Whipple Consulting Engineers, Inc.

September 8, 2020
W.O. No. 2019-2318

City of Spokane
Department of Engineering Services
801 W. Spokane Falls Boulevard
Spokane, WA 99201

Attn: Inga Note, P.E.

Re: **Marshall Creek Estates**
6321 Cheney Spokane Road
Trip Generation and Distribution Letter.

Dear Inga,
The purpose of this document is to provide a Trip Generation and Distribution letter (TGDL) for the proposed Marshall Creek Estates development located between the Southeast side of Cheney-Spokane Road, surrounding the Spokane Memorial Gardens, and west of Cedar Road. As shown on Figure 1, Vicinity Map and Figure 2, Preliminary Site Plan. This letter will follow the standards for doing Trip Distribution Letters as required by the City of Spokane and the Institute of Transportation Engineers (ITE).

VICINITY NETWORK IMPROVEMENT

The proposed development has proposed to relocate the current collector of Cedar Road away from the steep slope and acute angled intersection of Cheney-Spokane Road & Cedar Road. The revised route would go through the proposed development, and then provide a standard perpendicular roundabout type intersection with Cheney-Spokane Road. The existing Right-of-Way between the project parcels is to remain with the existing road way terminated per City of Spokane Standards, at a location to be chosen where a city standard cul-de-sac, can be built.

PROJECT DESCRIPTION

The Marshall Creek Estates Project proposes to develop 425 lots on approximately 83± acres of a 116.31± acre parcel. The project site is currently undeveloped and is covered with trees, field grass and weeds.

The project proposes to realign Cedar Road as a collector road through the project with no lot frontages and only local access road connections. The proposed development will be accessed via five (5) proposed local access road connections to a realigned Cedar Road within the development. The development is configured into 3 areas. One to the south of the proposed Cedar Road alignment, one to the north of proposed Cedar Road alignment, and one to the far east of the proposed Cedar Road alignment. The project proposes to include local access public streets with curb, gutter, and sidewalks where appropriate, city water, sewer and stormwater, facilities are also anticipated to be included with the project.

The project site is listed as Residential Single Family on the Comprehensive Plan and zoned as RSF. The site lies on the SE 1/2 of Section 1, T. 24N., R. 42 E., W.M. within the City of

Spokane, Washington. The parcel numbers for the site are 24051.0040 & 24051.0041. A vicinity map is included as Figure 1, along with a preliminary site plan as Figure 2.

TRIP GENERATION AND DISTRIBUTION

Trip Types

The proposed land use is single family residential; ITE has developed data regarding various trip types that all developments experience. These are found in several places, however, for this analysis the *Trip Generation Manual 10th Edition* as well as the Institute of transportation Engineers (ITE) *Trip Generation Handbook* were used to develop the criteria for this analysis.

Generally, all existing and proposed developments will be made up of one or more of the following four trip types: new (destination) trips, pass-by trips, diverted trips, and shared (internal trips). In order to better understand the trip types available for land access a description of each specific trip type follows.

New (Destination) Trips - These types of trips occur only to access a specific land use such as a new retail development or a new residential subdivision. These types of trips will travel to and from the new site and a single other destination such as home or work. This is the only trip type that will result in a net increase in the total amount of traffic within the study area. The reason primarily is that these trips represent planned trips to a specific destination that never took trips to that part of the City prior to the development being constructed and occupied. This project will develop new trips.

Pass-by Trips - These trips represent vehicles which currently use adjacent roadways providing primary access to new land uses or projects and are trips of convenience. These trips, however, have an ultimate destination other than the project in question. They should be viewed as customers who stop in on their way home from work. An example would be on payday, where an individual generally drives by their bank every day without stopping, except on payday. On that day, this driver would drive into the bank, perform the prerequisite banking and then continue on home. In this example, the trip started from work with a destination of home, however on the way, the driver stopped at the grocery store/latte stand and/or bank directly adjacent to their path. Pass-by trips are most always associated with commercial/retail types of development along major roadways. Therefore, for this project pass-by trips will not be considered.

Diverted (Linked) Trips - These trips occur when a vehicle takes a different route than normal to access a specific facility. Diverted trips are similar to pass-by trips, but diverted trips occur from roadways, which do not provide direct access to the site. Instead, one or more streets must be utilized to get to and from the site. For this project, no diverted trips are anticipated.

Shared / Internal / Trips - These are trips which occur on the site where a vehicle/ consumer/ tenant will stop at more than one place on the site. For example, someone destined for a certain shop at a commercial site may stop at a bank just before or after they visit the shop that they went to the site to visit. This trip type reduces the number of new trips generated on the public

road system and is most commonly used for commercial developments. These trips are incorporated within the ITE shopping center land use.

Trip Generation Characteristics for the Existing and Proposed land uses

As noted earlier, trip generation rates for the AM and PM peak hours are determined by the use of the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). The purpose of the *Trip Generation Manual* is to compile and quantify empirical data into trip generation rates for specific land uses within the US, UK and Canada.

Proposed Land Use

For the proposed 425 units of single family residential development, Land Use Code (LUC) #210, Single Family Detached Housing was used to establish the number of potential trips generated by the proposed land use for the single family residential lots. The trip generation rates and the anticipated number of AM and PM peak hour trips for the single family residential land use are shown on Table 1.

Table 1-Trip Generation Rates for LUC # 210 – Single Family Detached Housing (Fig. 3&4)

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ Fitted Curve Equation / Unit	Directional Distribution		Vol. @ Fitted Curve Equation / Unit	Directional Distribution	
		25% In	75% Out		63% In	37% Out
425	307	77	230	407	256	151

Average Daily Trip Ends (ADT)		
Units	Fitted Curve	ADT
425	-	3,936

Fitted Curve Equation
AM - T = 0.71(x) + 4.80
PM - Ln(T) = 0.96 Ln(x) + 0.20
ADT - Ln(T) = 0.92 Ln(x) + 2.71
T = Trips/units, x = Dwelling Units

As shown in Table 1, the proposed land uses are anticipated to generate a total of 307 trips in the AM peak hour with 77 trips entering the site and 230 trips exiting the site. In the PM peak hour, the proposed land use is anticipated to generate a total of 407 trips in the PM peak hour with 256 trips entering the site and 151 trips exiting the site. The proposed land use is anticipated to generate 3,936 average daily trips to/from the project. Please see Figure 3 for Trip Distribution.

TRIP DISTRIBUTION

The site will be accessed via five (5) proposed local access road connections to the realigned Cedar Road.

Cheney-Spokane Road is generally a two-way, 2-lane north/south minor arterial and rural major collector. Cheney-Spokane Road is a minor arterial from when it intersects with State Route 195 as it extends southward to Marshall Road. From Marshall Road toward the south,

Cheney-Spokane Road serves as a rural major collector. Cheney-Spokane Road functions as a route between the City of Cheney and City of Spokane. The posted speed limits on Cheney-Spokane Road within the study area are 35 & 45 MPH.

Cedar Road is a north-south, two-way, 2-lane collector road. Cedar Road extends north from Gibbs Road within the project area and goes through Taylor Road, White Road, and Eagle Ridge Boulevard before continuing north and then intersecting with Cheney-Spokane Road. Cedar Road primarily serves residential land uses. The speed limit on Cedar Road is 30 MPH.

Qualchan Drive is generally an east/west, two-way, local access road. Qualchan Drive extends west from State Route 195 and intersects with Cheney-Spokane Road. Qualchan Drive primarily serves residential land uses. The posted speed limit on Qualchan Drive is 25 MPH.

State Route 195 is generally a north/south, two-way, 4-lane highway. State Route 195 extends south from Interstate 90 at Exit 279 and goes through 16th Avenue, Thorpe Road and Cities of Spangle, Freedom, Plaza, Rosalia, Thornton, Cashup, Steptoe, Colfax, Pullman, Johnson, Colton, and Uniontown before merging with State Route 95.

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, and Average Daily Traffic counts, traffic for the proposed development is anticipated as follows:

It is anticipated that 5% of trips will go to/from the south via Cedar Road. It is anticipated that 30% of the trips will go to/from the southwest via Cheney-Spokane Road, with 20% of those trips being distributed to/from the north via Grove Road toward Interstate 90 and the remaining 10% of trips will continue to/from the southwest toward Cheney via Cheney-Spokane Road.

It is anticipated that 65% of the trips will go to/from the north via Cheney-Spokane Road with 50% of those trips being distributed to the north via State Route 195 and Inland Empire Way. 10% of those trips will be distributed to/from the north via Thorpe Road/Inland Empire Way while 40% will continue to/from the north via State Route 195. The remaining 15% will be distributed south via State Route 195. 10% (of the 15% of trips going south via state Route 195) will access that route via Qualchan Drive. Please see Figure 2 for a visual representation of the project trip distribution.

Traffic Impact Fee

The City of Spokane municipal code has established transportation impact fees under Spokane Municipal Code Title 17 Chapter 17D.030. The proposed project is within the South Service Area and as such is subject to the current Impact Fee Schedule. Table 2 calculates the anticipated impact fee for the proposed project.

Table 2 – Proposed Land Use Impact Fee

Land Use	LUC	Quantity	Unit of Measure	Fee per unit	Fee
LUC # 210 Single Family Detached Housing	210	425	Dwelling Units	$1,160.64	$493,272

As shown in Table 2, the proposed project under the current fee schedule is anticipated to generate an impact fee of $493,272.

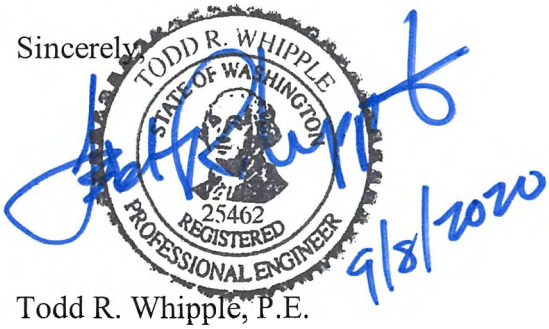
CONCLUSIONS AND RECOMMENDATIONS

It is anticipated that the proposed project will generate 307 trips in the AM peak hour and 407 trips in the PM peak hour trips. Based upon the number of anticipated trips, and the distribution of those trips on city collectors, we believe that while the proposed project will generate trips on the transportation system, that those trips will have a minimal impact on the transportation system. Therefore, we recommend that the project pay the City of Spokane Traffic Impact Fee as allowed by the current code at the time of building permit, and that the project should be allowed to move forward.

Due to the ongoing concerns within the larger SR195 corridor and its connection to I-90 additional analysis and constructive efforts beyond the impact fee payments maybe required. We would expect to meet with the City of Spokane, and Washington State Department of Transportation to coordinate these efforts, and conditions of approval language, as the project moves forward.

Should you have any questions related to this document please do not hesitate to contact us at (509) 893-2617.

Sincerely,



Todd R. Whipple, P.E.

TRW/alh

encl. Appendix (Vicinity Map, Site Plan, Trip Dist %, Photos)

cc:
Sponsor
File

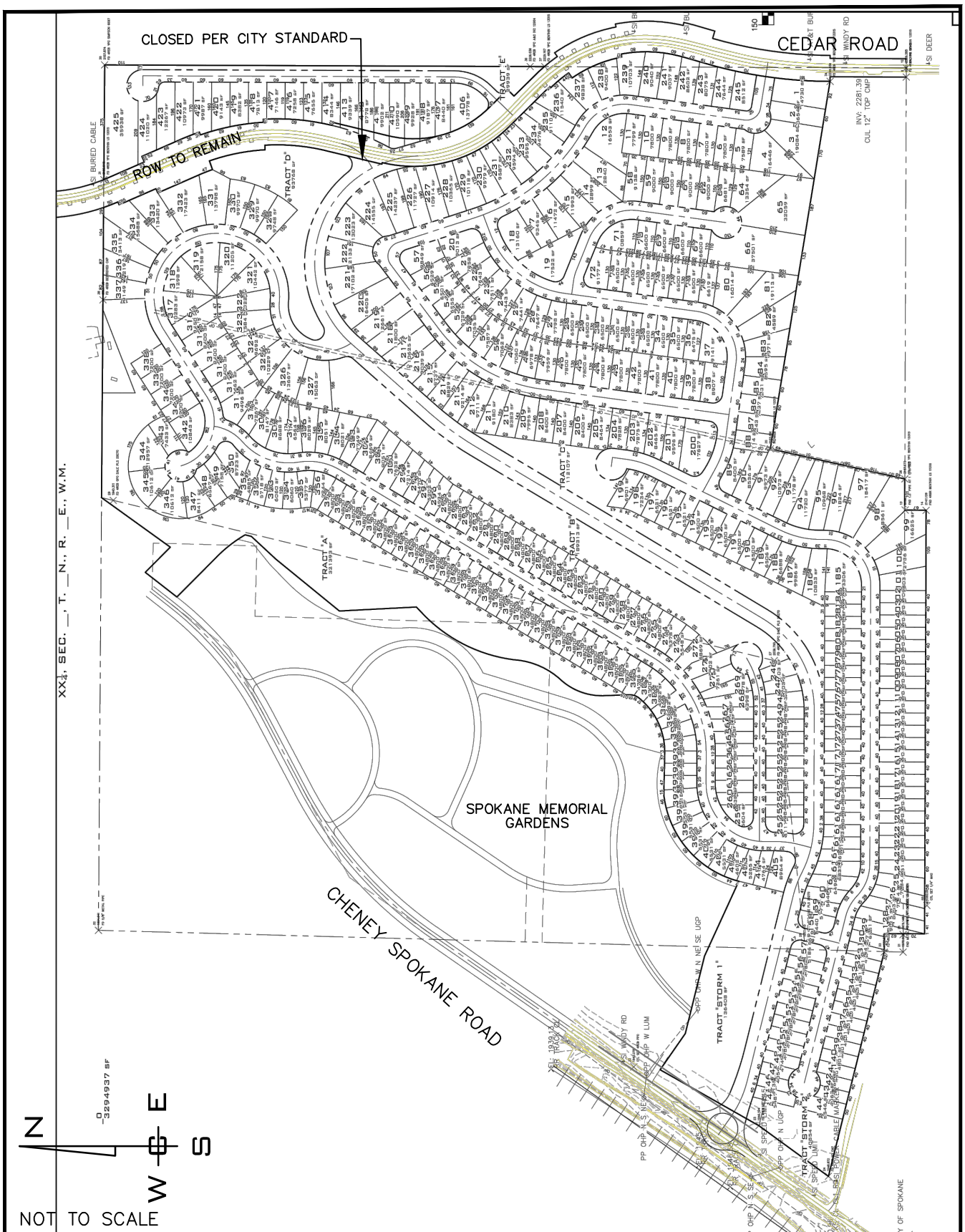
APPENDIX

1.Vicinity Map

2.Site Plan

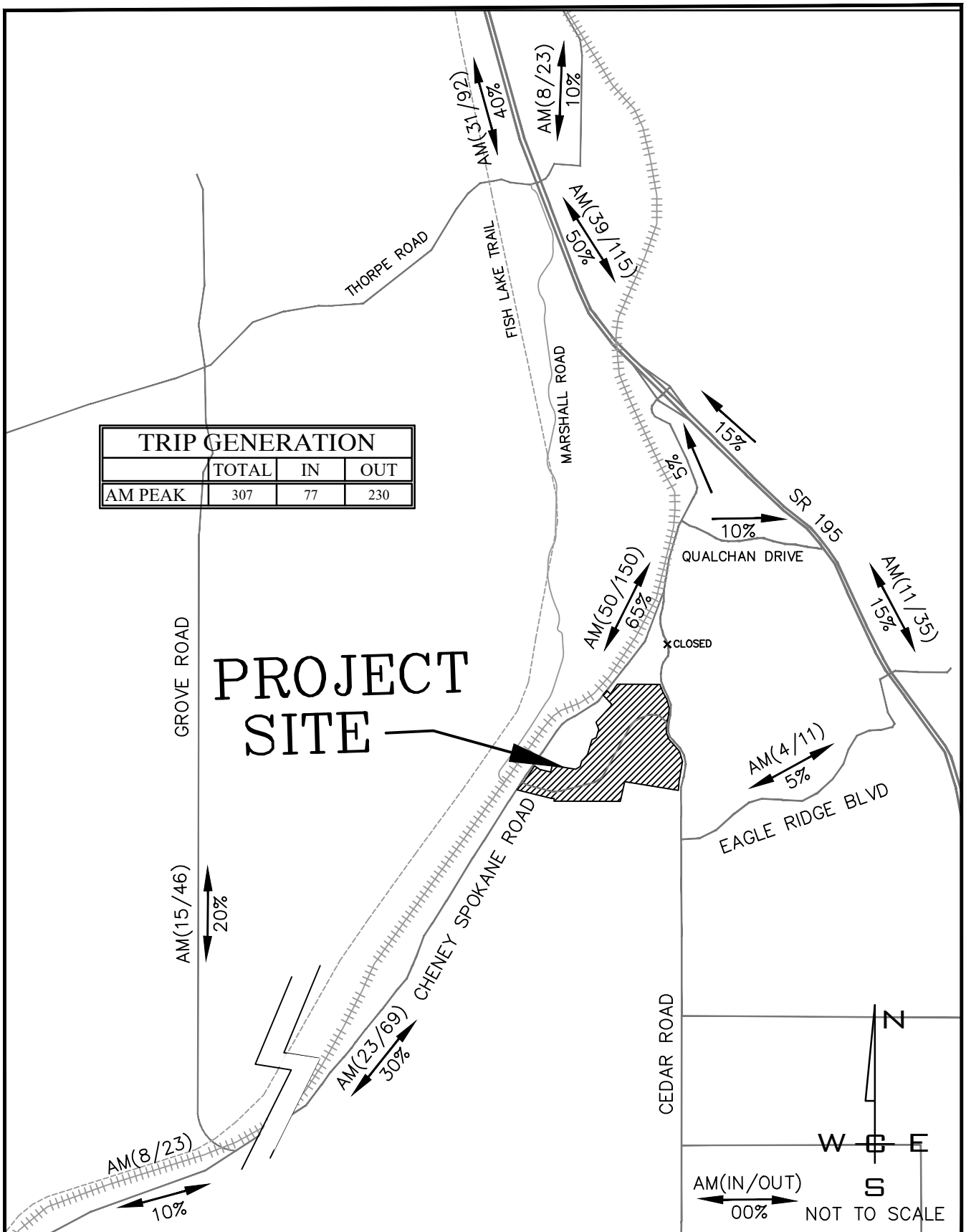
3.Trip Distribution by Percent

PROJ #: 19-2318 DATE: 05/21/20 DRAWN: KMK APPROVED: TRW	TRIP GENERATION AND DISTRIBUTION MARSHALL CREEK ESTATES 6321 CHENEY SPOKANE ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 1	VICINITY MAP	



PROJ #: 19-2318 DATE: 05/21/20 DRAWN: KMK APPROVED: TRW	TRIP GENERATION AND DISTRIBUTION **MARSHALL CREEK ESTATES** 6321 CHENEY SPOKANE ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 2	PRELIMINARY SITE PLAN	

P:\WCE_WORK\2019 WCE PROJECTS\2019-2318 Kinney- Marshall Creek Estates\DWG\2318-TRAFFIC.dwg, 9/8/2020 1:05:58 PM, DWG To PDF.pc3



TRIP GENERATION			
	TOTAL	IN	OUT
AM PEAK	307	77	230

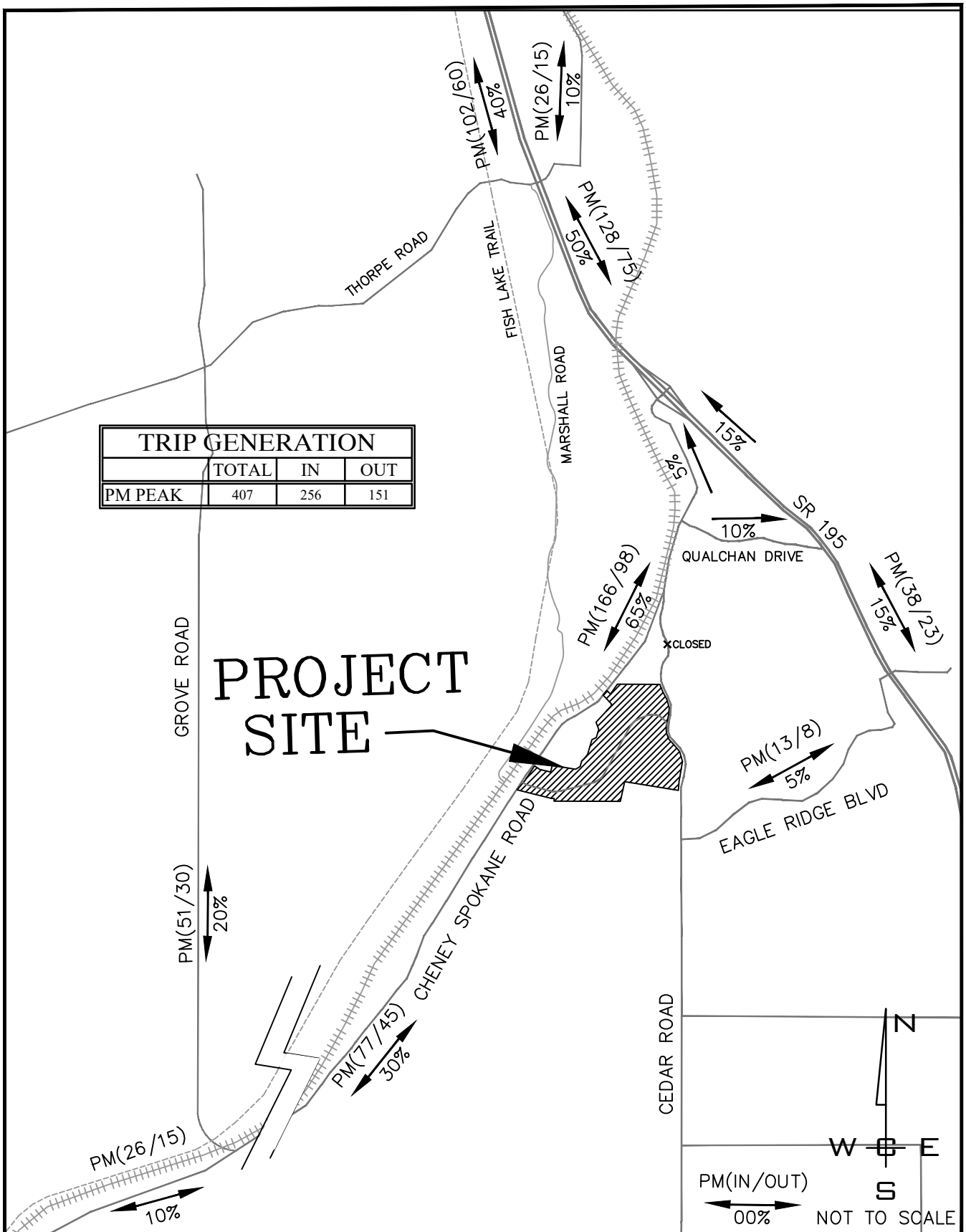
PROJ #: 19-2318
DATE: 05/21/20
DRAWN: KMK
APPROVED: TRW

TRIP GENERATION AND DISTRIBUTION
MARSHALL CREEK ESTATES
6321 CHENEY SPOKANE ROAD
SPOKANE, WASHINGTON

FIGURE 3

AM PROJECT TRIP DISTRIBUTION

WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 SOUTH PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227



TRIP GENERATION			
	TOTAL	IN	OUT
PM PEAK	407	256	151

PROJ #: 19-2318
DATE: 05/21/20
DRAWN: KMK
APPROVED: TRW

TRIP GENERATION AND DISTRIBUTION
MARSHALL CREEK ESTATES
6321 CHENEY SPOKANE ROAD
SPOKANE, WASHINGTON

FIGURE 4 — **PM PROJECT TRIP DISTRIBUTION**

WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 SOUTH PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227