

## MEMORANDUM

To: Jesse Hannahs, PE, City of Marysville  
 From: Brad Lincoln, PE  
 Subject: White Barn Gas Station  
 Date: June 3, 2022  
 Project: 090222147



Kimley-Horn and Associates, Inc. has been retained to provide a traffic analysis for the proposed White Barn Gas Station proposal. The site is located in the northeast corner of Soper Hill Road at 87<sup>th</sup> Avenue NE. A site vicinity map is shown in Figure 1.

The White Barn Medical Office building is proposed to consist of a gas station with 12 vehicle fueling positions (vfp) and a 10,000 square-foot (SF) convenience store. The building is proposed to have access to the surrounding roadways via two accesses, one to Soper Hill Road and one to 87<sup>th</sup> Avenue NE that are being constructed as part of a separate application since they will service the entire area and not just this building.

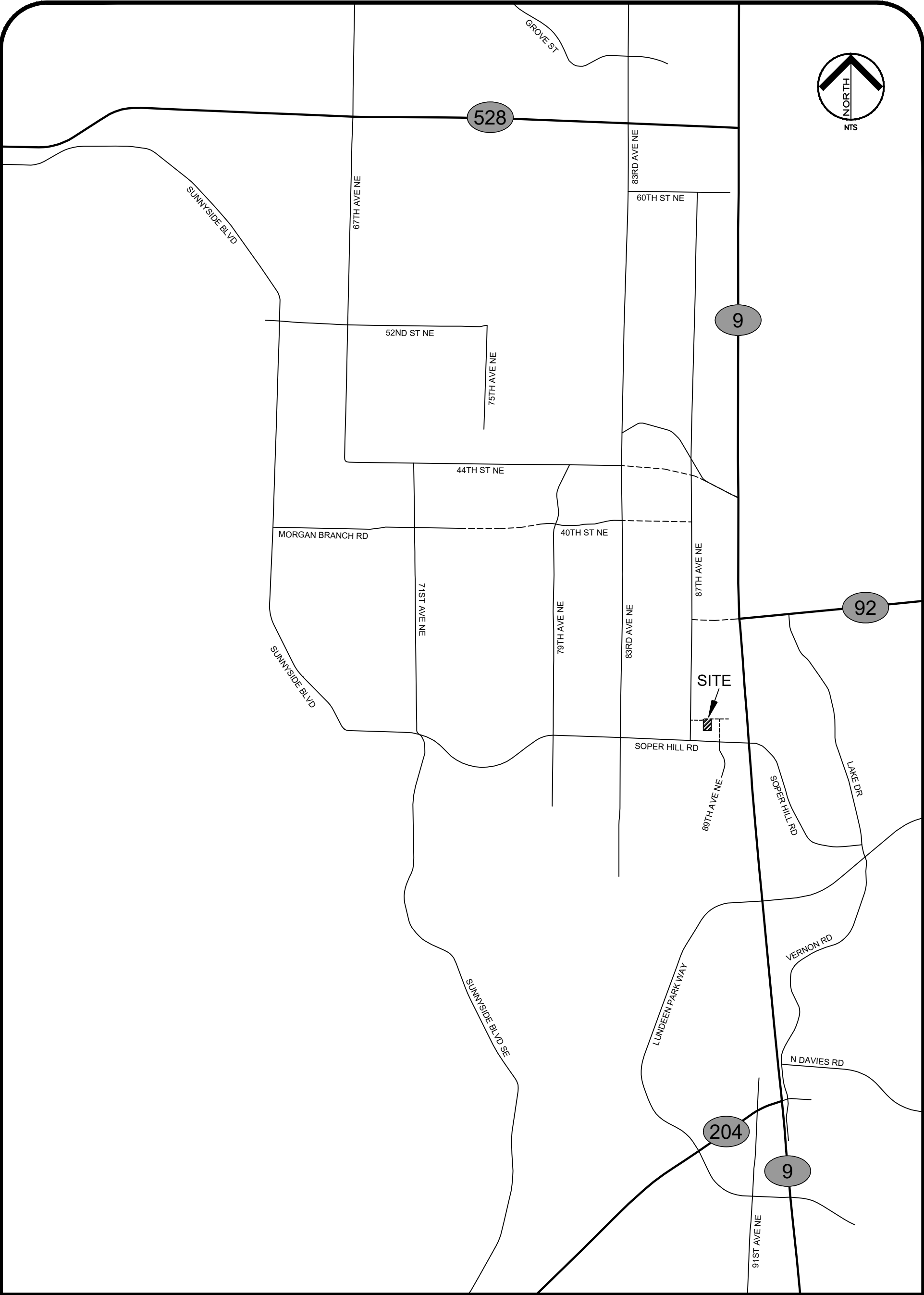
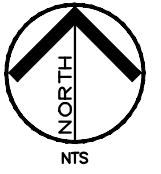
### 1. Trip Generation

Trip generation calculations for the proposed White Barn Medical Office development have been performed using the Institute of Transportation Engineer's (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition (2021)*. The average rates for ITE Land Use Code 945, Convenience Store/Gas Station (GFA 5.5-10k), have been used for the trip generation calculations. ITE also identifies a pass-by rate for this land use. The pass-by rate accounts for existing vehicles on the roadway that will use the site. The pass-by rate is based on the number of vehicle fueling positions. ITE publishes an AM peak-hour pass-by rate of 76% and a PM peak-hour pass-by rate of 75% for sites with between 9 and 20 vehicle fueling positions. A pass-by rate of 75% has been utilized for the daily trip generation. The trip generation of the White Barn Gas Station is summarized in Table 1.

**Table 1: Trip Generation Summary**

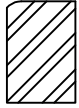
Land Use	Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Gas Station (5.5-10k) ITE LUC 945	12 vfp	4,149.00	189.60	189.60	379.20	161.40	161.40	322.80
Pass-By Reduction	---	-3,111.75	-144.10	-144.09	288.19	-121.05	-121.05	-242.10
<b>TOTAL</b>		<b>1,037.25</b>	<b>45.51</b>	<b>45.50</b>	<b>91.01</b>	<b>40.35</b>	<b>40.35</b>	<b>80.70</b>

The White Barn Gas Station is anticipated to generate 1,037 new daily trips with 91 AM peak-hour trips and 81 new PM peak-hour trips. The trip generation calculations are included in the attachments.



WHITE BARN  
GAS STATION

**LEGEND**



DEVELOPMENT SITE

**FIGURE 1**  
SITE VICINITY MAP

CITY OF MARYSVILLE

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## 2. TRIP DISTRIBUTION

The trip distribution for the White Barn Medical Office building is based on the City of Marysville Whiskey Ridge East area for the existing (opening) and horizon years. It is anticipated that 53% of the trips generated by the development will travel along SR-9, forty-five percent to and from the south and eight percent to and from the north. Approximately 12% of the trips generated by the development are anticipated to travel along Soper Hill Road, nine percent to and from the west and three percent to and from the east. It is estimated that 30% of the trips generated by the development will travel to and from the north, eighteen percent along 87<sup>th</sup> Avenue NE and twelve percent along 83<sup>rd</sup> Avenue NE. The remaining 5% of the trips generated by the development will travel to and from local areas in the site vicinity. It is important to note that there will be minor changes in the site vicinity between the opening year and horizon year trip distributions. However, the overall trip distribution is not anticipated to change from the opening year to horizon year conditions.

Separate trip distributions for the 2024 opening year and 2030 horizon year have been prepared for the AM and PM peak-hours. The 2024 Opening Year distributions for the AM and PM peak-hours are shown in Figure 2 and Figure 3, respectively. The 2030 Horizon Year distributions for the AM and PM peak-hours are shown in Figure 4 and Figure 5, respectively.

## 3. STUDY INTERSECTIONS

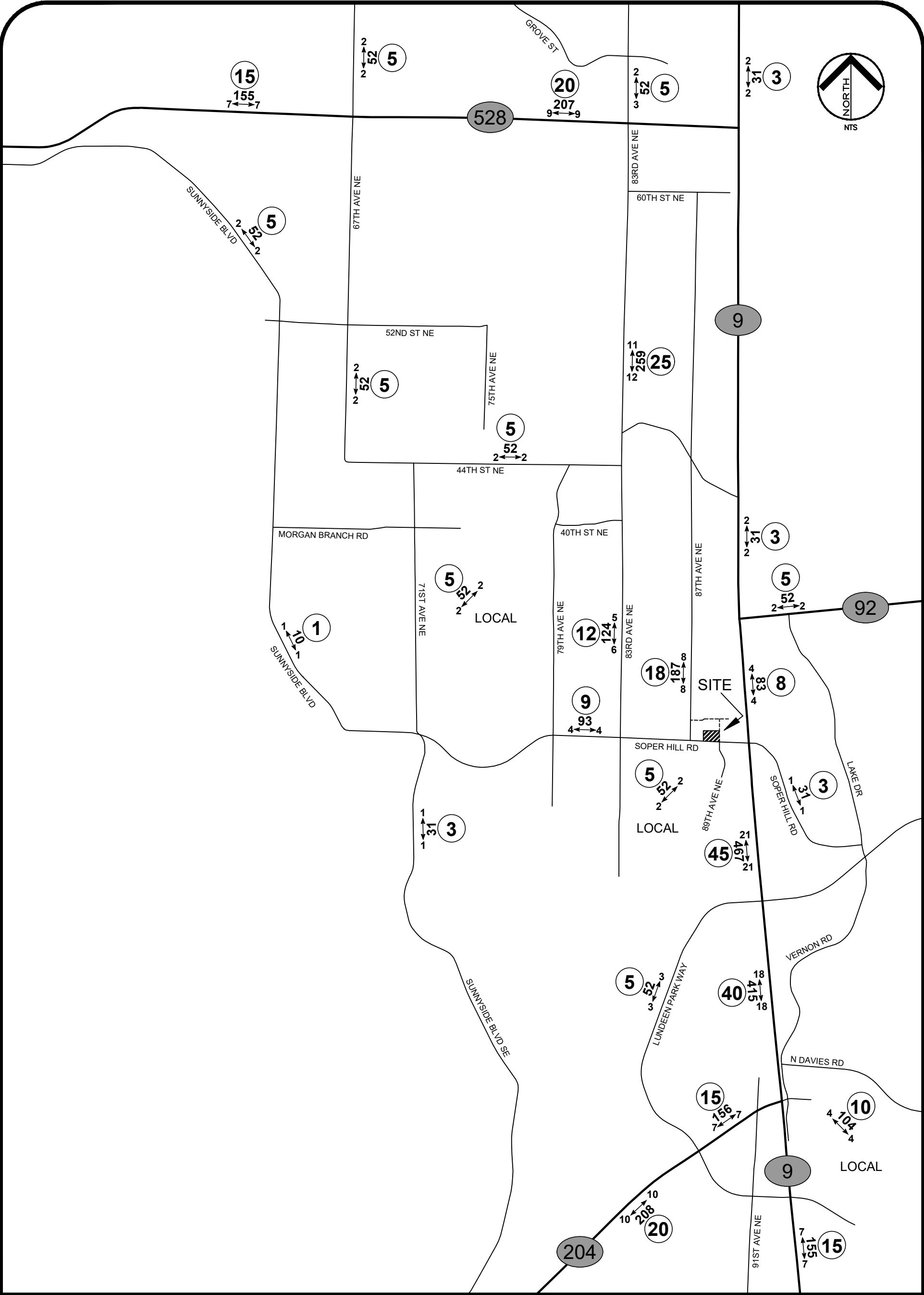
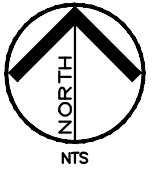
The City of Marysville utilizes a threshold of 25 peak-hour trip to determine which intersections should be analyzed. It is anticipated that the only intersections that will be impacted by 25 PM peak-hour trips are the site access to Soper Hill Road and 87<sup>th</sup> Avenue NE at Soper Hill Road. The frontage improvements as part of the overall site will improve Soper Hill Road and the mitigation fees for impacts to the intersection of 87<sup>th</sup> Avenue NE at Soper Hill Road are discussed later in this memorandum.

## 4. TRAFFIC MITIGATION FEES

The City of Marysville has interlocal agreements with City of Lake Stevens and Snohomish County with regards to traffic mitigation fees. The City of Marysville also has an understanding with WSDOT for the payment traffic mitigation fees.

### 4.1. City of Marysville

The City of Marysville standard traffic mitigation fees have been calculated using the commercial rate of \$2,220 per PM peak-hour trip. The White Barn Gas Station is expected to generate 80.70 new PM peak-hour trips which results in a total standard traffic mitigation fee of \$179,154.00.



WHITE BARN  
GAS STATION

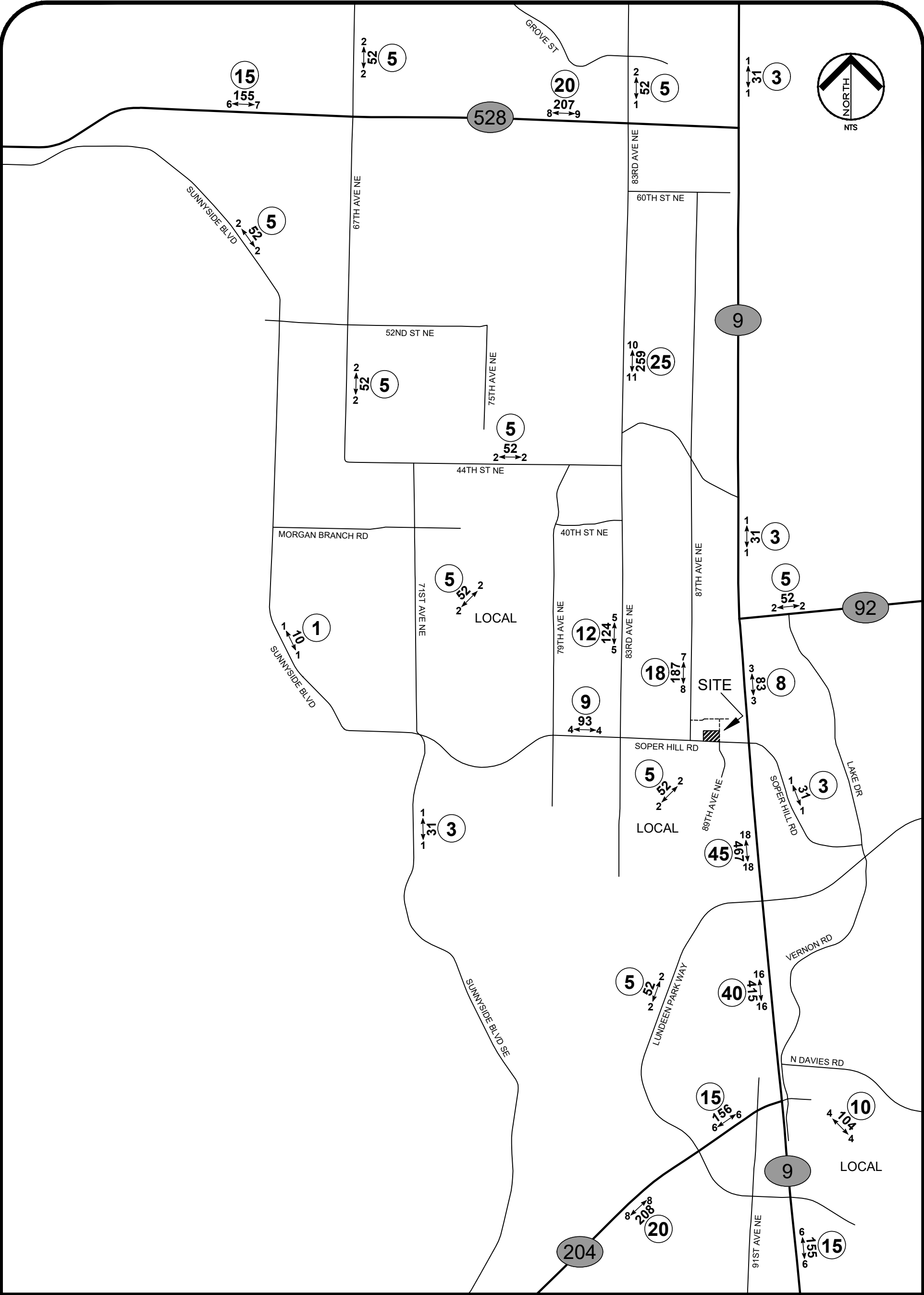
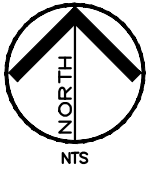
**LEGEND**

- AWDT** NEW DAILY TRAFFIC
- AM ← PEAK** NEW PEAK-HOUR TRIPS
- XX** TRIP DISTRIBUTION %

**FIGURE 2**  
2024 OPENING YEAR  
TRIP DISTRIBUTION  
WEEKDAY AM PEAK-HOUR

CITY OF MARYSVILLE

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WHITE BARN  
GAS STATION

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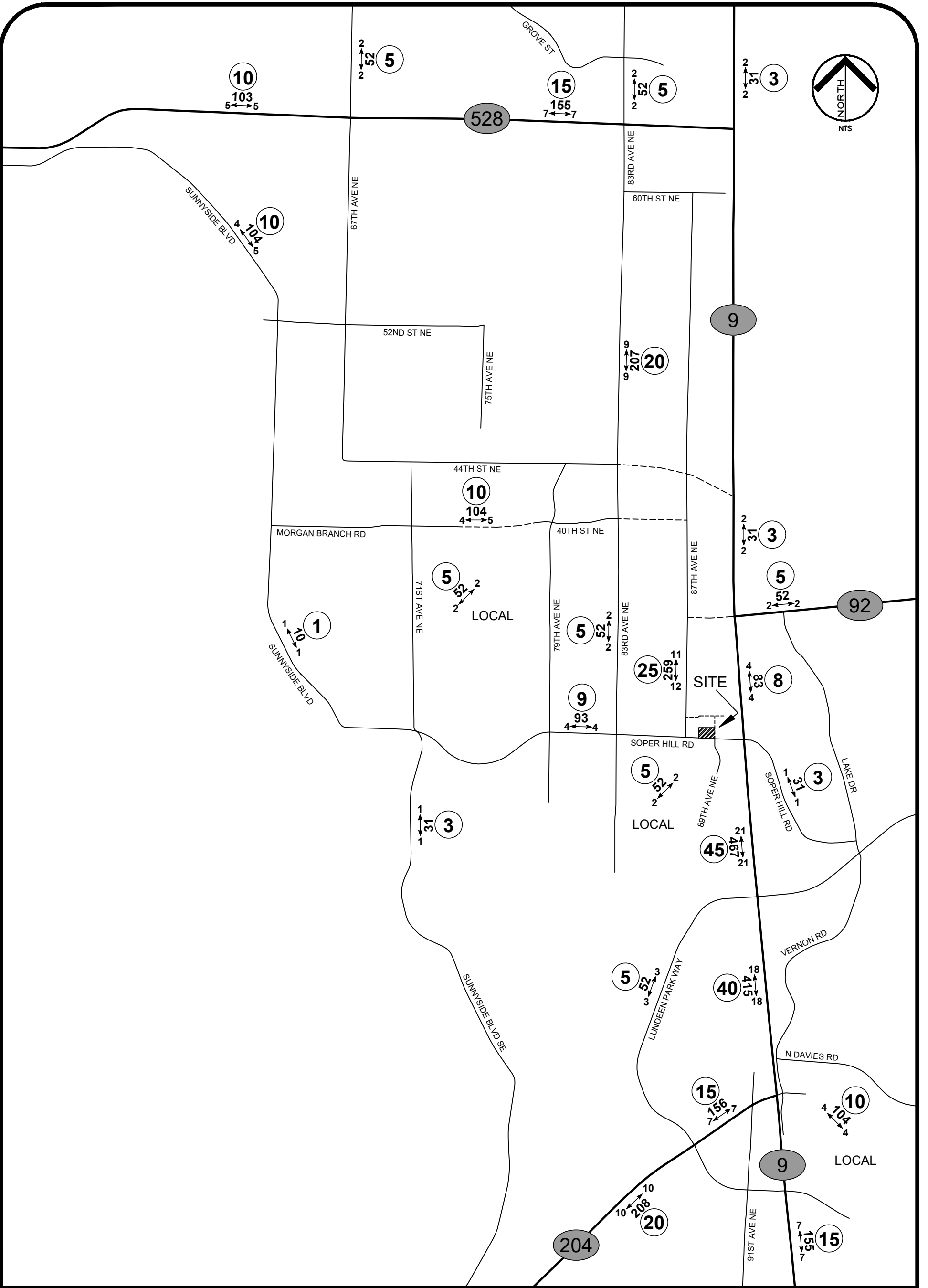
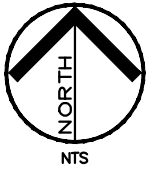
- AWDT** NEW DAILY TRAFFIC
- PM ← → PEAK** NEW PEAK-HOUR TRIPS
- (XX)** TRIP DISTRIBUTION %

**FIGURE 3**  
2024 OPENING YEAR  
TRIP DISTRIBUTION  
WEEKDAY PM PEAK-HOUR

CITY OF MARYSVILLE



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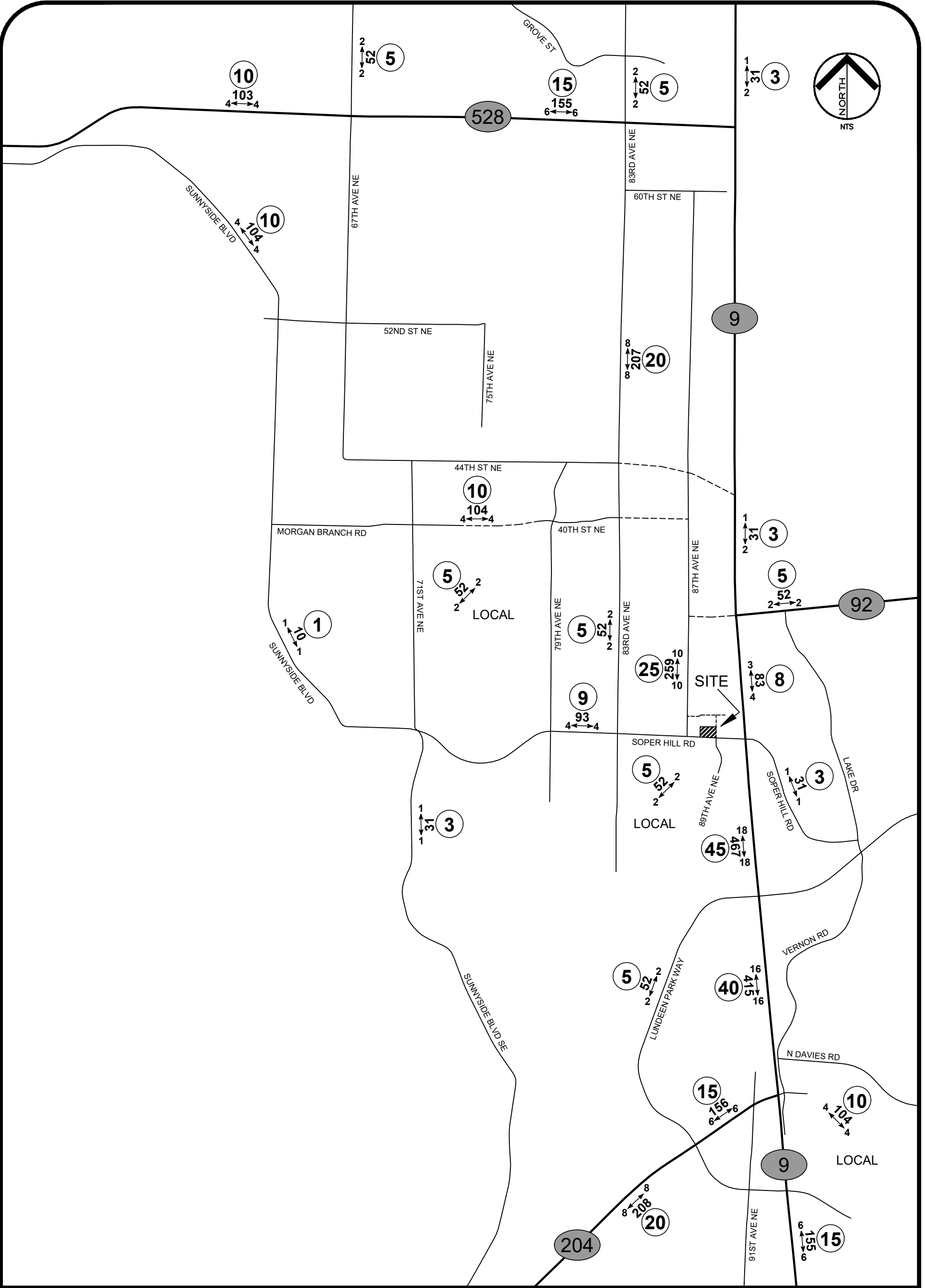
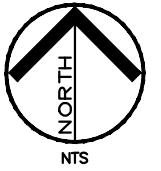
WHITE BARN  
GAS STATION

**LEGEND**

- AWDT** NEW DAILY TRAFFIC
- AM ← PEAK** NEW PEAK-HOUR TRIPS
- (XX)** TRIP DISTRIBUTION %

**FIGURE 4**  
2030 HORIZON YEAR  
TRIP DISTRIBUTION  
WEEKDAY AM PEAK-HOUR

CITY OF MARYSVILLE



WHITE BARN  
GAS STATION

**LEGEND**

- AWDT** NEW DAILY TRAFFIC
- PM** NEW PEAK-HOUR TRIPS
- XX** TRIP DISTRIBUTION %

**FIGURE 5**  
2030 HORIZON YEAR  
TRIP DISTRIBUTION  
WEEKDAY PM PEAK-HOUR

CITY OF MARYSVILLE

## 4.2. City of Lake Stevens

The City of Marysville and the City of Lake Stevens have an interlocal agreement to fund improvements to Soper Hill Road from SR-9 to 83<sup>rd</sup> Avenue NE. Construction of a new roundabout at 87<sup>th</sup> Avenue NE is located in the City of Lake Stevens and identified in the interlocal agreement. The 87<sup>th</sup> Avenue NE intersection has a fee of \$1,700.00 per PM peak-hour trip impacting the intersection. The 87<sup>th</sup> Avenue NE intersection is anticipated to be impacted by 44 PM peak-hour trips generated by the White Barn Medical Office building due to the restricted access to Soper Hill Road. These trips result in a proportionate fee of \$74,800.00. It is important to note that these fees should not be required if another development has been conditioned to construct the 87<sup>th</sup> Avenue NE roundabout prior to when these fees would be due. Additionally, these funds are paid to the City of Marysville and not to the City of Lake Stevens.

## 4.3. Snohomish County

The City of Marysville and Snohomish County have an interlocal agreement that provides for the payment of traffic mitigation for impacts to Snohomish County roadways by City of Marysville developments. Traffic mitigation fees are based on predetermined area impacts or impacts to actual improvement projects. According to Section 3(a)2 of the *Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Marysville*, City of Marysville developments are only required to pay traffic mitigation fees for improvements in the Transportation Needs Report impacted with three directional peak-hour trips. The trip distribution shows there are not any Snohomish County improvement projects in the Transportation Needs Report that will be impacted by three directional PM peak-hour trips generated by the White Barn Gas Station. Payment of Snohomish County traffic mitigation fees should therefore not be a condition of the White Barn Gas Station.

## 4.4. Washington State Department of Transportation

WSDOT traffic mitigation fees are only required if improvements identified on the Exhibit C list are impacted by three directional PM peak-hour trips and if the improvement project has not already been completed or advertised for construction bid. There are not any WSDOT improvement projects on the Exhibit C list that will be impacted by three or more directional PM peak-hour trips generated by the White Gas Station. WSDOT traffic mitigation fees should therefore not be a condition of the White Barn Gas Station.



## **Attachments**



White Barn Gas Station  
090222147

**Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
(a.k.a.): Weekday AM Peak Hour**

LAND USES	ITE LU code	VARIABLE	Gross Trips						Internal Crossover			NET EXTERNAL TRIPS BY TYPE					
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS						
									TOTAL	PASS-BY	NEW	PASS-BY	NEW	In	Out		
Convenience Store/Gas Station (5.5-10k)	945	12 vfp	31.60	50%	50%	379.20	0%	0.00	0.00	379.20	76%	288.19	91.01	144.10	144.09	45.51	45.50
<b>Totals</b>						379.20		0.00	0.00	379.20		288.19	91.01	144.10	144.09	45.51	45.50

White Barn Gas Station  
090222147

**Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM  
(a.k.a.): Weekday PM Peak Hour**

LAND USES	ITE LU code	VARIABLE	Trip Rate	Gross Trips			Internal Crossover		IN BOTH DIRECTIONS			NET EXTERNAL TRIPS BY TYPE				
				% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	TOTAL	PASS-BY		NEW	DIRECTIONAL ASSIGNMENTS			
										In	Out		In+Out (Total)	% of Ext. Trips	In	Out
Convenience Store/Gas Station (5.5-10k)	945	12 vfp	26.90	50%	50%	322.80	0%	0.00	In+Out (Total)	In+Out (Total)	In+Out (Total)	80.70	121.05	121.05	40.35	40.35
<b>Totals</b>						322.80		0.00	322.80	75%	242.10	80.70	121.05	121.05	40.35	40.35