August 14, 2018
W.O. No. 2017-1939

Whipple Consulting Engineers, Inc.

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

Attn: Inga Note, P.E.

Re: **Proposed Greenstone – Sonneland PUD (Garden District)**
31st Avenue & Crestline Street
Revised Traffic (Trip) Distribution Letter

Dear Inga,
The purpose of this document is to provide an updated Trip Generation and Distribution letter (TGDL) for the proposed Sonneland PUD and Community Retail project. This project is located in the vicinity of 31st Avenue & Crestline Street and north to 29th Avenue, as shown on Figure 2 Concept Site Plan. This update is being provided to revise the trip generation and distribution letter due to a change in access and roadway revisions is response to neighborhood concerns, related to the crestline extension and circulation. 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).

PROJECT DESCRIPTION

The project proposes to develop approximately 19.59± acres of undeveloped land into the proposed Sonneland PUD (Garden District) and Community retail development project, a concept development plan is attached. This project anticipates the following land uses, separated into northern and southern areas with no vehicular connection between the two areas with convenient access provided as pedestrian and bicycle access only.

Table 1 Concept Land Uses

Location	Land Use	Units/ GFA	ITE Land Use Code (LUC)
North	Multi-Family Residential	152 units	220 Apartments
North	Retail Strip Mall	25,012 sf	826 Specialty Retail
South	Multi-Family Residential	60 units	220 Apartments
South	Single Family Residential	24 units	210 Single Family – Detached Housing

Per the concept site plan, it is proposed that 31st Avenue be extended from Southeast Boulevard to a new road/access - Clubhouse Drive. It is also proposed that 30th Avenue be extended to the Stone Street alignment as a private site driveway/access road. The multifamily development at the east side proposes a drive aisle from 30th Avenue to 29th Avenue. Clubhouse Drive, a new north-south connecting road is to be built between 30th and 31st Avenues for additional internal connectivity. The proposed residential and commercial landuses are intended to make driveway

and sidewalk connections to these proposed street extensions or existing streets. As shown in Figure 2, Concept Site Plan.

VICINITY / SITE PLAN

The site is currently listed on the Comprehensive Plan as Residential Single Family (RSF), and Center and Corridors, District Center, with pedestrian emphasis and auto accommodating. The subject properties lie on the N ½ of Section 33, T.25N., R.43E., W.M. within the City of Spokane, Washington. The parcel numbers for the site are shown on Table 2. A vicinity map is included as Figure 1 and an exhibit of the subject property is included as Figure 2, per Spokane County Scout.

Table 2 Subject Properties Parcels, Area, and Land Use

Parcel #	Area (sf)	Existing Land Use	Parcel #	Area (sf)	Existing Land Use	Parcel #	Area (sf)	Existing Land Use
35332.3102	25,200	RSF	35332.3103	25,260	RSF	35332.3101	20,500	RSF
35332.3105	26,090	RSF	35332.3106	20,200	RSF	35332.3104	45,730	RSF
35332.3108	21,888	RSF	35332.3109	18,720	RSF	35332.3107	20,400	RSF
35332.3111	20,160	RSF	35331.3203	20,280	RSF	35332.3110	19,440	RSF
35331.3202	19,300	RSF	35331.3301	25,390	RSF	35331.3201	18,860	RSF
35331.3205	20,450	RSF	35331.3304	22,110	RSF	35331.3204	21,125	RSF
35331.3303	18,900	RSF	35331.3307	26,596	RSF	35331.3302	19,000	RSF
35331.3306	27,580	RSF	35331.3203	20,280	RSF	35331.3305	19,860	RSF
35331.0016	10,674	CC1-DC	35331.0008	41,082	CC1-DC	35331.0010	15,485	CC1-DC
35331.0009	11,812	CC1-DC	35331.4103	231,023	CC1-DC			

*Areas Per Spokane County Auditor

Local Access

With the extension of 30th Avenue east from Martin Street with a proposed and connection to Clubhouse Drive between 30th and 31st Avenues. The local residents will now have an alternate route other than 29th Avenue, which should also provide some relief at the Grapetree development entrance.

Local Access or internal access to the larger or higher order public roads will be accomplished as follows:

Northerly Development "Pod"
This pod will have direct access to 29th Avenue via a commercial access on the Stone Street alignment, as well as via 30th Avenue to Martin Street. Access to Southeast Boulevard will be via Clubhouse Drive and 31st Avenue.

Southerly Development "Pod"
This pod will not have direct vehicular access to either the northerly pod, or 29th Avenue and Southeast Boulevard. As access to the Northerly pod will be via a pedestrian/bike access only. This pods primary means of ingress & egress will be via Crestline Street to other higher order City Streets either Perry or Pittsburgh Streets via 34th Avenue. Once trips are to either Perry or Pittsburg Streets, north/ south travel will be provided via 29th or 37th Avenues.

TRIP GENERATION AND DISTRIBUTION

Trip Types

The proposed land uses will be evaluated as residential and commercial; 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 9th 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 be considered.

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 anticipated and will be being accounted for.

Pedestrian/ Bicycle Trips – Intermodal Trips When a residential or hospitality land use is located within close proximity of complimentary land uses such as, shops, restaurants, offices, or event centers, some vehicular trips will be replaced by pedestrian and bicycle trips. The decision for residents/guests to drive or walk/ride to their destination is dependent upon several factors and variables. The first may be trip length or distance; the second may be the route, the third may

be parking at the destination; and fourth may be the weather as rain or snow conditions may deter pedestrian activity. For this project pedestrian/bicycle trips will not be considered

Trip Generation Characteristics for the Concept 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, 9th 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.

Northern Portion of the Development

For the proposed 152 units of Multi-Family Residential units, Land Use Code (LUC)#220 Apartment was used to anticipate the trip generation of the proposed use. The AM and PM peak hour trip generation for LUC#220 are shown on the following table with the anticipated average daily trips to/from the site.

Table 3 - Trip Generation Rates for LUC#220 Apartment (Northern Portion)

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ 0.51 trips/ Unit	Directional Distribution		Vol. @ 0.62 trips/ Unit	Directional Distribution	
		20% In	80% Out		65% In	35% Out
152	78	16	62	95	62	33
Average Daily Trip Ends (ADT)						
Dwelling Units	Rate	ADT				
152	6.65	1,011				

For the proposed 25,000 sf (25.0 ksf) of Specialty Retail, Land Use Code (LUC)#826 Specialty Retail was used to anticipate the trip generation of the proposed use. The PM peak hour trip generation for LUC#826 are shown on the following table with the anticipated average daily trips to/from the site. Due to retail shops not opening until after the AM peak hours, only PM trips were generated.

Table 4 – Trip Generation Rates for LUC 826 Specialty Retail (Northern Portion)

Thousand Square Feet (KSF)	AM Peak Hour Trips			PM Peak Hour Trips		
	N/A	Directional Distribution		Vol. @ 2.71 trips/ KSF	Directional Distribution	
		In	Out		44% In	56% Out
25.0				68	30	38
Internal				8	3	5
Driveway				60	27	33
Pass-by				12	5	7
New				48	22	26
Average Daily Trip Ends (ADT)				Pass-by 20% per Engineering Judgement		
KSF	Rate	ADT				
25.0	44.32	1,108				

Table 5 –Northern Portion Development Driveway Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Per LUC	Directional Distribution		Per LUC	Directional Distribution	
		In	Out		In	Out
Table 3, LUC#220 Apartment (Northern)	78	16	62	95	62	33
Table 4, LUC#826 Specialty Retail (Northern)	-	-	-	60	27	33
Total New Trips	**78**	**16**	**62**	**155**	**89**	**66**

Average Daily Trip Ends (ADT)		
Land Use Code (LUC)	**Rate**	**ADT**
Table 3, LUC#220 Apartment (Northern)		1,077
Table 4, LUC#826 Specialty Retail (Northern)		1,108
Total Northern ADT		**2,185**

As shown in Table 5 the northern portion of the development is anticipated to generate 78 driveway trips in the AM peak hour, with 16 trips entering the site and 62 trips exiting the site. In the PM peak hour, the northern portion of the development is anticipated to generate 155 driveway trips with 89 trips entering the site and 66 trips exiting the site. Please see Figure 3 for a distribution of these anticipated driveway trips.

For the retail component of the north development Pass by trips are anticipated to be generated from 29th Avenue & Southeast Boulevard. As shown on Table 4 in the PM peak hour the retail use of the northern portion is anticipated to generate 12 pass-by trips, with 5 pass-by trips entering the site and 8 trips exiting the site.

Southern Portion of the Development

For the 24 Single Family Residential Units, Land Use Code (LUC)#210 Single Family Detached Housing was used to anticipate the trip generation of the proposed use. The AM and PM peak hour trip generation for LUC#210 are shown on the following table with the anticipated average daily trips to/from the site.

Table 6 - Trip Generation Rates for LUC#210 Single Family Detached Housing (Southern Portion)

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ 0.75 trips/ Unit	Directional Distribution		Vol. @ 1.00 trips/ Unit	Directional Distribution	
		25% In	75% Out		63% In	37% Out
24	18	4	14	24	15	9

Average Daily Trip Ends (ADT)		
Dwelling Units	**Rate**	**ADT**
24	9.52	229

For the proposed 60 units of Multi-Family Residential units, Land Use Code (LUC)#220 Apartment was used to anticipate the trip generation of the proposed use. The AM and PM peak

hour trip generation for LUC#220 are shown on the following table with the anticipated average daily trips to/from the site.

Table 7 - Trip Generation Rates for LUC#220 Apartment (Southern Portion)

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ 0.51 trips/ Unit	Directional Distribution		Vol. @ 0.62 trips/ Unit	Directional Distribution	
		20% In	80% Out		65% In	35% Out
60	31	6	25	37	24	13

Average Daily Trip Ends (ADT)		
Dwelling Units	Rate	ADT
60	6.65	399

Table 8 –Southern Portion Development Driveway Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Per LUC	Directional Distribution		Per LUC	Directional Distribution	
		In	Out		In	Out
Table 6, LUC#210 Single Family (Southern)	18	4	14	24	15	9
Table 7, LUC#220 Apartment (Southern)	31	6	25	37	24	13
Total New Trips	**49**	**10**	**39**	**61**	**39**	**22**

Average Daily Trip Ends (ADT)		
Land Use Code (LUC)	**Rate**	**ADT**
Table 6, LUC#210 Single Family (Southern)		229
Table 7, LUC#220 Apartment (Southern)		399
Total Southern ADT		**628**

As shown in Table 8 the southern portion of the development is anticipated to generate 49 driveway trips in the AM peak hour, with 10 trips entering the site and 25 trips exiting the site. In the PM peak hour, the northern portion of the development is anticipated to generate 61 driveway trips with 39 trips entering the site and 22 trips exiting the site. Please see Figure 4 for a distribution of these anticipated driveway trips.

Development Trip Summaries

Internal/Shared Trip Summary

This mixed-use development is anticipated to have internal or shared trips between the land uses or group of land uses. For example, someone destined for a certain entity/business at a commercial site may stop at a business entity, just before or after they visit their intended destination on site. Likewise, a resident within a mixed-use development may stop at a shop before going on to the public road system, for example to get a coffee, or a soft drink. This trip type reduces the number of new trips generated on the public road system and is most common within mixed use developments. Generally, internal trip capture is 15 to 30% of a developments trip generation for a mixed-use development.

The Institute of Transportation Engineers Trip Generation Handbook outlines a method to quantify the internal trips within chapter 7. ITE does include warnings of its limitations and its use. It is the purpose of these guidelines to determine an internal trip generation that best fits the relationship of a mixed-use development. An example of this is that the chapter 7 tables do not include any data for the AM peak hour, yet we know from experience that internal trips between the land uses will occur (hence, the coffee/soda example previously given), so engineering judgement must be made to represent this relationship. For this analysis when AM internal/ shared trip data is not available, it was decided that the AM percentage should be 50%, or half of the PM internal/ shared trip data by percentage.

As shown in the internal trip generation worksheet included in the appendix, in the AM peak hour, no internal trips are captured within the proposed projects retail land uses, 16 internal trips are captured by the proposed north projects retail uses, which result in a 10% internal capture (16/163).

TRIP DISTRIBUTION

The overall transportation network in this area consists of a principle arterial, a minor arterial, collectors, and local access roads. As shown on the concept site plan the development is to be accessed via public roadways connecting to; 29th Avenue at the intersection of Martin Street and connecting to Southeast Boulevard at 31st Avenue and connecting to South Crestline Street, at 32nd Avenue. With no vehicular interconnection between the north and the south areas.

29th Avenue is an east-west, two-way, 2- & 4-lane arterial that extends east from High Drive through Lincoln Street, Bernard Street, Grand Boulevard, Perry Street, Southeast Boulevard, Regal Street, Ray Street, and Freya Street. 29th Avenue continues east out of the City of Spokane and intersects with Glenrose Road. 29th Avenue serves generally residential land uses with commercial landuses located at the intersection of arterials. The speed limit on 29th Avenue is posted at 30 MPH.

30th Avenue within the study area is a short east-west, two-way, 2-lane local access road that extends west from Martin Street to the Napa Street alignment. 30th Avenue serves residential land uses. The speed limit on 30th Avenue is 25 MPH.

Martin Street within the study area is a short north-south, two-way, 2-lane local access road that extends south from 29th Avenue to 30th Avenue. Martin Street serves residential and office land uses. The speed limit on Martin Street is 25 MPH.

31st Avenue is a short east-west, two-way, 2-lane local access road that extends west from Cook Street to Southeast Boulevard. The project proposes extending the roadway to Crestline Street. 31st Avenue currently serves the STA park and ride. The speed limit on 31st Avenue is 25 MPH.

34th Avenue is an east-west, two-way, narrow 2-lane local access road that extends east from Grand Boulevard, jogs at Perry Street and continues to the Altamont Street. 34th Avenue serves residential land uses and All Saints Middle School. The speed limit on 34th Avenue is 25 MPH.

the roadway is described as narrow as there is only 50 feet of right-of way and 28 feet of pavement width, the residents are currently parking on both sides of the adjacent sidewalk, in order to provide more travel width.

Southeast Boulevard is generally a north-south two-way two-lane minor arterial that extends south from the intersection of 10th Avenue and Hatch Street up the South Hill and through Perry Street, Rockwood Boulevard, and 29th Avenue before sweeping east and subsiding to intersect with Regal Street. Southeast Boulevard generally serves residential uses along the north face of the South Hill, and commercial uses near the intersection of Southeast Boulevard & 29th Avenue. The speed limit on Southeast Boulevard is 30 MPH.

Crestline Street is a north-south two-way two-lane road that extends from 32nd Avenue to 37th Avenue as a local access road and from 37th Avenue to 53rd Avenue as a neighborhood collector. From 53rd Avenue to Crestline Street extends south through 57th Avenue to 64th Avenue as an urban collector arterial in Spokane County. Crestline Street serves residential land uses. The speed limit on Crestline Street is 25 MPH.

Pittsburg Street is a north-south, two-way, 2-lane local access road that extends south from 49th Avenue through 37th and 29th Avenues to Rockwood Boulevard. At the intersection of 29th Avenue & Pittsburg Street is a raised curb through the intersection that limits turning movements to right-in and right-out. Pittsburg Street serves residential land uses. The speed limit of Pittsburgh Street is 25 MPH.

Perry Street is a north-south, two-way, 2-lane roadway that extends south from 29th Avenue as a minor arterial to 37th Avenue, south of 37th Avenue, Perry Street is a neighborhood collector that goes through Thurston and 50th Avenues to 53rd Avenue. From 53rd Avenue Perry Street is an Urban Collector arterial in Spokane County that connects into 57th Avenue. Perry Street serves a mixture of residential and institutional land uses. The speed limit Perry Street varies from 25 to 35 MPH depending upon location.

Pedestrian/Bicycle Distribution

The project proposes a ped/bike path connection between the north and the south pods. This connection encourages a walkable community and has the potential to replace vehicular trips from mid-spring to mid-fall. Given the multitude of shops along 29th Avenue and the Lincoln Heights Shopping Center, a transition of vehicular trips to Ped/bike trips may be 10 to 25% of the vehicular trips generated.

Vehicular Distribution

The distribution of the additional new trips of the proposed land uses are anticipated to distribute onto the existing transportation system as follows: it is anticipated that 45% will travel to/from the south, 25% will travel to/from the west via 29th Avenue, and 30% of the trips will travel to/from the north, with 15% going to/from I-90 via Ray Street, 10% going to/from the Lincoln Heights Shopping Center, and 5% going to/from the north via Southeast Boulevard.

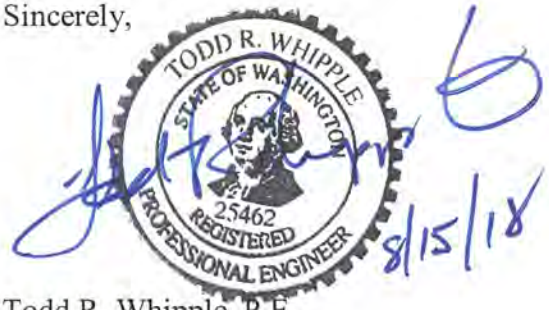
With this general distribution the routes by the north and south areas are anticipated to differ, please see Figures 3 & 4 for a graphical depiction of the projects new trip distribution. The above-mentioned traffic distribution percentages are based on engineering judgment and actual traffic observations.

CONCLUSIONS AND RECOMMENDATIONS

It is anticipated that northern portion of this project will generate 78 driveway AM peak hour trips and 155 driveway PM peak hour trips on the transportation system. The southern portion of this project is anticipated to generate 49 driveway AM peak hour trips and 61 driveway PM peak hour trips Based upon the location of the project, the number of anticipated trips, the distribution of those trips on the surrounding network of public roadway. We believe that the proposed project while adding trips to local intersections, will not reduce the intersections in the immediate area below an acceptable level of service. Therefore, we recommend that the project be allowed to move forward without further traffic analysis.

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

Sincerely,



Todd R. Whipple, P.E.

TRW/bng/stt
encl. Appendix (Vicinity Map, Site Plan, Trip Dist %, Internal Trips Worksheets)
cc: Sponsor, File

APPENDIX

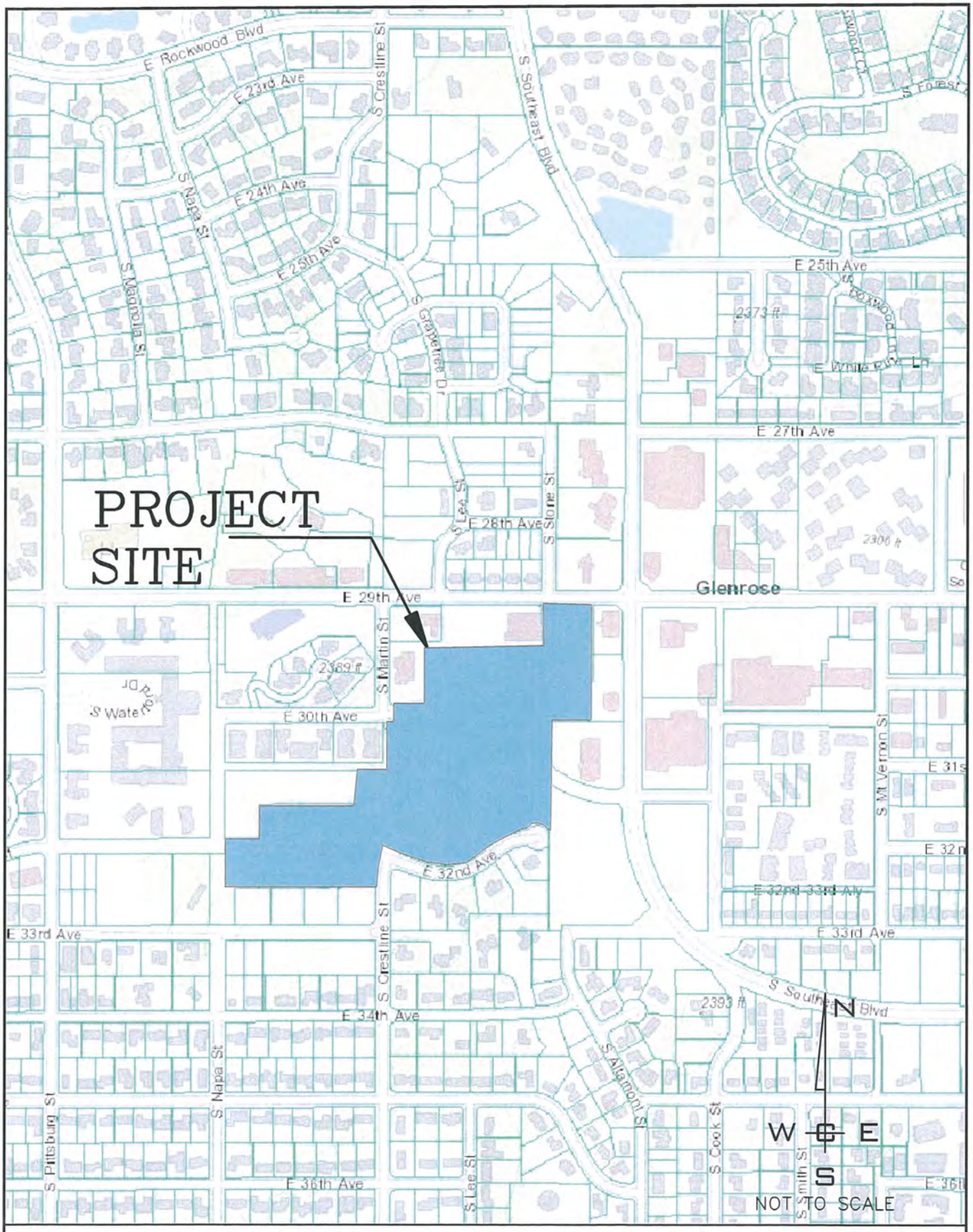
1. Vicinity Map

2. Site Plan

3. Northern AM&PM Trip Distribution by Percentage

4. Southern AM&PM Trip Distribution by Percentage

5. Internal Trip Worksheets



PROJ #: 17-1939 DATE: 8/13/18 DRAWN: BNG APPROVED: TRW	TRIP GENERATION & DISTRIBUTION SONNELAND PUD 32ND AVENUE & CRESTLINE STREET SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS 21 S. PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 1	VICINITY MAP	

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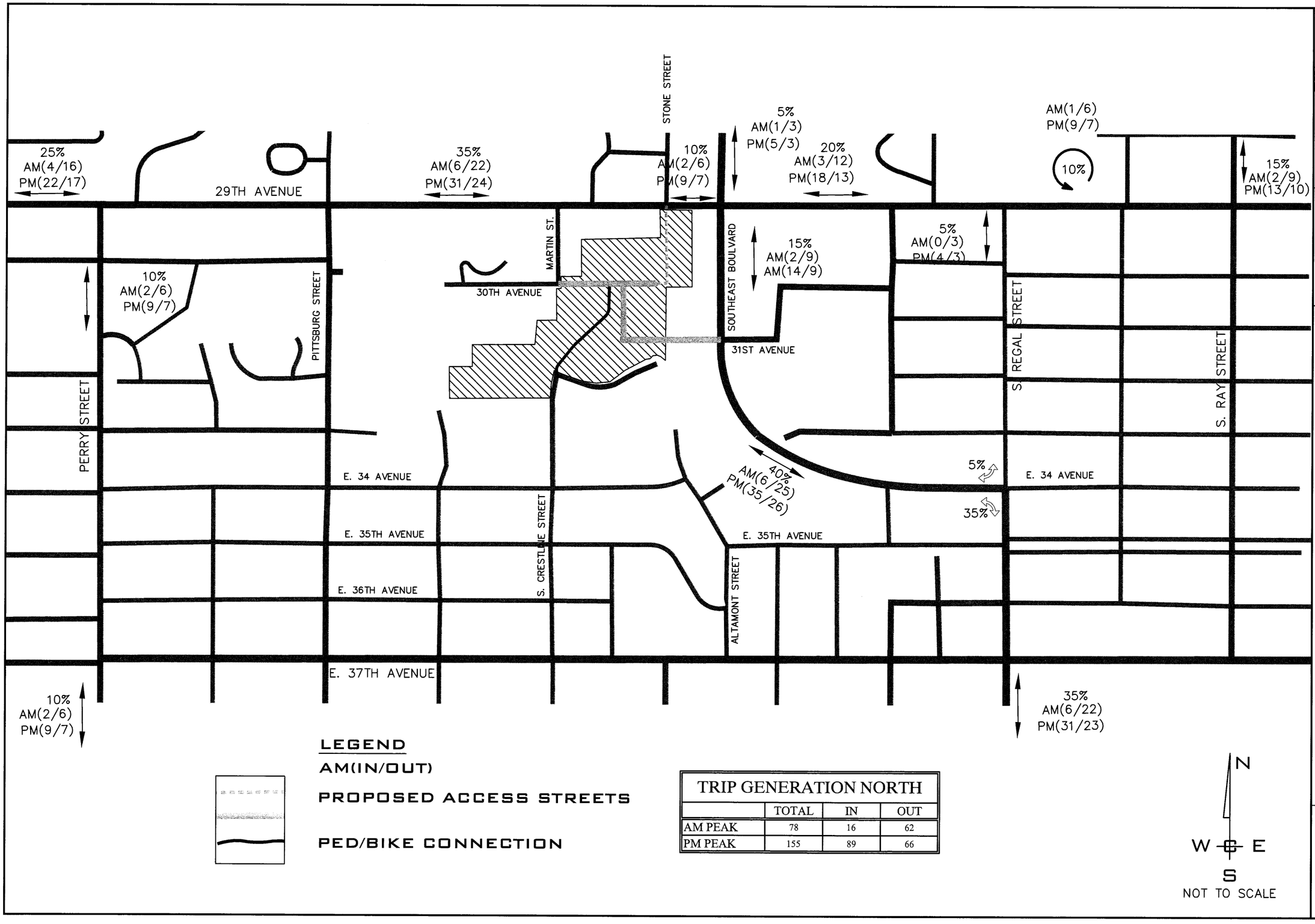
FIGURE 2 OF 4

TRIP GENERATION & DISTRIBUTION
SONNELAND PUD
32ND AVENUE & CRESTLINE STREET
SPOKANE, WASHINGTON

REVISED CONCEPT SITE PLAN

PROJ #: 1939
DATE: 8/13/18
DRAWN: BNG
APPROVED: TRW

WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL, STRUCTURAL AND
TRANSPORTATION ENGINEERING
21 S. PINES ROAD
SPOKANE VALLEY, WASHINGTON 99216
PH: 509-893-2617 FAX: 509-926-0227



LEGEND

AM(IN/OUT)

PROPOSED ACCESS STREETS

PED/BIKE CONNECTION

TRIP GENERATION NORTH			
	TOTAL	IN	OUT
AM PEAK	78	16	62
PM PEAK	155	89	66

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NOT TO SCALE

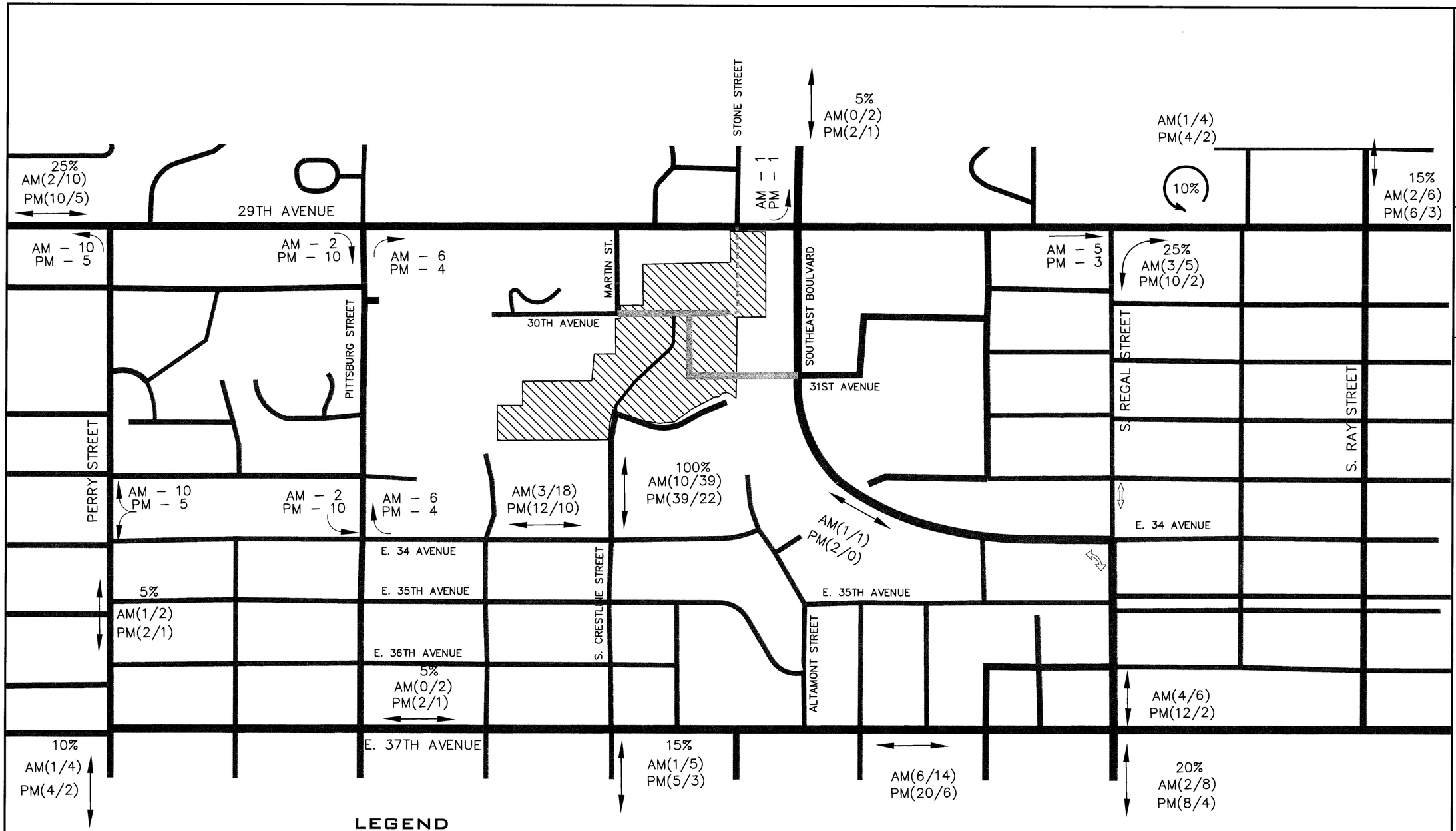
WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL, STRUCTURAL AND
TRANSPORTATION ENGINEERING
21 S. PINES ROAD
SPOKANE VALLEY, WASHINGTON 99216
PH: 509-893-2617 FAX: 509-926-0227

PROJ #: 1939
DATE: 8/13/18
DRAWN: BNB
APPROVED: TRW

TRIP GENERATION & DISTRIBUTION
SONNELAND PUD
32ND AVENUE & CRESTLINE STREET
SPOKANE, WASHINGTON

AM & PM NORTHERN TRIP DISTRIBUTION

FIGURE
3
OF
4



TRIP GENERATION NORTH			
	TOTAL	IN	OUT
AM PEAK	49	10	39
PM PEAK	61	39	22

WCE
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PROJ #: 1939
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DRAWN: BNG
APPROVED: TRW

TRIP GENERATION & DISTRIBUTION
SONNELAND PUD
32ND AVENUE & CRESTLINE STREET
SPOKANE, WASHINGTON
AM & PM SOUTHERN TRIP DISTRIBUTION

FIGURE 4 OF 4

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Whipple Consulting Engineers
Multi-Use Trip Generation Worksheet
Project Sonneland PUD
Project # 17-1939
Analyst STT
Date 8/13/2018
Peak Hour **AM**

Legend	
31%	Percentages from ITE Handbook Tables 7.1and 7.2 or engineering judgment based on project characteristics
475	From LUC Trip Genration Tables
25	User Defined Balance

LAND USE A **Retail**

ITE LUC	826		
Size	25.0 ksf		
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

External: Exit **0**, Enter **0**

Single Use Trip Gen Total: 0

Demand (from/to) *6%* 0 — Lowest **0** — Demand (to/from) *15%* 2
Demand (to/from) *5%* 0 — Lowest **0** — Demand (from/to) *26%* 16
Demand (from/to) *6%* 0 — Lowest **0** — Demand (to/from) *15%* 0
Demand (to/from) *5%* 0 — Lowest **0** — Demand (from/to) *26%* 0

LAND USE B **Residential North**

ITE LUC	220		
Size	152 units		
	Total	Internal	External
Enter	16	0	16
Exit	62	0	62
Total	78	0	78
%	100%	0%	100%

External: Exit **62**, Enter **16**

Single Use Trip Gen Total: 78

Demand (to/from) *1%* 0 — Lowest **0** — Demand (from/to) *1%* 0
Demand (from/to) *1%* 1 — Lowest **0** — Demand (to/from) *1%* 0

LAND USE C

ITE LUC			
Size			
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

External: Exit **0**, Enter **0**

Single Use Trip Gen Total: 0

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	0	16	0	16
Exit	0	62	0	62
Total	0	78	0	78
Single-use Trip Gen Est.	0	78	0	78

INTERNAL CAPTURE **0%**

ITE Trip Generation Handbook 2nd Edition

Table 7.1 Unconstrained Internal Capture Rates for Trip **Origins** Within a Multi-Use Development

(From/To)		Weekday PM Peak Hour of Adj. St.	
From Office	to Office	1%	1%
	to Retail	23%	23%
	To Residential	2%	2%
From Retail	to Office	3%	3%
	to Retail	20%	20%
	To Residential	12%	12%
From Residential	to Office	N/A	2%
	to Retail	53%	53%
	To Residential	N/A	N/A

N/A Not Available

Table 7.2 Unconstrained Internal Capture Rates for Trip **Destinations** Within a Multi-Use Development

(To/From)		Weekday PM Peak Hour of Adj. St.	
To Office	From Office	6%	6%
	From Retail	31%	31%
	From Residential	0%	0%
To Retail	From Office	2%	2%
	From Retail	20%	20%
	From Residential	9%	9%
To Residential	From Office	2%	2%
	From Retail	31%	31%
	From Residential	N/A	N/A

N/A Not Available

Design Note: When 2 landuses of the same type; Office, Retail, Residential, are analyzed. The percentage of distribution is divided by the number of the same type of land uses. Thus, preserving the ITE distribution data.

Whipple Consulting Engineers
Multi-Use Trip Generation Worksheet
Project Sonneland PUD
Project # 17-1939
Analyst STT
Date 8/13/2018
Peak Hour **PM**

Legend	
31%	Percentages from ITE Handbook Tables 7.1and 7.2 or engineering judgment based on project characteristics
475	From LUC Trip Genration Tables
25	User Defined Balance

LAND USE A **Retail**

ITE LUC	826		
Size	25.0 ksf		
	Total	Internal	External
Enter	30	3	27
Exit	38	5	33
Total	68	8	60
%	100%	12%	88%

Single Use Trip Gen Total: 68

External — Exit: **33** → Enter: **27**

Demand (from/to): *12%* 5 — Lowest: **5** — Demand (to/from): *31%* 19
Demand (to/from): *9%* 3 — Lowest: **3** — Demand (from/to): *53%* 17
Demand (from/to): *12%* 5 — Lowest: **0** — Demand (to/from): *31%* 0
Demand (to/from): *9%* 3 — Lowest: **0** — Demand (from/to): *53%* 0

LAND USE B **Residential North**

ITE LUC	220		
Size	152 units		
	Total	Internal	External
Enter	62	5	57
Exit	33	3	30
Total	95	8	87
%	100%	8%	92%

Single Use Trip Gen Total: 95

External — Exit: **30** → Enter: **57**

Demand (to/from): *1%* 1 — Lowest: **0** — Demand (from/to): *1%* 0
Demand (from/to): *1%* 0 — Lowest: **0** — Demand (to/from): *1%* 0

LAND USE C

ITE LUC			
Size			
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

Single Use Trip Gen Total: 0

External — Exit: **0** → Enter: **0**

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	27	57	0	84
Exit	33	30	0	63
Total	60	87	0	147
Single-use Trip Gen Est.	68	95	0	163

INTERNAL CAPTURE **10%**