



Memorandum

TO: Mr. Chad Mease
President
Redstart Construction

FROM: Stephen B. Corcoran, P.E., PTOE
Director of Traffic Engineering

DATE: December 15, 2025

RE: Phase 2 Residential Traffic Analysis
Baur Road at Mill Street
Naperville, Illinois

This memorandum summarizes a traffic assessment for Phase 2 of a residential development in Naperville, Illinois. The site is located at the northeast corner of Bauer Road at Mill Street. Six additional single-family duplexes are proposed on a site immediately to the east of Phase 1 and its ten townhomes. The additional units will use the existing Phase 1 access drives. The purpose of this study is to assess the change in traffic volumes and impact of the road system.

Site Location and Area Land-Use

The subject site is located on the northeast corner of the Mill Street and Bauer Road intersection. Uses around the site consist of Nike Park to the north, single-family residential to the east, a nursery to the south, and a church to the west.

Roadway Characteristics

Mill Street is a north-south minor arterial roadway extending south of Ferry Road to Jackson Avenue in Downtown Naperville. Along the site frontage, it has two thru lanes in each direction with center median. At its signalized intersection with Bauer Road, there is separate left-turn lane on both legs. It is under the jurisdiction of the DuPage County Division of Transportation with a 35-mph speed limit south of and a 40 mph north of Bauer Road.

Bauer Road is an east-west two-lane collector road extending east from East Avenue to Commons Road. At Mill Street, each approach has shared thru/right-turn lane and a left-turn lane. It is under the jurisdiction of the City of Naperville west of Mill Street and Naperville Township to the east. Bauer Road has a 25-mph speed limit.

Site Development Plan

The Phase 2 of the development plan adds six duplexes east of the ten townhomes in Phase 1. These units will connect to Phase 1 and use the existing full access drive on Bauer Road and a right-out only drive on Mill Street.

Trip Generation

Trip estimates were made for the proposed use of the site. Site trips for were based on data in the Institute of Transportation Engineer's (ITE) Trip Generation 11th Ed. Manual which contains trip generation surveys of similar uses. Copies of the trip calculations are attached. The resulting site traffic volumes are shown in **Table 1**. The six additional units will generate minimal volumes of traffic (3 trips an hour) during the weekday, and morning, evening, and Saturday peak-hours.

Table 1
Proposed Site Traffic Volumes

Use	Size	ITE LUC	Daily	Morning Peak			Evening Peak			Saturday Peak		
				In	Out	Total	In	Out	Total	In	Out	Total
Single-Family Attached	6 units	215	44	1	2	3	2	1	3	2	1	3

Traffic Analysis

A copy of the 2023 traffic study for the Phase 1 development is attached (without Appendix) for 12 units. Only 10 townhomes were actually approved and built. That study showed the intersection of Bauer Road and Mill Street and the two proposed driveways working at Level of Service C or better. There is sufficient capacity to accommodate three additional trips an hour on the roadway system from the Phase 2 units. No improvements to the intersection or site drives are required.

That study analyzed the proposed 12-unit townhome development (10-units actual) in Naperville and developed the following conclusions:

- The proposed townhome will not adversely impact the level-of-service of study area intersections.
- Trip generation estimates for the site is 6 to 7 vehicles per hour.
- One full access drive on Bauer Road will be adequate to serve the site. Separate turn lanes on Bauer Road are not warranted.
- A right-out only drive on Mill Street will operate well.

Attached: ITE Trip Generation Calculations and 2023 Phase 1 Traffic Report (without Appendix)

Land Use: 215

Single-Family Attached Housing

Description

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space. This land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Georgia, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Dakota, Utah, and Wisconsin.

Source Numbers

357, 390, 418, 525, 571, 583, 638, 868, 869, 870, 896, 912, 959, 1009, 1046, 1056, 1058, 1077

Single-Family Attached Housing (215)

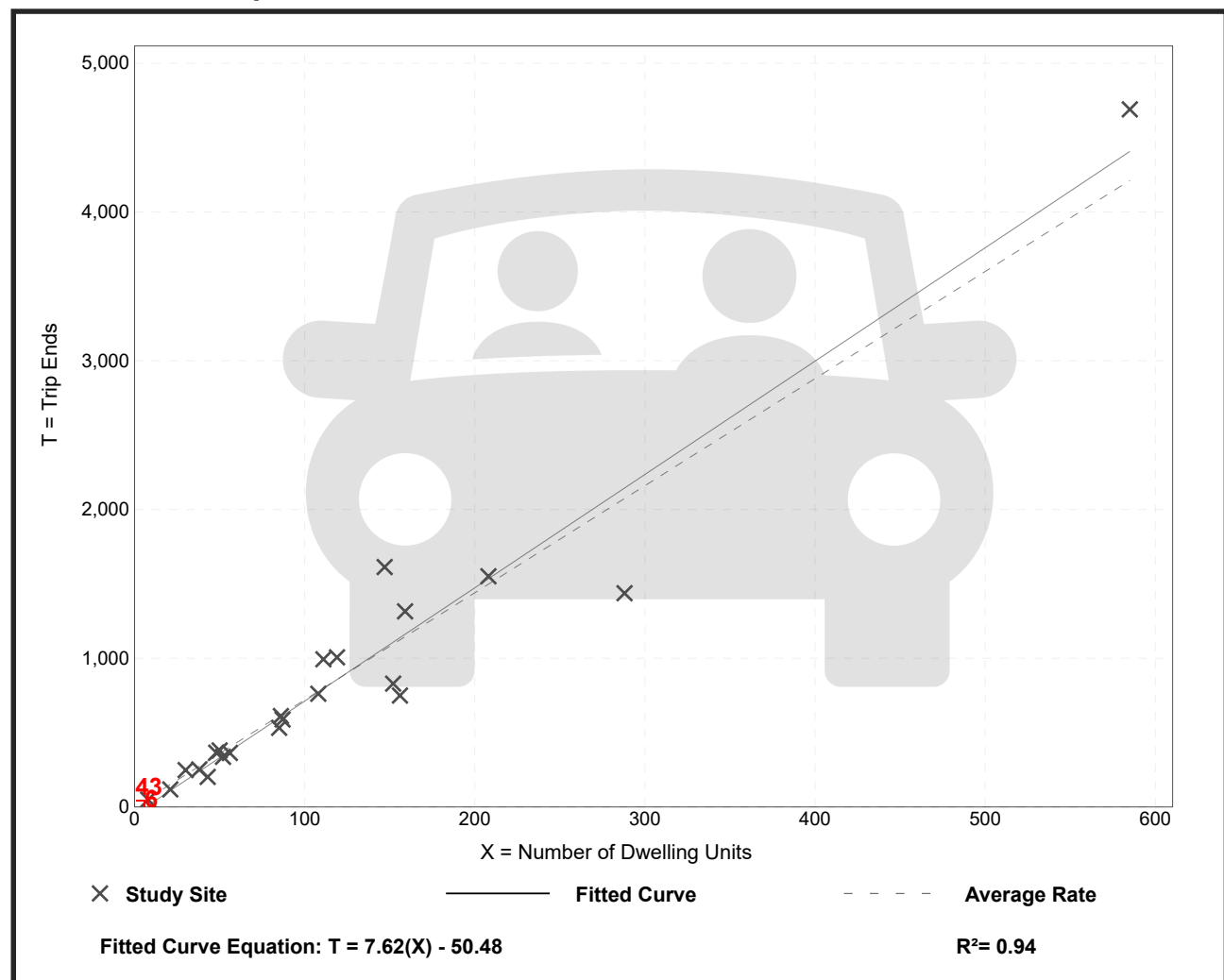
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

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: 46

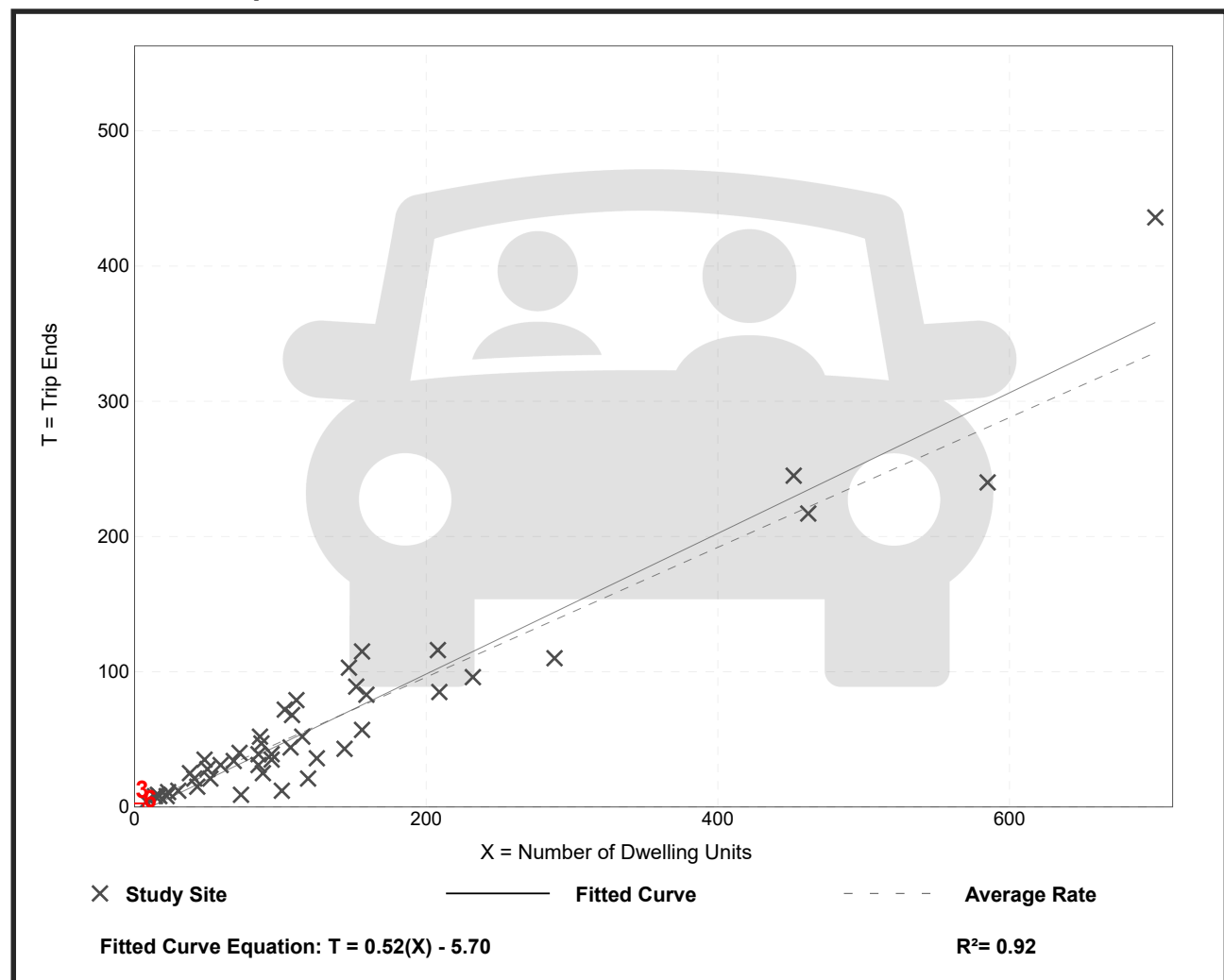
Avg. Num. of Dwelling Units: 135

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

**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: 51

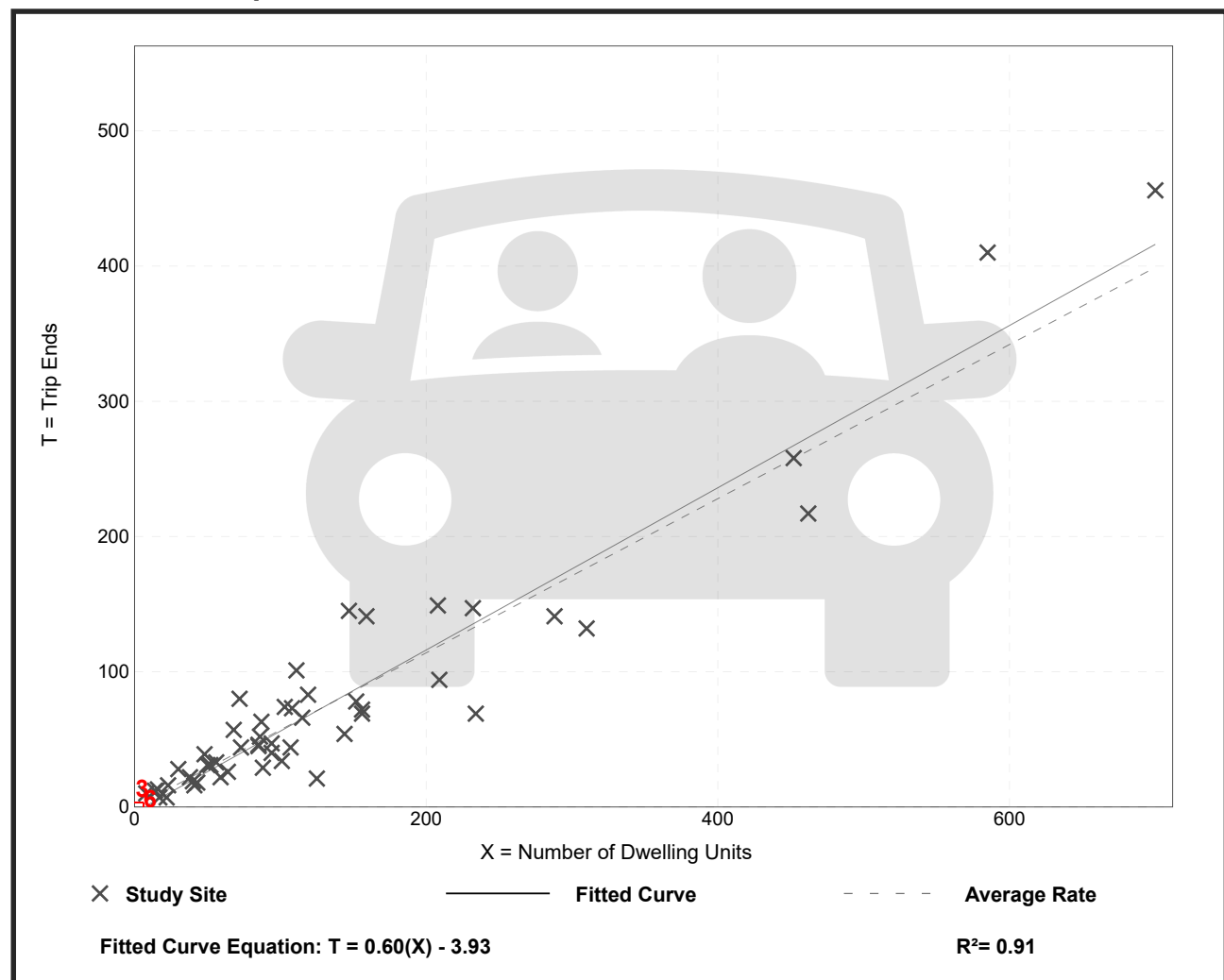
Avg. Num. of Dwelling Units: 136

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 7

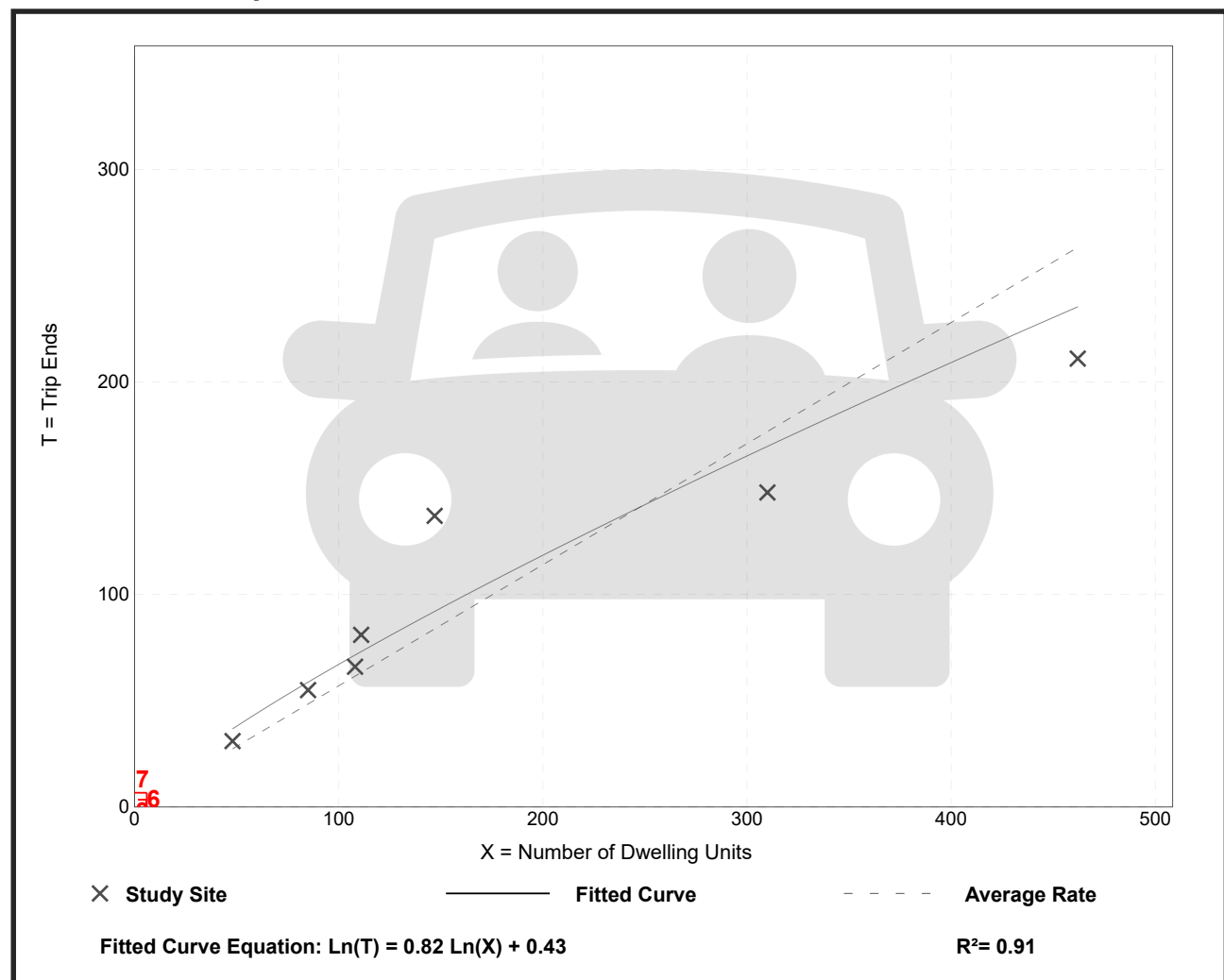
Avg. Num. of Dwelling Units: 182

Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.46 - 0.93	0.17

Data Plot and Equation





Memorandum

TO: Mr. Chad Mease
Redstart Construction, Inc.

FROM: Stephen B. Corcoran, P.E., PTOE
Director of Traffic Engineering

DATE: December 8, 2022

RE: Townhome Traffic Study
27 W 280 Bauer Road
Naperville, Illinois

This memorandum summarizes a traffic analysis conducted for a proposed 12-unit townhome development at 27 W 280 Bauer Road in Naperville, Illinois. The purpose of the study was to observe the existing traffic patterns in the area, to estimate the traffic generated by the development, to determine the traffic impact of the site traffic, and then to identify strategies to address any issues.

Site Location and Area Land-Use

The subject site is located on the northeast corner of the Mill Street and Baur Road intersection. Two residential buildings occupy the site. Uses around the site consist of Nike Park to the north, single-family residential to the east, a nursery to the south, and a church to the west. **Figure 1** illustrates the site and the surrounding land-uses and roads. (Note: all figures are located at the end of the report).

Roadway Characteristics

Mill Street is a north-south minor arterial roadway extending south of Ferry Road to Jackson Avenue in Downtown Naperville. Along the site frontage, it has two thru lanes in each direction with center median. At its signalized intersection with Baur Road, there is separate left-turn lane on both legs. It is under the jurisdiction of the DuPage County Division of Transportation with a 35-mph speed limit south of and 40 mph north of Baur Road.

Baur Road is an east-west two-lane collector road extending east from East Avenue to Commons Road. At Mill Street, each approach has shared thru/right-turn lane and a left-turn lane. It is under the jurisdiction of the City of Naperville west of Mill Street and Naperville Township to the east. Baur Road has a 25-mph speed limit.

Figure 2 illustrates the existing roadway geometrics.

Existing Traffic Volumes

Weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) traffic counts were conducted at the intersection of the Mill Street and Baur Road. These counts showed the peak-hours of traffic occurred from 7:15 to 8:15 AM and 4:45 to 5:45 PM. The hourly counts were compared to counts from the Year 2020 during the pandemic and found to be significantly higher than the 2020 volumes. No adjustments to the existing counts were made. The existing traffic volumes are shown in **Figure 3** and included in the **Appendix**.

Site Development Plan

The proposed development plan is to build a 12 townhome with one full access drive on Baur Road and a right-out only drive on Mill Street.

Site Trip Generation

The site traffic generated by the development was estimated from data in the Institute of Transportation Engineer's Trip Generation 11th Ed. manual which contains trip generation surveys of similar uses. The resulting site traffic volumes are shown in **Table 1**. The peak-hour trips in and out of the site are very low.

Table 1
Site Traffic Volumes

Use	Daily Trips	Morning Peak			Evening Peak		
		In	Out	Total	In	Out	Total
Townhomes (12 units)	86	2	4	6	4	3	7

(1) ITE Land Use Code 215 – Single Family Attached Housing

Trip Distribution

The trip distribution for a residential development is based on a combination of the existing traffic volumes going by the site, location of employment centers, and the road network. The trip distribution for the site is shown on **Table 2** and **Figure 4**.

Table 2
Directional Distribution

Approach Route	Percentage
North on Mill Street	40%
South on Mill Street	40%
East on Bauer Road	15%
West on Bauer Road	5%
Total	100%

Trip Assignment

The future vehicular trips generated by the development were distributed to the area roadways based on the directional distribution analysis and the proposed site plan. **Figure 5** displays the trip assignment for the new site trips. The individual traffic movements into and out of the site vary from 1 to 3 vehicles per hour.

Projected Traffic Volumes

Total traffic volumes are a combination of the existing traffic volumes, projected non-site growth in those volumes, and the site related traffic. The total traffic volumes were estimated for five years after the construction of the project (2028). Data provided by the Chicago Metropolitan Agency for Planning shows modest growth in traffic volumes along both roads at 0.7% per year. A copy of their letter can be found in the **Appendix**. This growth rate was applied to the existing traffic volumes to obtain the base Year 2028 volumes without the project (**Figure 6**).

The site traffic volumes were combined with the 2028 base volumes to generate the Year 2028 total traffic volumes with the project and are shown on **Figures 7**.

Future Traffic Conditions

In order to determine the operation of study area intersections and access drives, intersection capacity analyses were conducted with the proposed and nearby developments included. An intersection's ability to accommodate traffic flow is based on the average control delay experienced by vehicles passing through

the intersection. The intersection and individual traffic movements are assigned a level of service (LOS), ranging from A to F based on the control delay created by a traffic signal or stop sign. Control delay consists of the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS A has the best traffic flow and least delay. LOS E represents saturated or at capacity conditions. LOS F experiences oversaturated conditions and extensive delays. The Highway Capacity Manual definitions for levels of service and the corresponding control delay for both signalized and unsignalized intersections are shown in **Table 3**.

Table 3
Level of Service Criteria for Intersections

Level of Service	Description	Control Delay (seconds/vehicle)	
		Signals	Stop Signs
A	Minimal delay and few stops	<10	<10
B	Low delay with more stops	>10-20	>10-15
C	Light congestion	>20-35	>15-25
D	Congestion is more noticeable with longer delays	>35-55	>25-35
E	High delays and number of stops	>55-80	>35-50
F	Unacceptable delays and over capacity	>80	>50

The existing and total traffic volumes were applied to the proposed access system and capacity analyses were completed to determine the existing and future operating conditions with the townhomes. **Table 4** summarizes the results of those analyses.

Mill Street and Baur Road

The signalized intersection at Mill Street at Baur Road operates well now and in the future. The increase in non-site and site traffic growth will increase the average delay by less than a half a second per vehicle. This change in delay is imperceptible to the typical driver. No improvements are required.

Site Access on Baur Road

The proposed full access point into the site is approximately 190 east of the westbound stop bar at Mill Street. The capacity analyses show the peak-hour westbound queues to be less than 170 feet and would not block the new drive. Due to the low volumes, no turn lanes are required on Baur Road. The drive will have one inbound lanes and one outbound lane under stop sign control.

Table 4
Intersection Level of Service and Delay (seconds)

Intersection	Movement	Morning Peak		Evening Peak	
		2022	2028	2022	2028
Mill Street at Bauer Road	Intersection	C-21.6	C-22.0	B-14.5	B-14.8
Right-out Drive On Mill Street	WB Right		B-11.0		B-10.5
Access Drive on Bauer Road	EB Left		A-7.8		A-7.6
	SB Approach		B-10.5		A-9.9

Site Access on Mill Street

The proposed right-out only drive provides better site circulation for emergency and refuse vehicles so they don't have to back up from the west side of the site. This drive will not adversely impact the northbound traffic on Mill Street. It will have one outbound lane under stop sign control.

Conclusions

The preceding traffic analysis analyzed the proposed 12-unit townhome development in Naperville and developed the following conclusions:

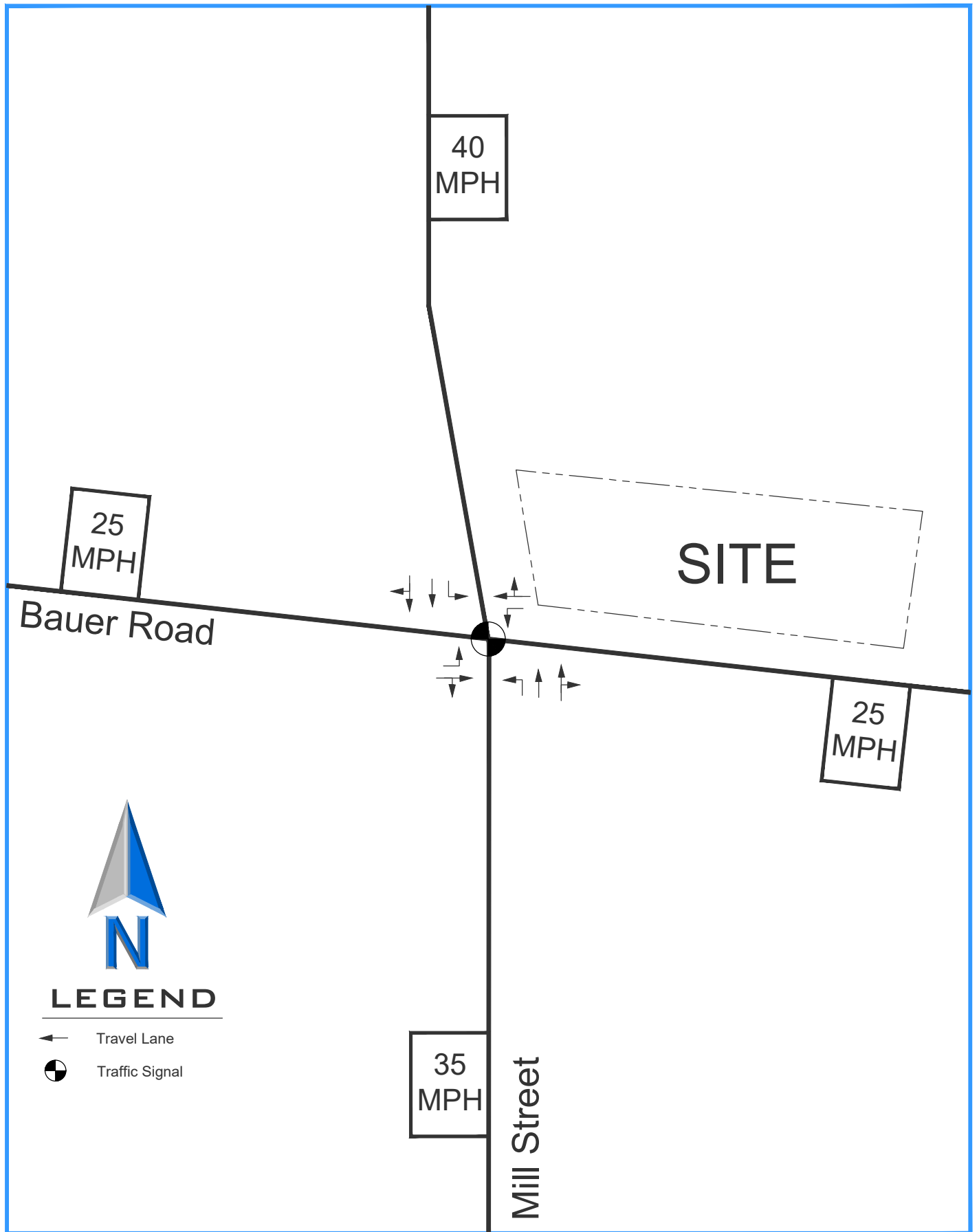
- The proposed townhome will not adversely impact the level-of-service of study area intersections.
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- One full access drive on Baur Road will be adequate to serve the site. Separate turn lanes on Baur Road are not warranted.
- A right-out only drive on Mill Street will operate well.



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Site Location and Area Roadways

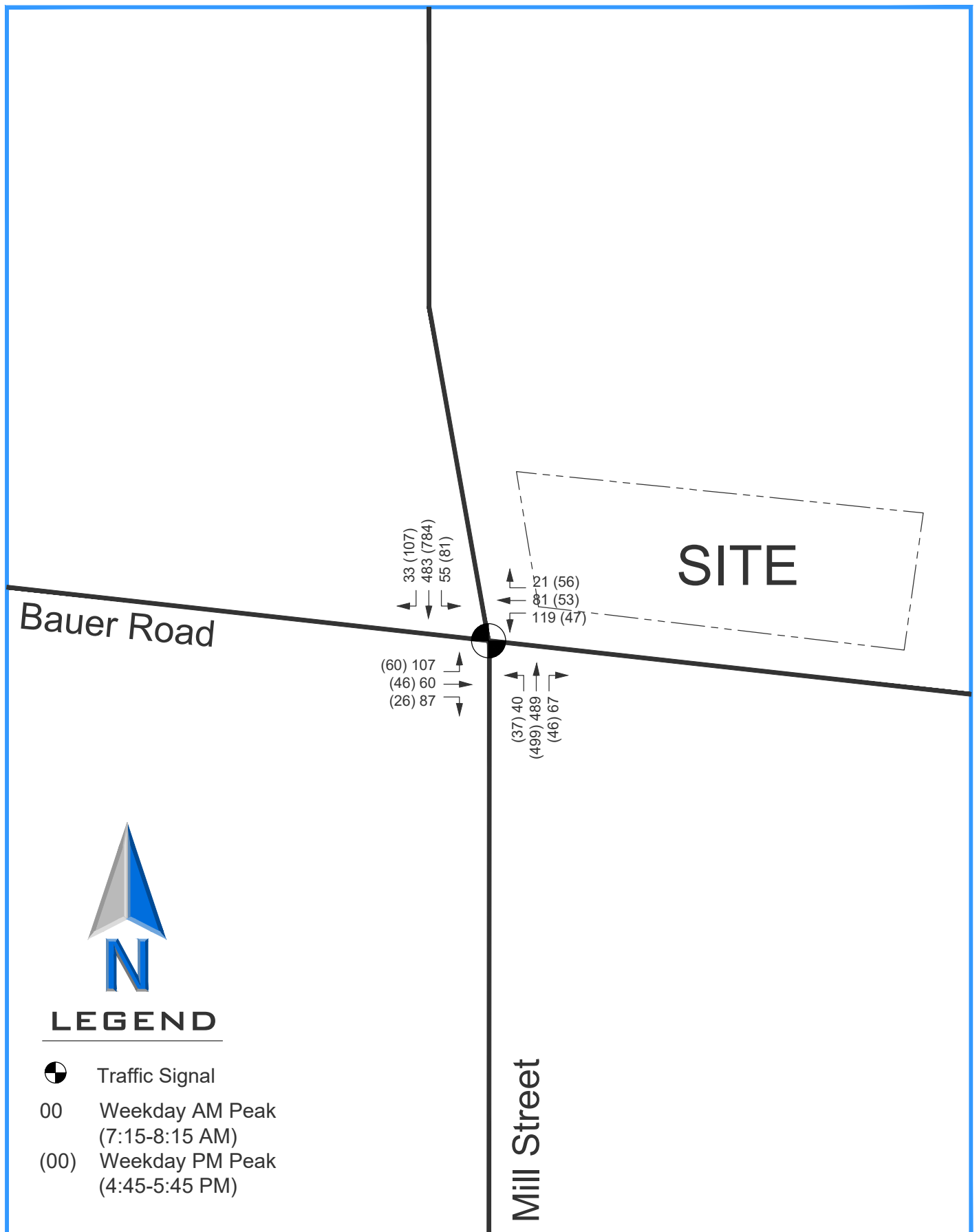
Figure 1



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Existing Geometrics

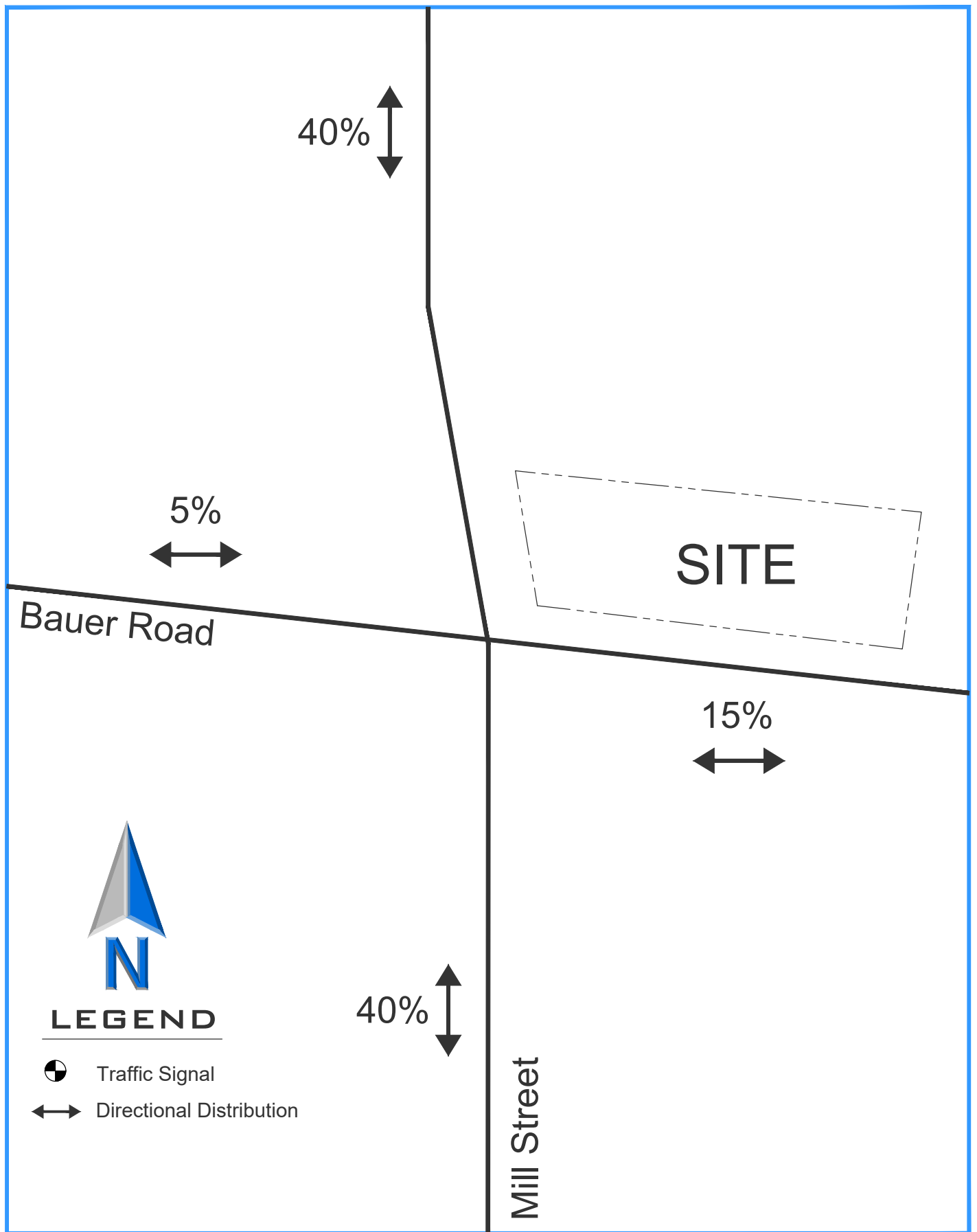
Figure 2

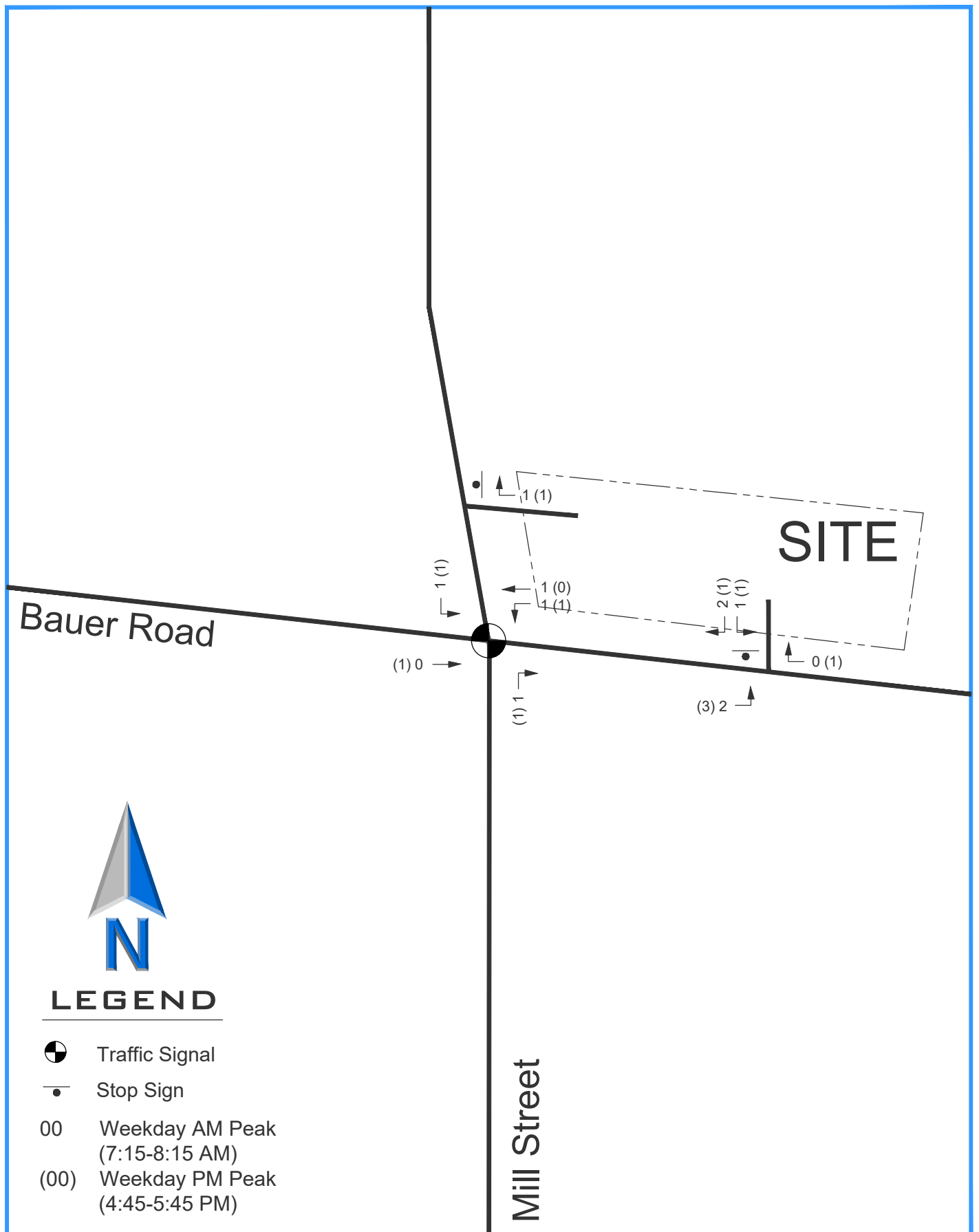


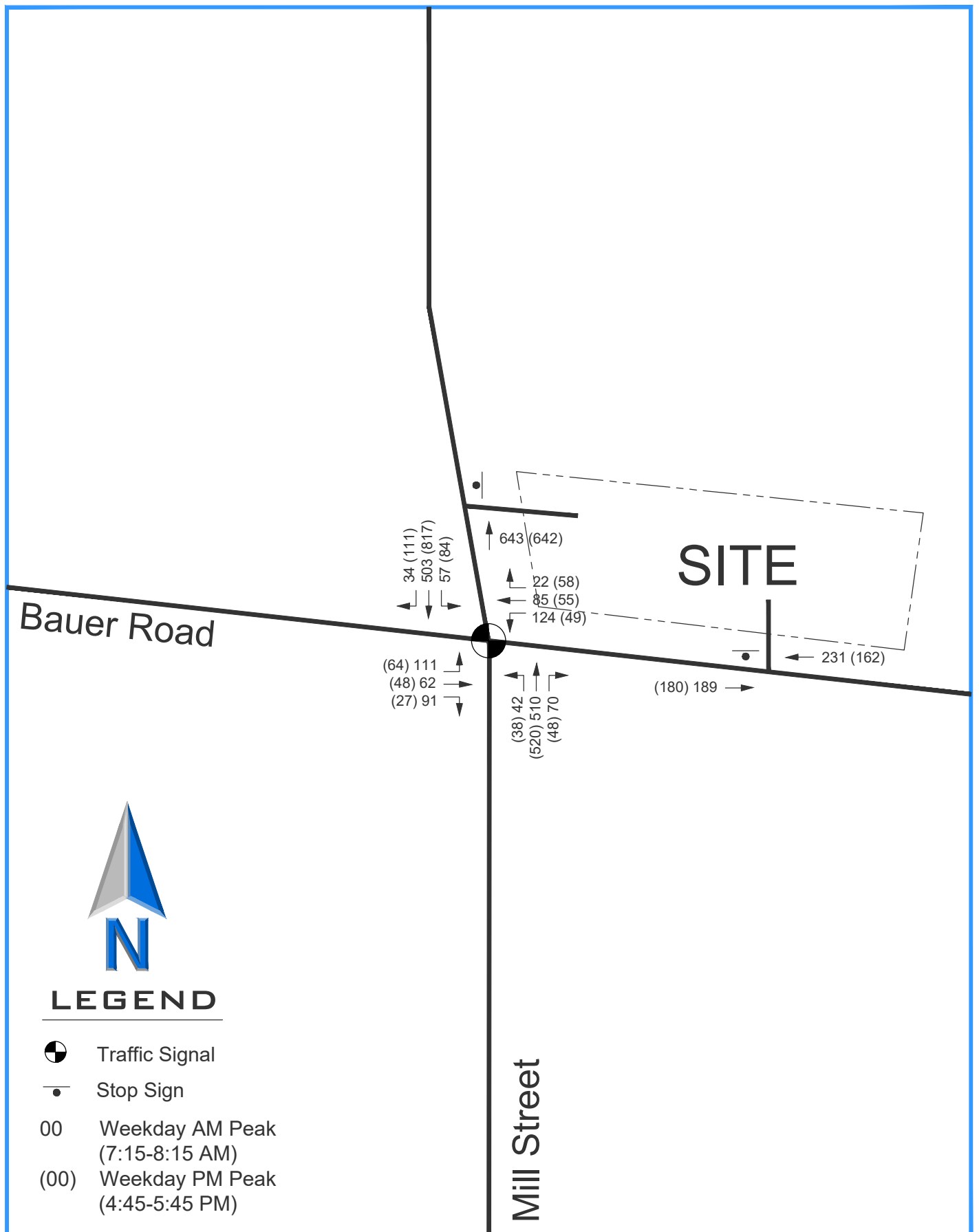
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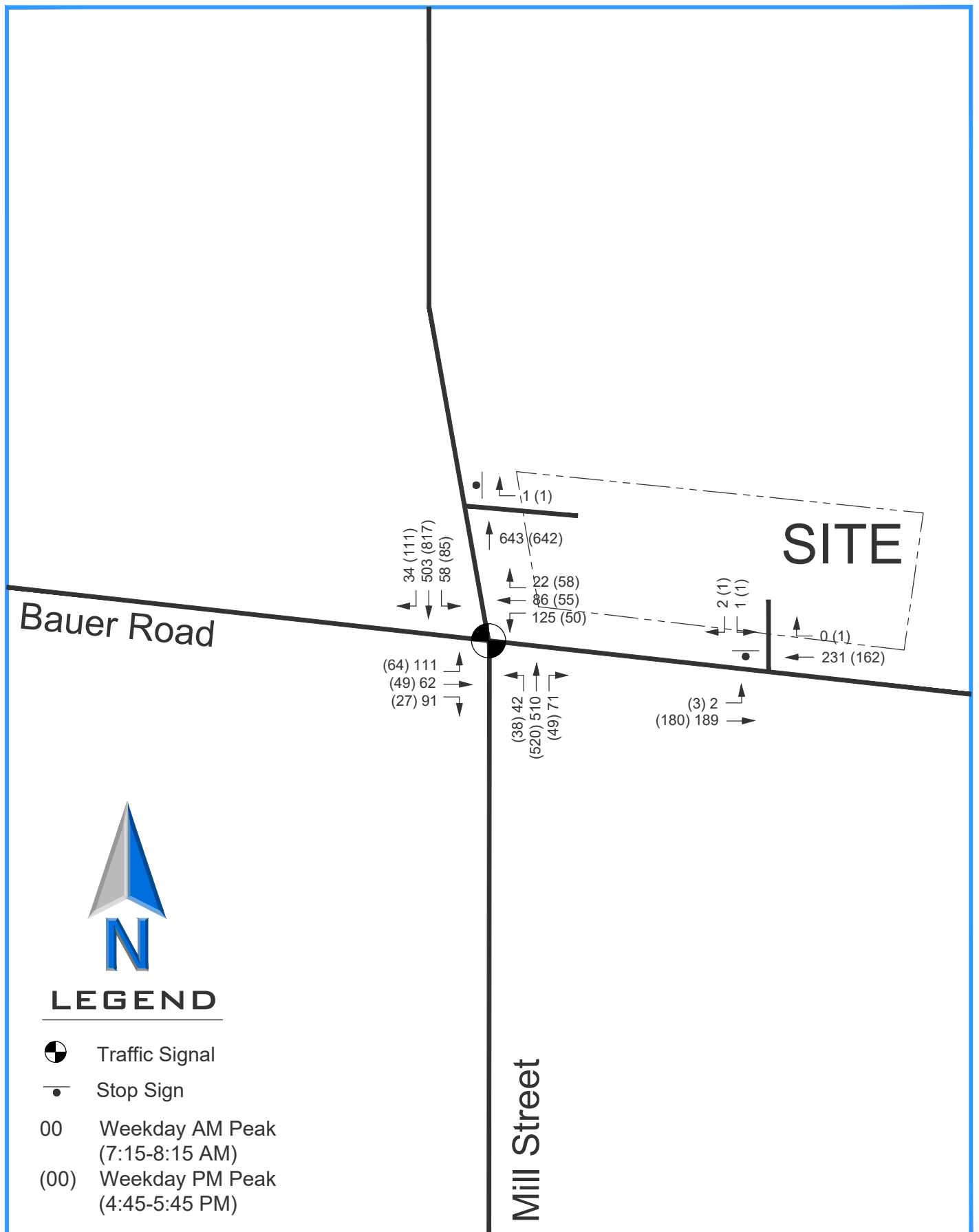
Year 2022 Existing Traffic Volumes

Figure 3









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Year 2022 Total Traffic Volumes

Figure 7