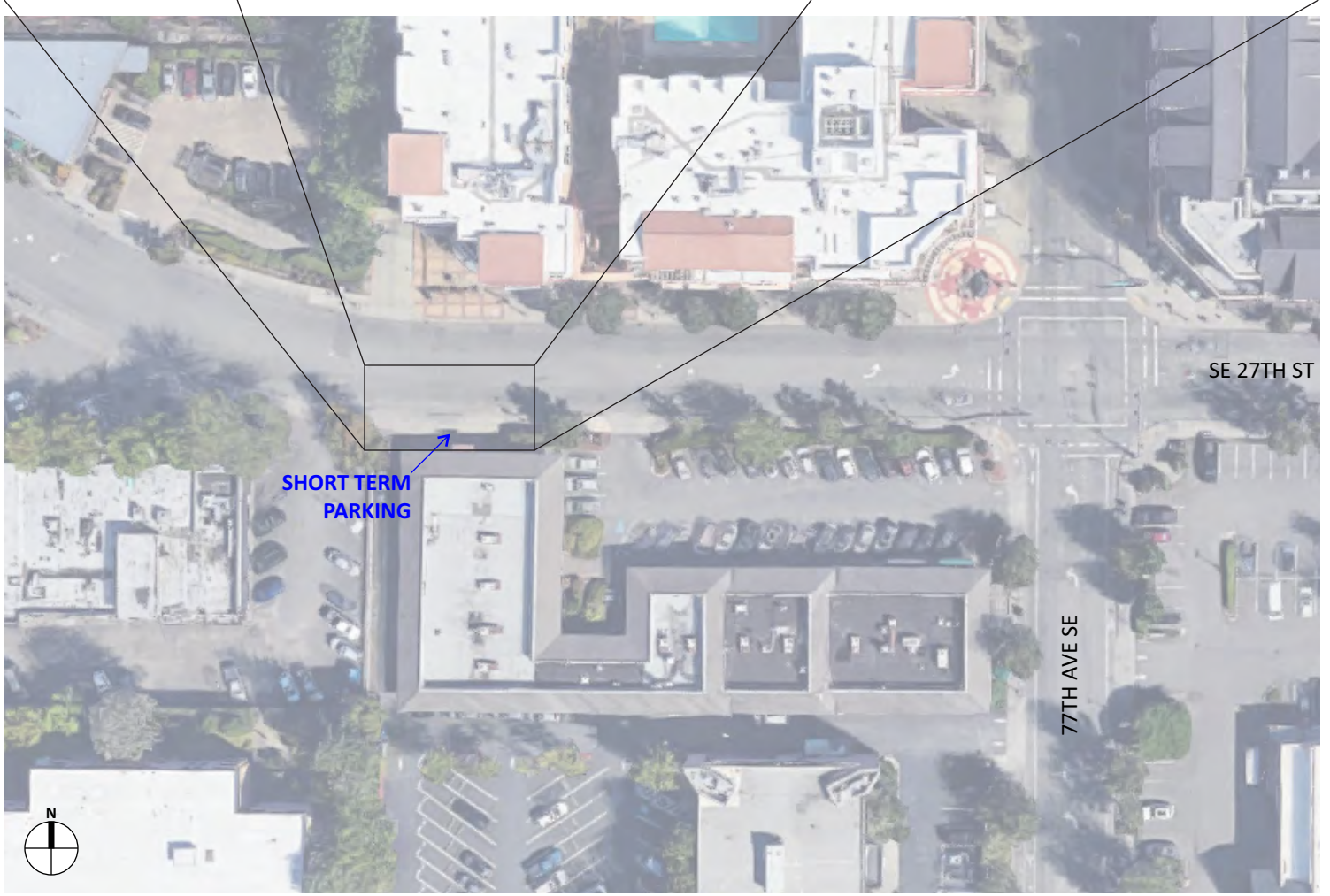


Figure 5:
Street View; Short-Term Parking

WAFD Bank Mercer Island
Traffic Impact Analysis



POINT A - OBJECT AT EDGE OF TRAVEL-WAY (SE 27TH ST)

POINT B - STOPPING SIGHT DISTANCE (200-FT) ALONG TRAVEL-WAY; 30 MPH DESIGN SPEED

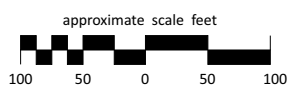


Figure 6:
Stopping Sight Distance - Loading Space
 (Source: AASHTO Greed Book Table 3-1)

WAFD Bank Mercer Island
 Traffic Impact Analysis





POINT C - DRIVER'S EYE 14.5-FT OFFSET FROM EDGE OF TRAVEL-WAY (SE 27TH ST), CURVED TO SHOW APPROXIMATELY WHERE THE DRIVER'S EYE IS FOR THE CAR IN SHORT-TERM PARKING SPACE
 POINT D - INTERSECTION, OR ENTERING, SIGHT DISTANCE (335-FT) ALONG TRAVEL-WAY; 30 MPH DESIGN SPEED

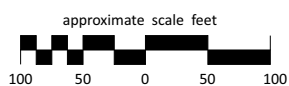


Figure 7:
Intersection Sight Distance - Loading Space
 (Source: AASHTO Greed Book Table 9-6)

WAFD Bank Mercer Island
 Traffic Impact Analysis





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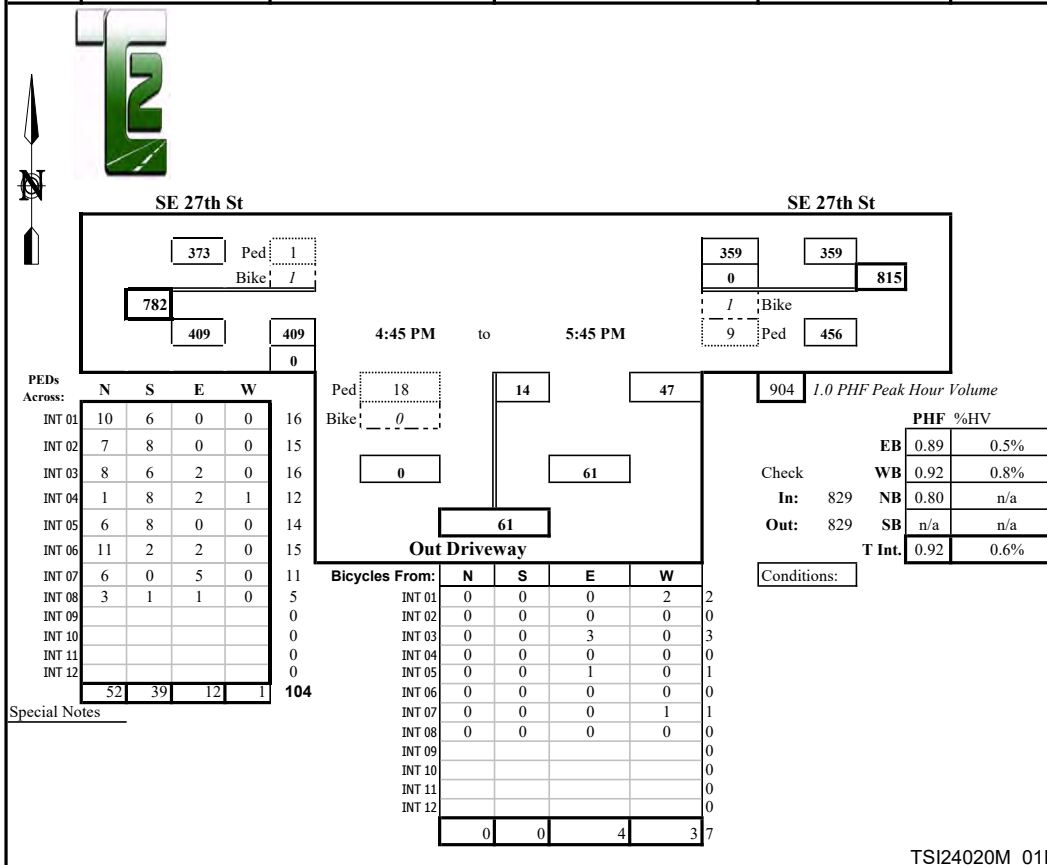
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Out Driveway & SE 27th St
Location: Mercer Island, Washington

Date of Count: Thu 02/29/2024
Checked By: Jen

Time Interval	From North on (SB)				From South on (NB)				From East on (WB)				From West on (EB)				Interval Total
	0				Out Driveway				SE 27th St				SE 27th St				
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	4	0	12	1	0	98	0	1	0	92	0	206
4:30 P	0	0	0	0	0	1	0	13	2	0	89	0	2	0	97	0	200
4:45 P	0	0	0	0	0	2	0	6	0	0	76	0	0	0	104	0	188
5:00 P	0	0	0	0	0	3	0	8	0	0	82	0	1	0	100	0	193
5:15 P	0	0	0	0	0	4	0	11	1	0	90	0	0	0	115	0	220
5:30 P	0	0	0	0	0	2	0	14	1	0	98	0	1	0	112	0	226
5:45 P	0	0	0	0	0	5	0	14	1	0	89	0	0	0	82	0	190
6:00 P	0	0	0	0	0	3	0	1	0	1	78	0	0	0	90	0	173
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	24	0	79	6	1	700	0	5	0	792	0	1596
Peak Hour: 4:45 PM to 5:45 PM																	
Total	0	0	0	0	0	14	0	47	3	0	359	0	2	0	409	0	829
Approach	0				61				359				409				829
%HV	n/a				n/a				0.8%				0.5%				0.6%
PHF	n/a				0.80				0.92				0.89				0.92





Prepared for: **Transportation Solutions, Inc.**
Traffic Count Consultants, Inc.

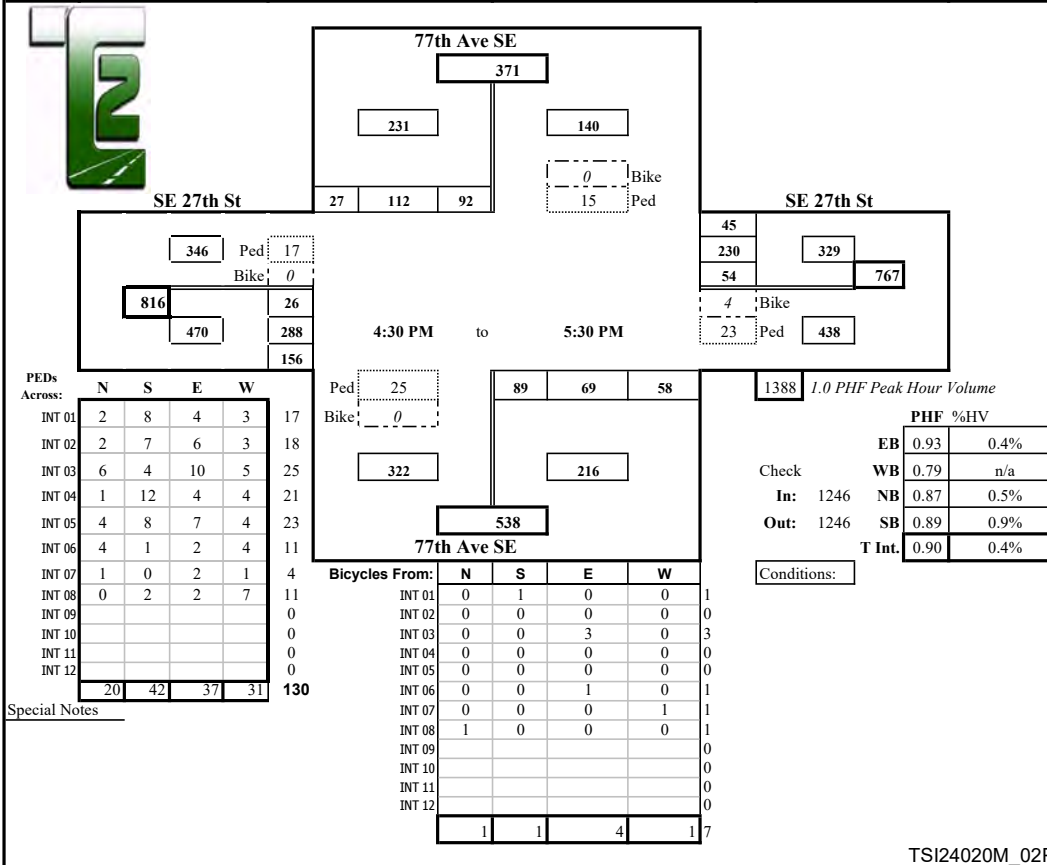
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 77th Ave SE & SE 27th St
Location: Mercer Island, Washington

Date of Count: Thu 02/29/2024
Checked By: Jen

Time Interval	From North on (SB) 77th Ave SE				From South on (NB) 77th Ave SE				From East on (WB) SE 27th St				From West on (EB) SE 27th St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	34	38	12	0	25	21	20	0	18	61	6	1	2	62	40	339
4:30 P	2	22	39	7	1	22	28	12	1	9	60	13	2	4	72	34	322
4:45 P	0	25	25	12	0	19	17	11	0	14	45	10	0	8	64	38	288
5:00 P	0	16	29	9	0	25	17	13	0	10	48	6	1	7	74	27	281
5:15 P	2	24	23	3	0	26	19	17	0	18	61	13	0	4	78	44	330
5:30 P	0	27	35	3	1	19	16	17	0	12	76	16	1	7	72	47	347
5:45 P	0	24	21	15	1	28	14	14	0	15	46	13	0	9	57	30	286
6:00 P	1	25	36	3	0	19	16	13	1	7	57	11	0	4	58	29	278
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	6	197	246	64	3	183	148	117	2	103	454	88	5	45	537	289	2471
Peak Hour: 4:30 PM to 5:30 PM																	
Total	2	92	112	27	1	89	69	58	0	54	230	45	2	26	288	156	1246
Approach	231				216				329				470				1246
%HV	0.9%				0.5%				n/a				0.4%				0.4%
PHF	0.89				0.87				0.79				0.93				0.90





Prepared for: **Transportation Solutions, Inc.**
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 77th Ave SE & In Driveway
Location: Mercer Island, Washington

Date of Count: Thu 02/29/2024
Checked By: Jen

Time Interval	From North on (SB) 77th Ave SE				From South on (NB) 77th Ave SE				From East on (WB) 0				From West on (EB) In Driveway				Interval Total		
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R			
4:15 P	0	0	83	13	0	2	66	0	0	0	0	0	0	0	0	0	164		
4:30 P	1	0	77	5	1	4	62	0	0	0	0	0	0	0	0	0	148		
4:45 P	0	0	63	14	0	2	47	0	0	0	0	0	0	0	0	0	126		
5:00 P	1	0	56	10	0	3	55	0	0	0	0	0	0	0	0	0	124		
5:15 P	1	0	76	9	0	6	62	0	0	0	0	0	0	0	0	0	153		
5:30 P	1	0	75	19	1	3	52	0	0	0	0	0	0	0	0	0	149		
5:45 P	0	0	59	7	0	3	56	0	0	0	0	0	0	0	0	0	125		
6:00 P	1	0	63	9	0	1	48	0	0	0	0	0	0	0	0	0	121		
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Survey	5	0	552	86	2	24	448	0	0	0	0	0	0	0	0	0	1110		
Peak Hour: 4:00 PM to 5:00 PM																			
Total	2	0	279	42	1	11	230	0	0	0	0	0	0	0	0	0	562		
Approach				321				241				0				0			
%HV				0.6%				0.4%				n/a				n/a			
PHF				0.84				0.89				n/a				n/a			

77th Ave SE

551

321 230

42 279

53 Ped 23
Bike 0

53 0

0

4:00 PM to 5:00 PM

0 Ped 11 230
Bike 0

279 241

520

77th Ave SE

656 1.0 PHF Peak Hour Volume

PHF %HV	
EB	n/a
WB	n/a
In: 562	NB 0.89
Out: 562	SB 0.84
T Int.	0.86

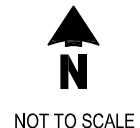
Conditions:

PEDs Across:				
	N	S	E	W
INT 01	0	0	0	3
INT 02	0	0	0	5
INT 03	0	0	0	8
INT 04	0	0	0	7
INT 05	0	0	0	2
INT 06	0	0	0	4
INT 07	0	0	0	2
INT 08	0	0	0	2
INT 09				0
INT 10				0
INT 11				0
INT 12				0
Total	0	0	0	33

Bicycles From:

	N	S	E	W
INT 01				0
INT 02				0
INT 03				0
INT 04				0
INT 05				0
INT 06				0
INT 07				0
INT 08				0
INT 09				0
INT 10				0
INT 11				0
INT 12				0
Total	0	0	0	0

Special Notes

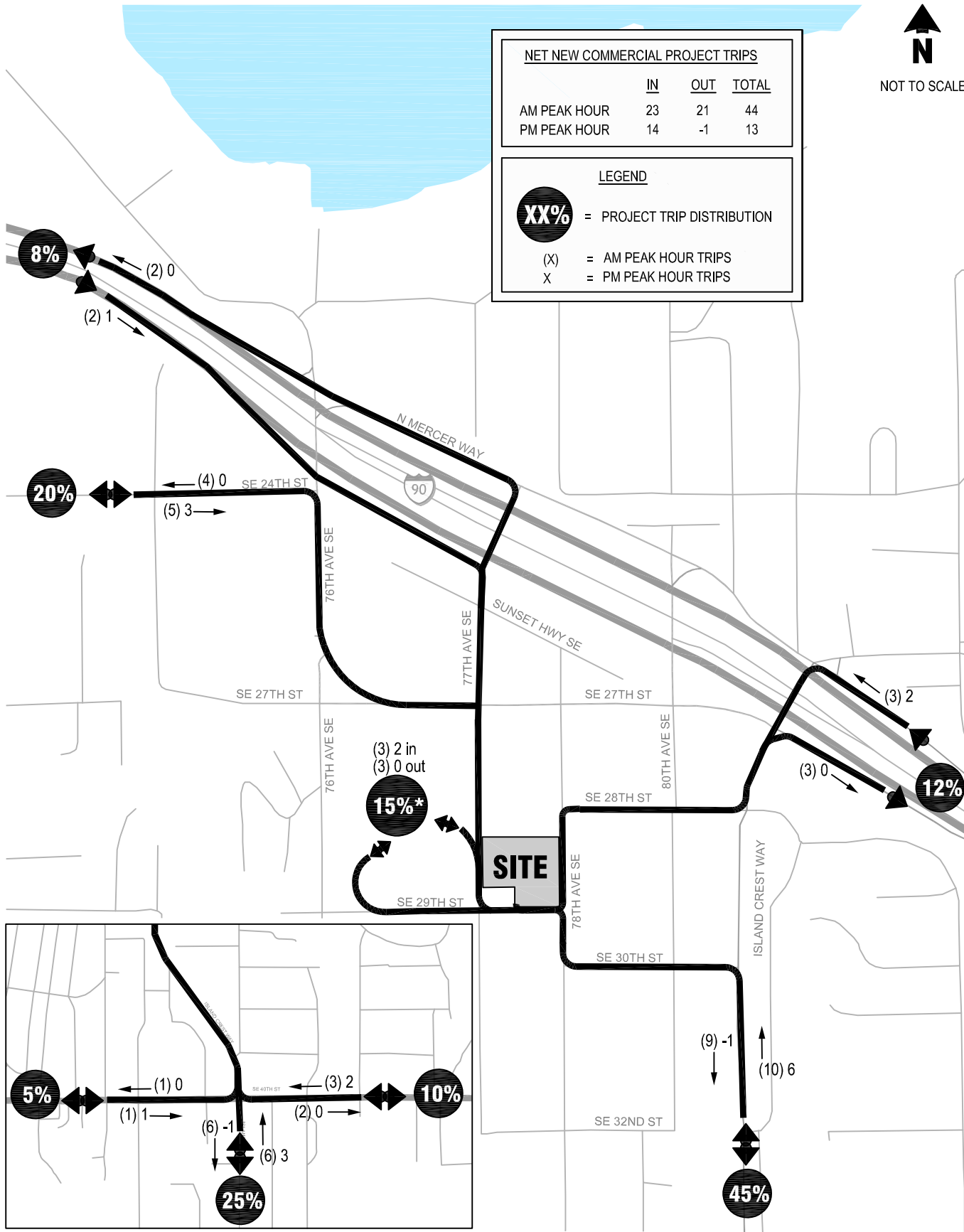


NET NEW COMMERCIAL PROJECT TRIPS			
	IN	OUT	TOTAL
AM PEAK HOUR	23	21	44
PM PEAK HOUR	14	-1	13

LEGEND

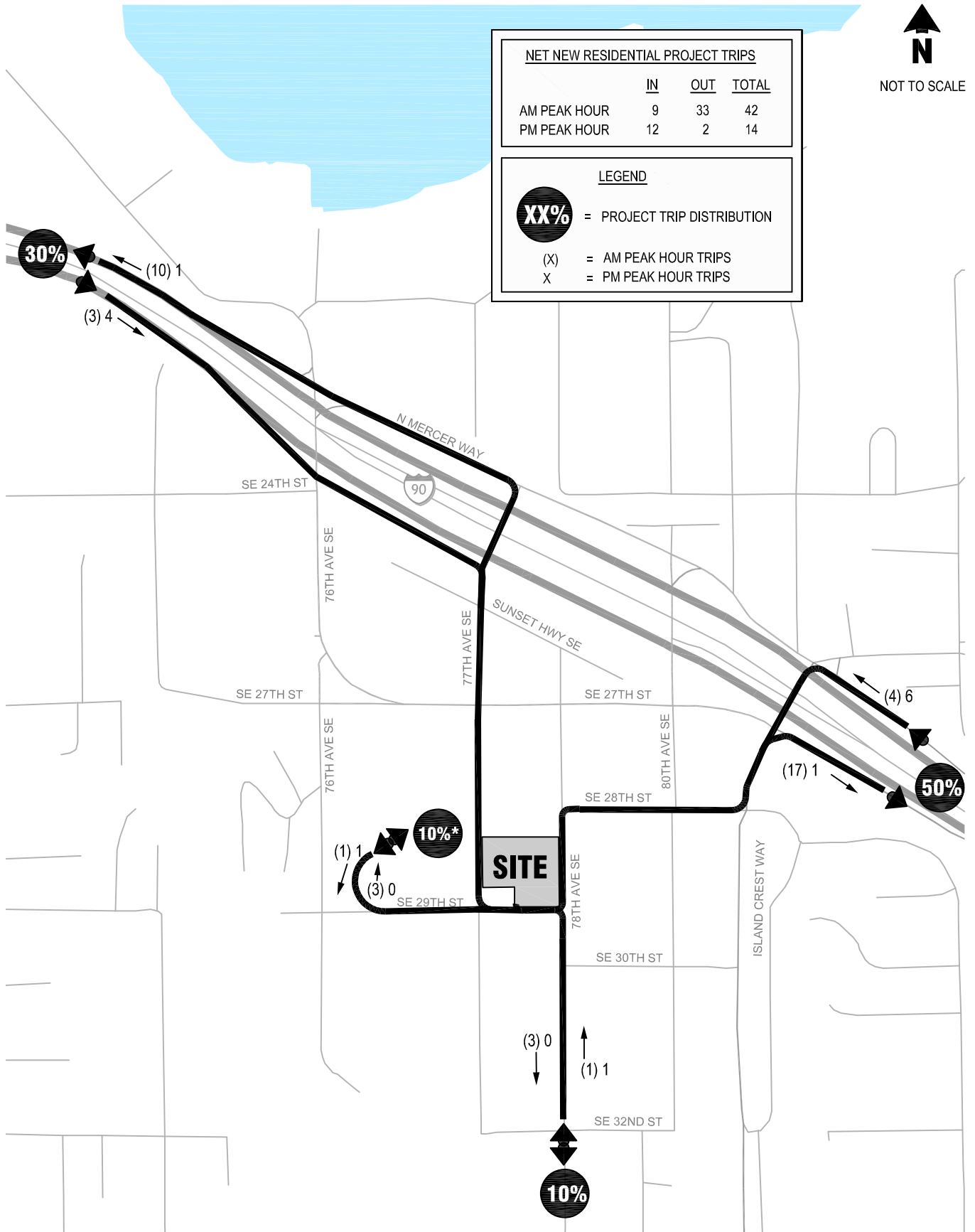
XX% = PROJECT TRIP DISTRIBUTION

(X) = AM PEAK HOUR TRIPS
X = PM PEAK HOUR TRIPS



*Denotes 15% of commercial trips would be to/from the general Mercer Island Town Center Area.

Commercial Trip Distribution and Assignment (AM and PM Peak Hour) Figure 7



*Denotes 10% of commercials trips would be to/from the general Mercer Island Town Center Area.

Residential Trip Distribution and Assignment (AM and PM Peak Hour)

Figure

Mercer Island Mixed Use

