

November 8, 2016



Whipple Consulting Engineers, Inc.

Revised

W.O. No. 2015-1537

Spokane County
Department of Engineering & Roads
1026 W. Broadway Ave.
Spokane, WA, 99260-0170

Attn: Greg Baldwin, P.E.

**Re: Proposed Commons on Regal
South Regal Street & East 53rd Street to East 55th Street
Traffic (Trip) Generation and Distribution Letter**

Dear Greg,

This letter has been revised to include the City of Spokane Trip Generation for Fast Food and the trip generation of each individual land use. Additionally, the format has been revised for easy reference of phase 1 and phase 2.

The purpose of this document is to provide a Trip Generation and Distribution letter (TGDL) for the proposed Commons on Regal Shopping Center to be located east of South Regal Street, West of Fiske Road, and between East 53rd Avenue and East 55th Avenues as shown on Figure 2, Preliminary Site Plan. This letter will follow the standards for doing Trip Distribution Letters as required by Spokane County and the Institute of Transportation Engineers (ITE).

PROJECT DESCRIPTION

The Commons on Regal Shopping Center is proposed to develop approximately 8.62± acres of land, covered by field grass, weeds, pine trees, and existing structures. The development will occur in two phases. Phase 1 will include two restaurant and two retail buildings, and Phase 2 will include four retail buildings as well as a grocery or medium sized retail building. The amount of square footage that these buildings will take up can be seen in Table 1. The proposed buildings are all located on a variety of building pads arranged throughout the shopping center.

The property is proposed to be accessed by the principal arterial road South Regal Street, and by the local roads East 53rd Avenue, East 55th Avenue, and Fiske Road. South Regal Street will have a major access between East 53rd Avenue and East 55th Avenue. East 53rd Avenue and East 55th Avenue will each have two (2) minor exits. There will also be an access for delivery trucks on Fiske Road.

Table 1- Total Areas of Shopping Centers

Phase 1		Phase 2	
Restaurant A	5,200 sf	Retail D-1	4,100 sf
Restaurant B	5,000 sf	Retail D-2	4,100 sf
Retail B	8,655 sf	Retail C-1	4,100 sf
Retail C	8,655 sf	Retail C-2	4,100 sf
-	-	Grocery	29,457 sf
Total Area	27,510 sf	Total Area	45,857 sf

VICINITY / SITE PLAN

The site is currently listed on the Comprehensive Plan and zoning map as Mixed Use (MU). The site lies on the NW ¼ of Section 03, T. 24 N., R. 43 E., W.M. within Spokane County, Washington. The parcel numbers for the site were recently changed from 34032.0494, 34032.0480, 34032.0481, 34032.0446, and 34032.0447 to parcel number 34032.0494. 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 uses will be evaluated as individual uses and adjusted accordingly; 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.

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. Chapter 7 of the ITE Trip Generation Handbook was used.

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, 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.

Phase 1

Phase 1 of the proposed development includes two pad sites that may be developed into fast Restaurants. Anticipated to include a 5,200 sf (5.2 ksf) building and a 5,000 sf (5.0 ksf) building. For this land use Land Use Code (LUC) 934 Fast Food W/Drive Thru as modified by the City of Spokane was used. The trips anticipated to be generated by the land use are shown in Table 2.

Table 2 - Trip Generation Rates for LUC #934 Fast Food w/ Drive thru

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	Vol. @ 45.42 trips per KSF	Directional Distribution		Per COS Egn. ADT 15,900	Directional Distribution	
		51% In	49% Out		52% In	48% Out
5.2	237	121	116	67	35	32
5.0	228	116	112	64	33	31
TOTAL	465	237	228	131	68	63
Internal	42	20	22	46	22	24
Driveway	423	217	206	85	46	39
Pass-by	207	106	101	42	22	20
New	216	111	105	43	24	19
Average Daily Trip Ends (ADT)				PM Trip= (18.35*KSF) + (0.81*ADT)-41.07		
KSF	Rate	ADT		Pass-by 49% AM 50% PM per ITE Trip Generation Handbook Table 5.23 & 5.24		
5.2	496.12	2,580				
5.0	496.12	2,481				
Total	-	5,061				

Phase 1 of the proposed development includes two retail pad sites that may be developed into retail stores. Anticipated to include an 8,655 sf (8.655 ksf) building and an 8,655 sf (8.655 ksf) building. For this land use Land Use Code (LUC) 826 Specialty Retail was used. The trips anticipated to be generated by the land use are shown in Table 3.

Table 3-Trip Generation Rates for LUC #826– Specialty Retail

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	NA	Directional Distribution		Vol. @ 2.71 trips per Unit	Directional Distribution	
		In	Out		56% In	44% Out
8.655	-	-	-	24	13	11
8.655	-	-	-	24	13	11
TOTAL	-	-	-	48	26	22
Internal	-	-	-	26	15	11
Driveway	-	-	-	22	11	11
Pass-by	-	-	-	4	2	2
New	-	-	-	18	9	9
Average Daily Trip Ends (ADT)						
KSF	Rate	ADT				
8.655	44.32	384				
8.655	44.32	384				
Total	-	768				

Phase 1 Trip Generation Summary

Table 4 – Phase 1 Driveway Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #934 Fast Food W/ drive thru (Phase 1)	423	217	206	85	46	39
LUC #826 Specialty Retail (Phase 1)	-	-	-	22	11	11
Total Driveway Trips	423	217	206	107	57	50
Average Daily Trip Ends (ADT)						
Land Use Code (LUC)	Rate	ADT				
LUC #934 Fast Food W/ drive thru (Phase 1)	-	5,061				
LUC #826 Specialty Retail (Phase 1)		768				
Total Phase 1 ADT		5,829				

Phase 1 Total Driveway Trips – The land uses of phase 1 of the development are anticipated to generate 423 driveway trips in the AM peak hour, with 217 trips entering the site and 206 trips exiting the site. In the PM peak hour, the landuses of phase 1 of the development are anticipated to generate 107 driveway trips; with 57 driveway trips entering the site and 50 driveway trips exiting the site. These driveway trips are further separated into Pass-by and new trips.

The landuses of Phase 1 of the Development are anticipated to generate 5,829 average daily trips.

Table 5 – Pass-by Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #934 Fast Food W/ drive thru (Phase 1)	207	106	101	42	22	20
LUC #826 Specialty Retail (Phase 1)	-	-	-	4	2	2
Total Phase 1 Pass-by Trips	207	106	101	46	24	22

Pass-by trips - for the AM peak hour the land uses of Phase 1 are anticipated to generate 207 Pass-by trips with 106 Pass-by trips entering the site and 101 Pass-by trips exiting the site. In the PM peak hour, the land uses of phase 1 are anticipated to generate 46 Pass-by trips with 24 Pass-by trips entering the site and 22 Pass-by trips exiting the site.

Table 6 – New Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #934 Fast Food W/ drive thru (Phase 1)	216	111	105	43	24	19
LUC #826 Specialty Retail (Phase 1)	-	-	-	18	9	9
Total Phase 1 New Trips	216	111	105	61	33	28

New Trips - for the AM peak hour the land uses are anticipated to generate 216 new trips, with 111 new trips entering the site, and 105 new trips exiting the site. In the PM peak hour, the proposed land uses are anticipated to generate 61 new trips; with 33 new trips entering, and 28 new trips exiting the site.

Phase 2

Phase 2 of the proposed development includes four retail pad sites that may be developed into retail stores. Anticipated to include four 4,100 sf (4.1 ksf) buildings or a total of 12.4 ksf. For this land use Land Use Code (LUC) 826 Specialty Retail was used. The trips anticipated to be generated by the land use are shown in Table 7.

Table 7-Trip Generation Rates for LUC #826– Specialty Retail

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	NA	Directional Distribution		Vol. @ 2.71 trips per Unit	Directional Distribution	
		48% In	52% Out		56% In	44% Out
12.4 (4 @ 4.1)	-	-	-	48	28	20
Internal	-	-	-	27	15	12
Driveway	-	-	-	21	13	8
Pass-by	-	-	-	4	2	2
New	-	-	-	17	11	6
Average Daily Trip Ends (ADT)						
KSF	Rate	ADT				
12.4 (4 @ 4.1)	-	728				

Phase 2 of the proposed development includes a 29,457 sf (29.457 ksf) box store that may be developed into a Supermarket. Anticipated to include a 29,457sf building. For this land use Land Use Code (LUC) 850 Supermarket was used. The trips anticipated to be generated by the land use are shown in Table 8.

Table 8-Trip Generation Rates for LUC #850 Supermarket

KSF	AM Peak Hour			PM Peak Hour		
	Vol. @ 7.07 trips per KSF	Directional Distribution		Vol. @ 8.37 trips per Unit	Directional Distribution	
		52% In	48% Out		52% In	48% Out
29.457	208	108	100	247	129	118
Internal	84	44	40	61	28	33
Driveway	124	64	60	186	101	85
Pass-by	45	23	22	67	35	32
New	79	41	38	119	66	53
Average Daily Trip Ends (ADT)				Pass-by 36% per ITE trip generation Handbook Table 5.10		
KSF	Rate	ADT				
29.457	102.24	3,012				

Phase 2 Trip Generation Summary

Table 9 – Driveway Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #826 Specialty Retail (Phase 2)	-	-	-	21	13	8
LUC #850 Supermarket (Phase 2)	124	64	60	186	101	85
Total Driveway Trips	124	64	60	207	114	93
Average Daily Trip Ends (ADT)						
Land Use Code (LUC)	Rate	ADT				
LUC #826 Specialty Retail (Phase 2)		728				
LUC #850 Supermarket (Phase 2)	-	3,012				
Total ADT		3,740				

Total trips – The land uses of phase 2 of the development are anticipated to generate 124 driveway trips in the AM peak hour, with 64 trips entering the site and 60 trips exiting the site. In the PM peak hour, the landuses of phase 2 of the development are anticipated to generate 207 driveway trips; with 114 driveway trips entering the site and 93 driveway trips exiting the site. These driveway trips are further separated into Pass-by and new trips.

The landuses of phase 2 of the Development are anticipated to generate 3,740 average daily trips.

Table 10 – Pass-by Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #826 Specialty Retail (Phase 2)	-	-	-	4	2	2
LUC #850 Supermarket (Phase 2)	45	23	22	67	35	32
Total Phase 2 Pass-by Trips	45	23	22	71	37	34

Pass-by trips - for the AM peak hour the land uses are anticipated to generate 45 Pass-by trips with 23 Pass-by trips entering the site and 22 Pass-by trips exiting the site. In the PM peak hour, the land uses are anticipated to generate 71 Pass-by trips with 37 Pass-by trips entering the site and 34 Pass-by trips exiting the site.

Table 11 – New Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol.	Directional Distribution		Vol.	Directional Distribution	
		In	Out		In	Out
LUC #826 Specialty Retail (Phase 2)	-	-	-	17	11	6
LUC #850 Supermarket (Phase 2)	79	41	38	119	66	53
Total Phase 2 New Trips	79	41	38	136	77	59

New Trips - for the AM peak hour the land uses of phase 2 are anticipated to generate 79 new trips, with 41 new trips entering the site, and 38 new trips exiting the site. In the PM peak hour, the proposed land uses are anticipated to generate 136 new trips; with 77 trips entering, and 59 trips exiting the site.

TRIP DISTRIBUTION

As previously discussed and as shown on the preliminary site plan (Figure 2), the site will be accessed from South Regal Street, East 53rd Avenue, and East 55th Avenue by several driveways.

South Regal Street is a North-South, two-way, 3 & 4-lane urban minor arterial / neighborhood collector in Spokane County and an urban principal arterial in the City of Spokane. South Regal Street extends from 29th Avenue to 65th Avenue. South Regal Street serves generally commercial and multi-family residential uses as well as Ferris High School located at the corner of 37th Avenue & Regal Street. The posted speed limit on Regal Street within the City of Spokane is 30 MPH, within Spokane County the speed limit is 35 MPH.

East 53rd Avenue is an East-West, two-way, 2-lane, urban local road in the City of Spokane. East 53rd Avenue serves various residential communities within the City of Spokane and extends from South Perry Street to Ray Court. The posted speed limit within the study area is 25 MPH.

East 55th Avenue is an East-West, two-way, 2-lane, urban local road in Spokane County. East 55th Avenue serves various residential communities within Spokane County and extends from South Arthur Street to South Dearborn Road. The posted speed limit within the study area is 25 MPH.

Fiske Road is a North-South, two-way, 2-lane, urban local road in Spokane County. Fiske Road extends from East 53rd Avenue to East 55th Avenue. The posted speed limit is 25 MPH.

It is anticipated that 50% of the trips will go to/from the North via South Regal Street, 10% of the trips will go to/from the East via East 55th Avenue, 30% of the trips will go to/from the South via South Regal Street, 5% of the trips will go to/from the West via East 55th Avenue, and 5% of the trips will go to/from the West via East 53rd Avenue. It is anticipated that Fiske Road will only be used as a delivery access, and trips to/from the site via Fiske Road will be negligible.

The above-mentioned traffic distribution percentages are based on engineering judgment and actual traffic observations.

TRAFFIC IMPACT FEE

As the property, has been annexed into the City of Spokane, a voluntary impact fee for the City of Spokane is considered here. The City of Spokane code has established transportation impact fees under Spokane Municipal Code Title 17 Chapter 17D.030. The proposed project is to be within the South Service area and as such is subject to the current Impact Fee Schedule. Tables 12 and Table 13 calculate the anticipated Impact fee for the proposed project.

Table 12 – Phase 1 – Proposed Land Use Impact Fee

Land Use	LUC	Quantity SF	Unit of Measure	Fee per unit	Fee
Fast Food W/ drive thru (Phase 1)	934	10,200	SF/ GLA	\$6.65	\$67,830.00
Specialty Retail (Phase 1)	826	17,310	SF/GLA	\$0.61	\$10,559.10
Total	-	-	-	-	\$78,389.10

Table 13 – Phase 2 – Proposed Land Use Impact Fee

Land Use	LUC	Quantity SF	Unit of Measure	Fee per unit	Fee
LUC #826 Specialty Retail (Phase 2)	826	12,400	SF/GLA	\$0.61	\$7,564.00
LUC #850 Supermarket (Phase 2)	850	29,457	SF/ GLA	\$3.02	\$88,960.14
Total	-	-	-	-	\$96,524.14

As shown in Tables 12 and Table 13, the proposed project under the current fee schedule is anticipated to generate an impact fee of **\$78,389.10** for Phase 1 and of **\$96,524.14** for Phase 2.

CONCLUSIONS AND RECOMMENDATIONS

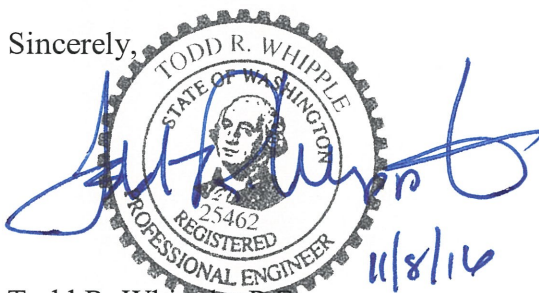
It is anticipated that the proposed project phase 1 will generate 216 new AM peak hour trips and 61 new PM peak hour trips, and the anticipated impact fee per City of Spokane impact fee schedule is anticipated to total **\$78,389.10**, paid upon issue of the building permit.

It is anticipated that the proposed project Phase 2 will generate 79 new AM peak hour trips and 136 new PM peak hour trips to/from the site and the anticipated impact fee per City of Spokane impact fee schedule is anticipated to total **\$96,524.14**, paid upon issue of the building permit.

Based upon the number of anticipated trips, distribution of those trips on South Regal Street, East 55th Avenue, and East 53rd Avenue, we believe that the proposed project will have an impact on the transportation system. Therefore, we recommend that the project pay the City of Spokane impact fee and be allowed to move forward with a traffic analysis.

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

Sincerely,



Todd R. Whipple, P.E.
President

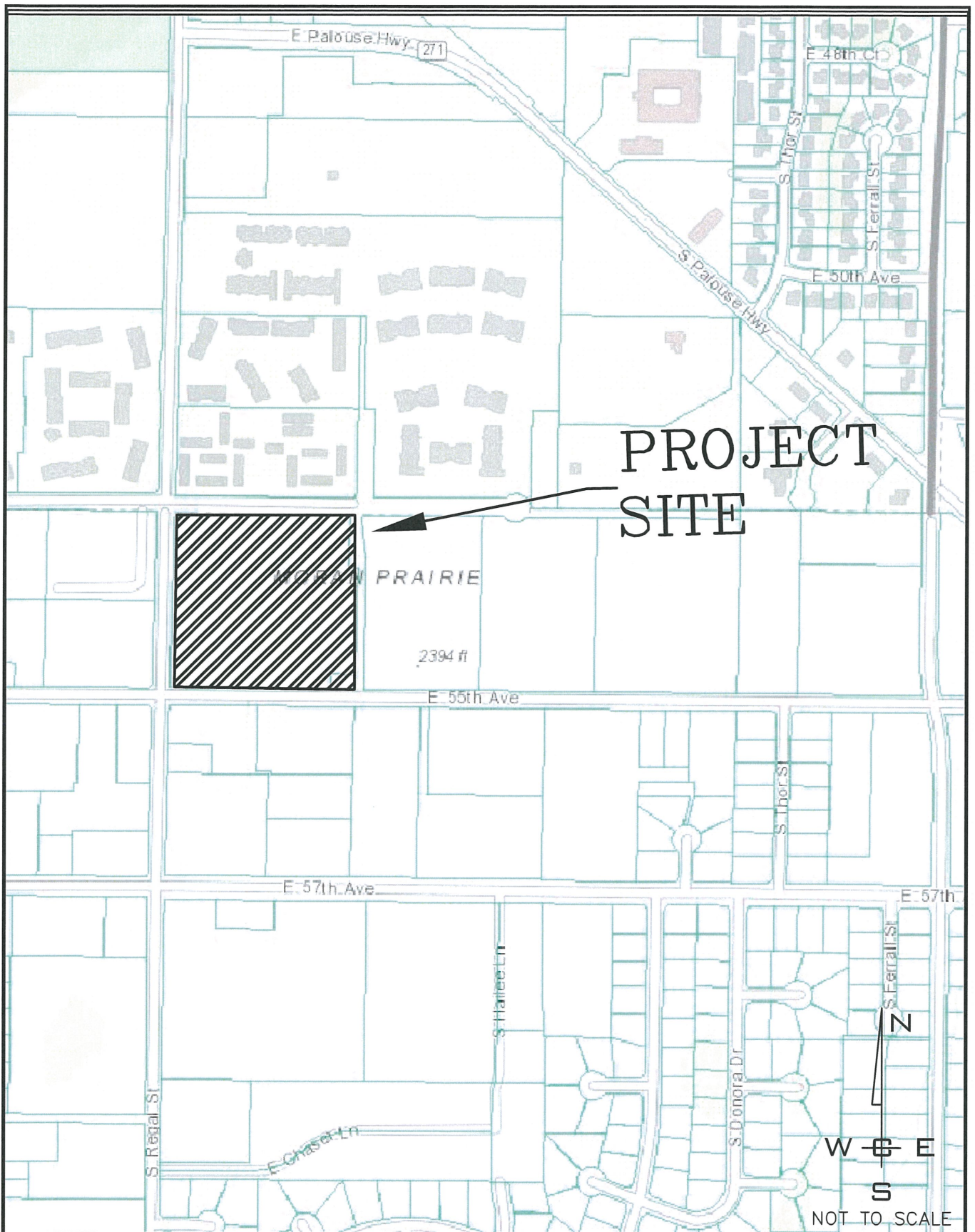
TRW/bng

encl. Appendix (Vicinity Map, Site Plan, Trip Dist %, Internal Trip Worksheet, COS Trip Generation, COS Impact Fee Schedule)

cc: Sponsor
File

APPENDIX

1. Vicinity Map
2. Preliminary Site Plan
3. New Trip Distribution
4. AM Pass-by Trip Distribution
5. PM Pass-by Trip Distribution
6. Internal Trip Worksheets
7. COS Trip Generation
8. COS Impact Fee Schedule



**PROJECT
SITE**

MEADOW PRAIRIE

2394 ft

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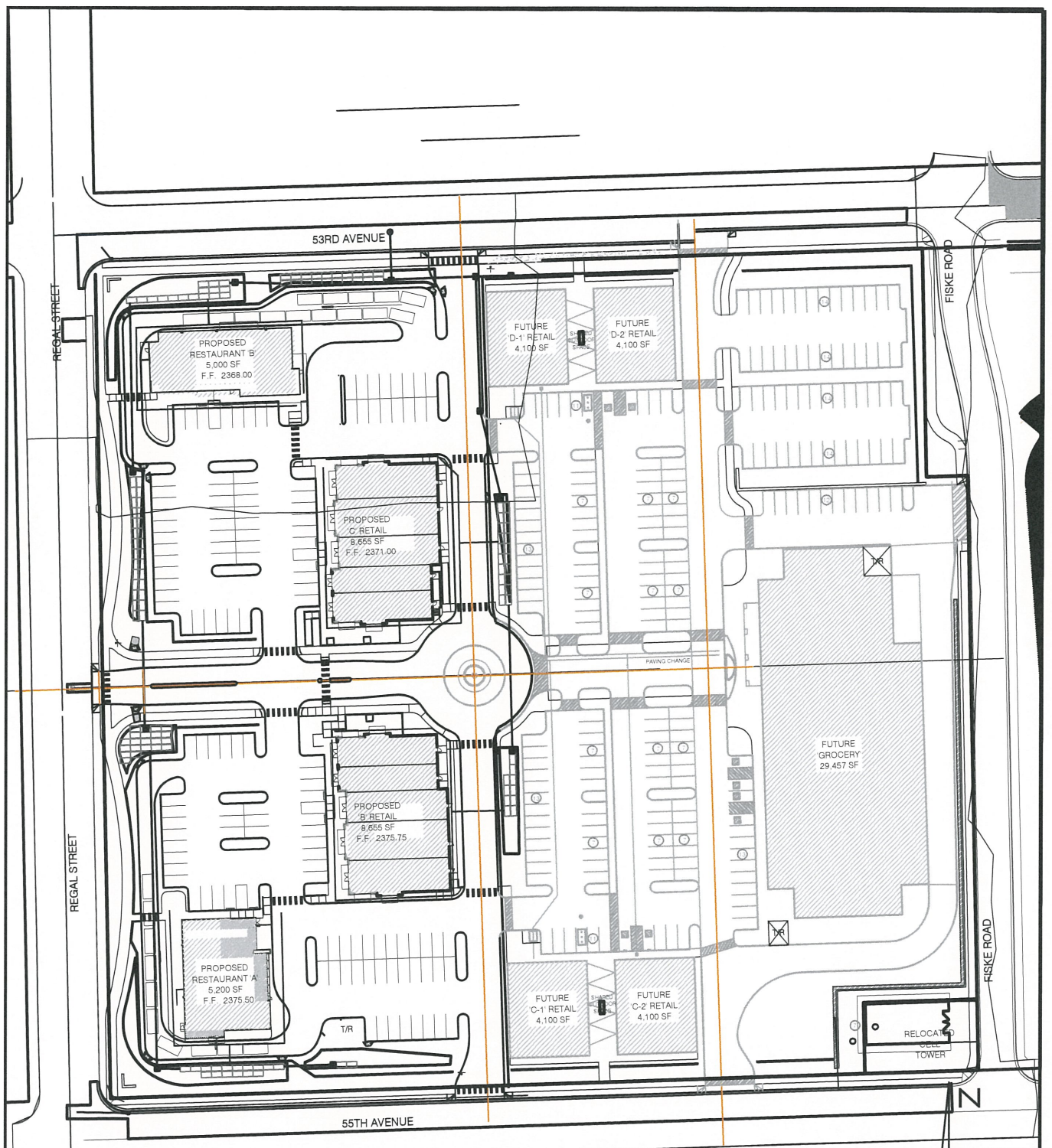
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FIGURE 1

**TRIP GENERATION AND DISTRIBUTION
 COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD
 STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON**

VICINITY MAP

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 SPOKANE VALLEY, WASHINGTON 99216
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FIGURE 2

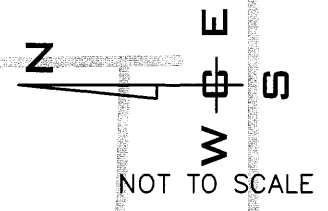
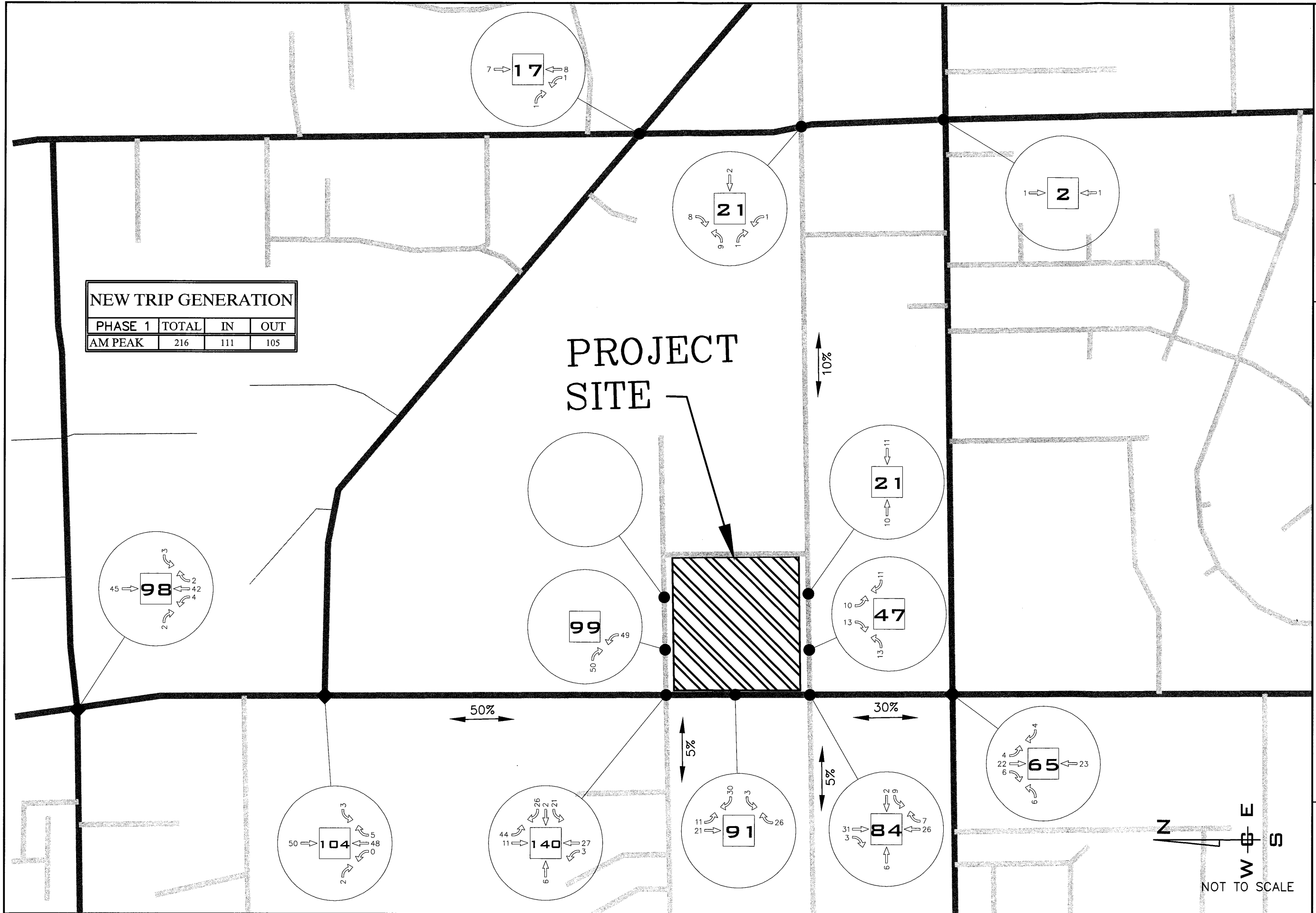
**TRIP GENERATION AND DISTRIBUTION
 COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD
 STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON**

PRELIMINARY SITE PLAN

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NEW TRIP GENERATION			
PHASE 1	TOTAL	IN	OUT
AM PEAK	216	111	105

PROJECT SITE



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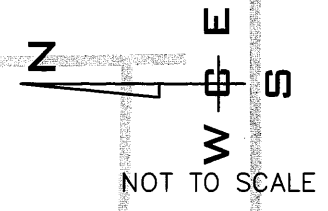
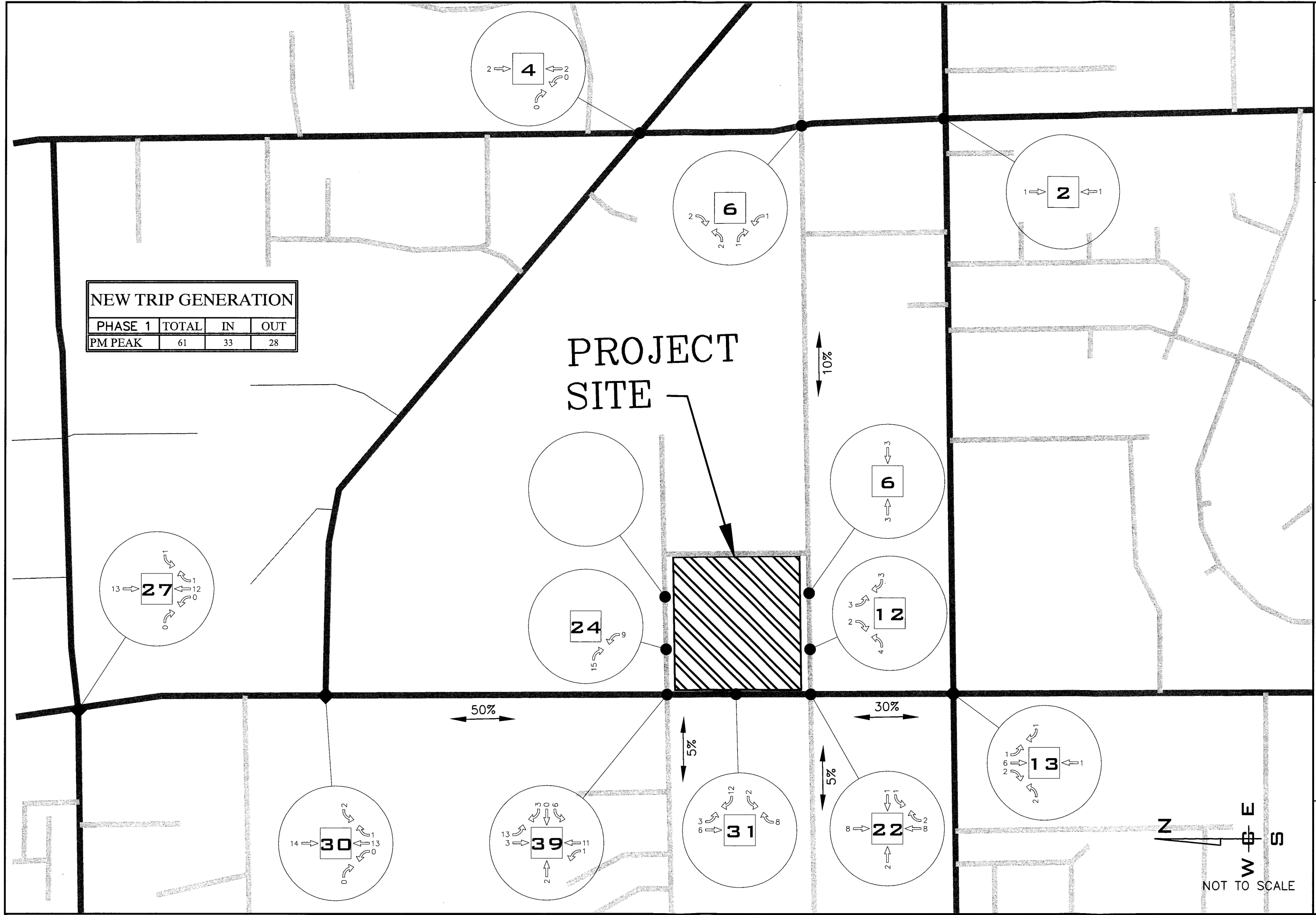
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TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON

FIGURE
3

NEW TRIP GENERATION			
PHASE 1	TOTAL	IN	OUT
PM PEAK	61	33	28

PROJECT SITE



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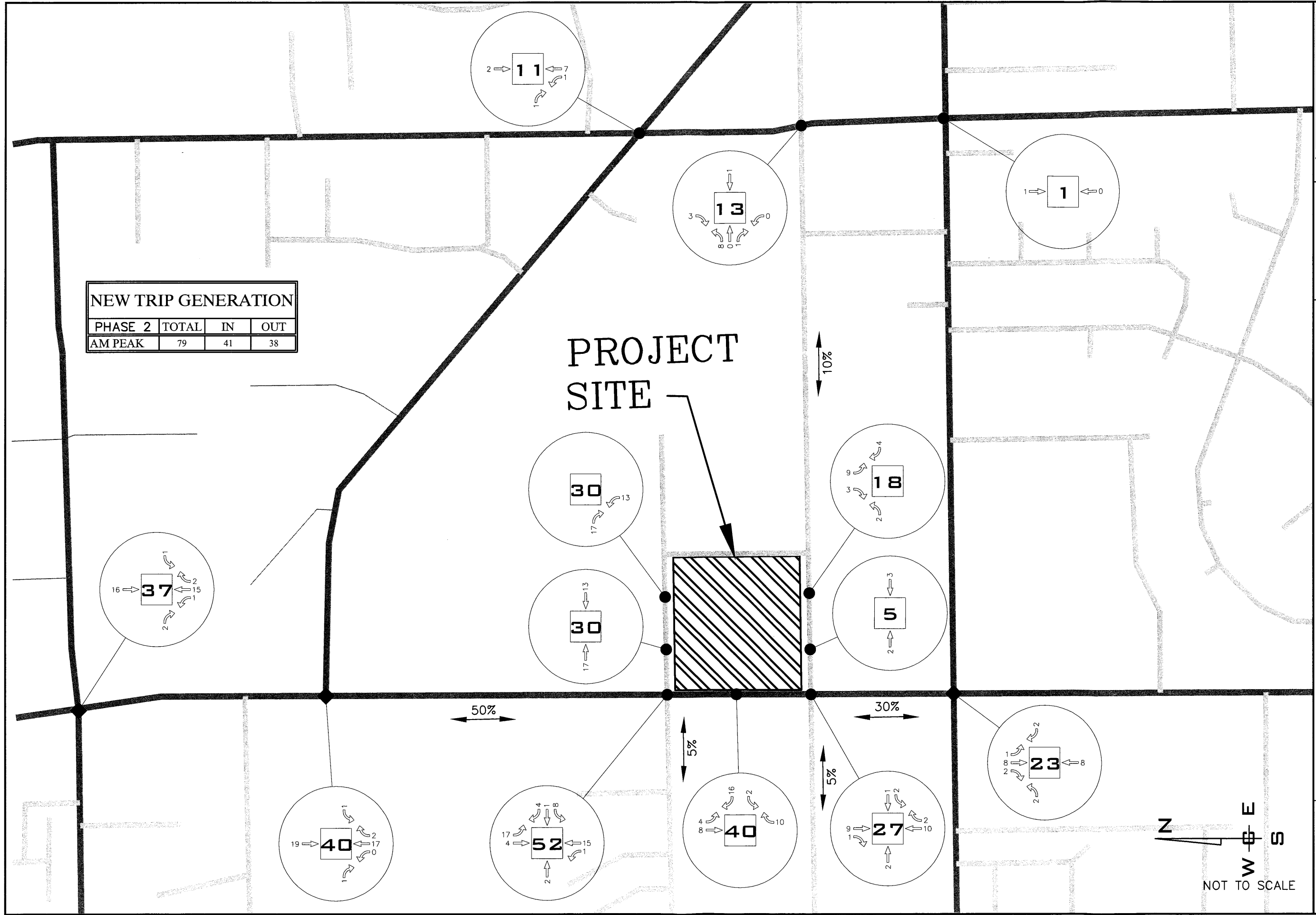
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TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD STREET TO EAST 55TH STREET
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FIGURE
4

NEW TRIP GENERATION			
PHASE 2	TOTAL	IN	OUT
AM PEAK	79	41	38

PROJECT SITE



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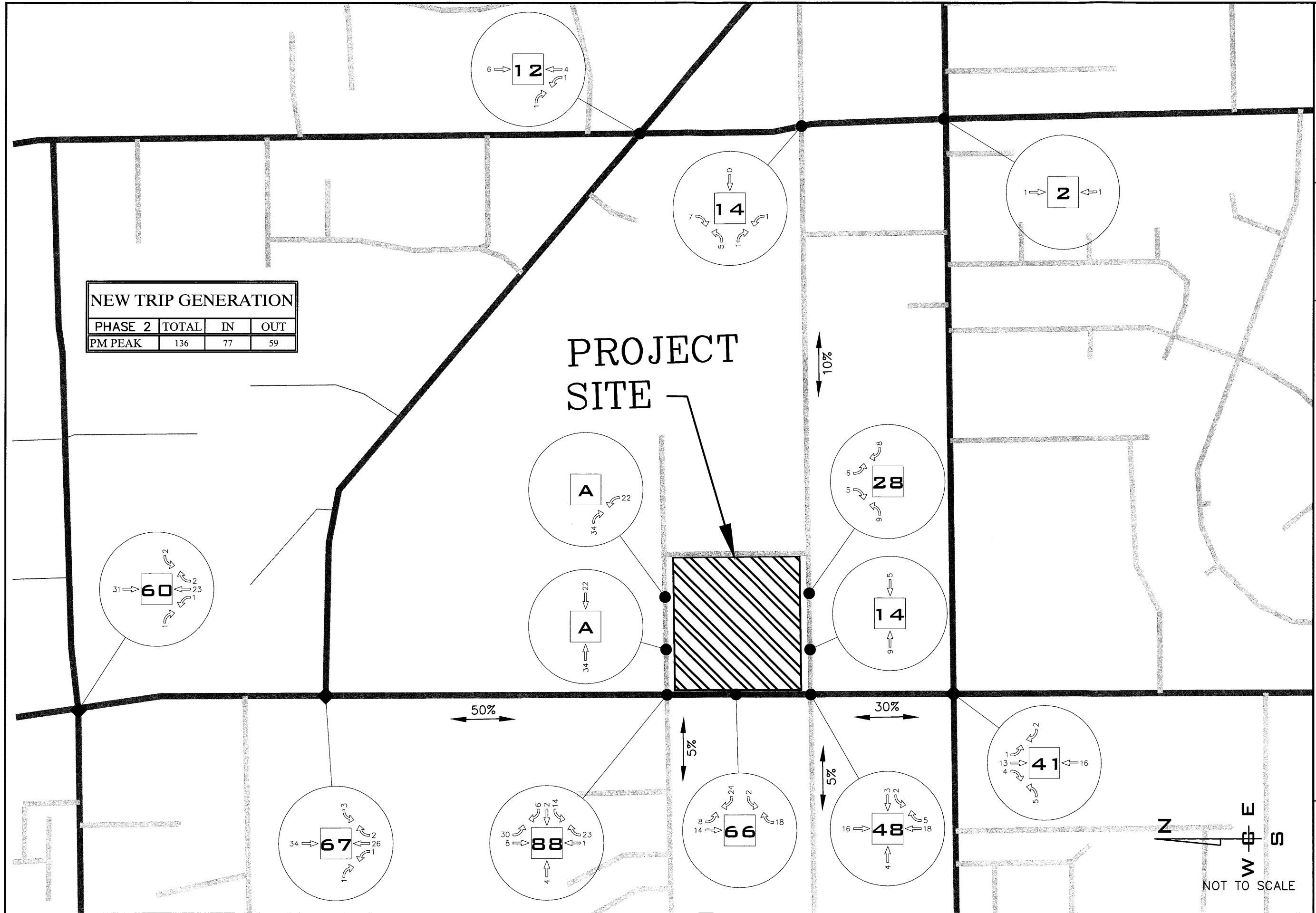
TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON

FIGURE
5

NOT TO SCALE

NEW TRIP GENERATION			
PHASE 2	TOTAL	IN	OUT
PM PEAK	136	77	59

PROJECT SITE

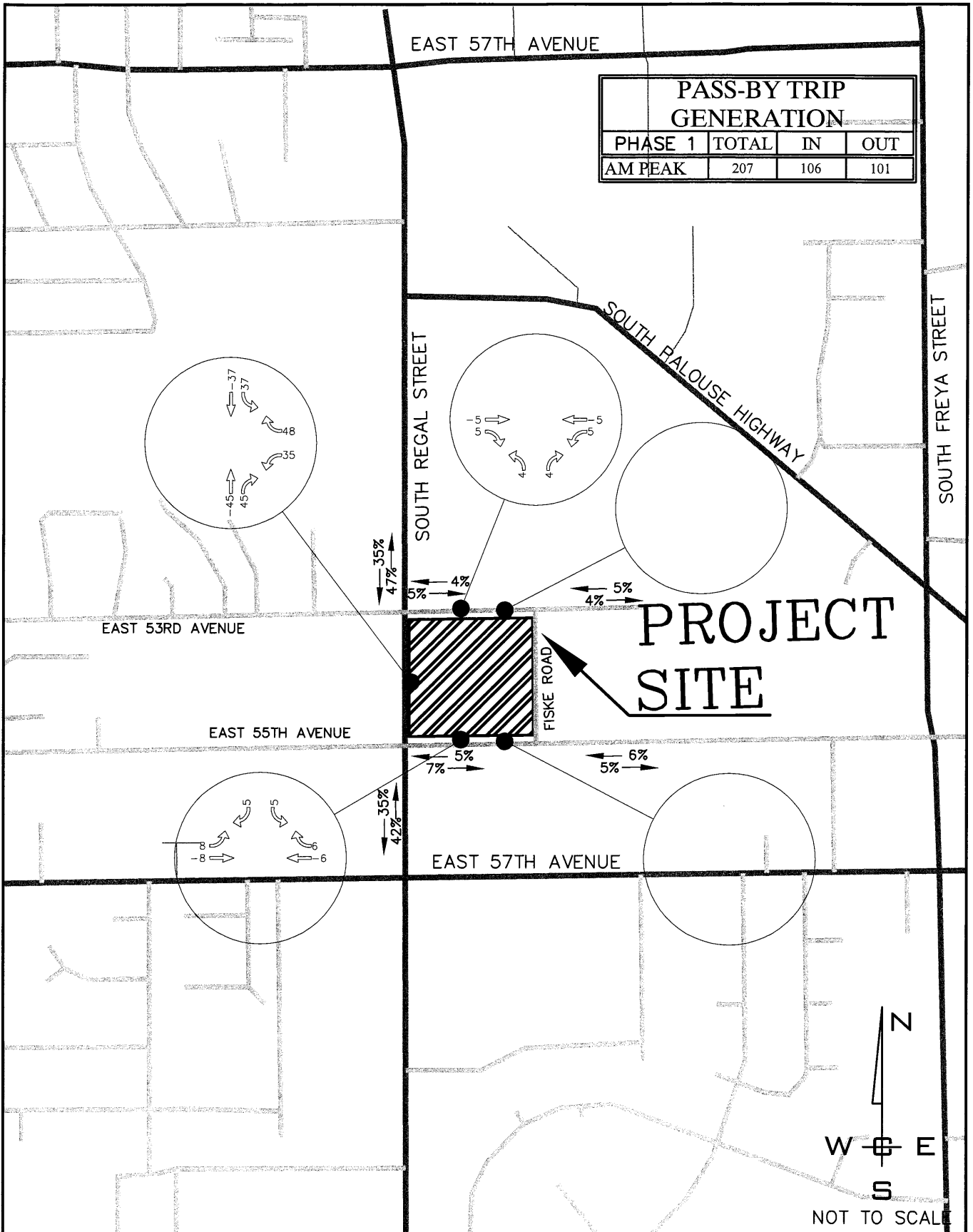


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TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON

FIGURE
6



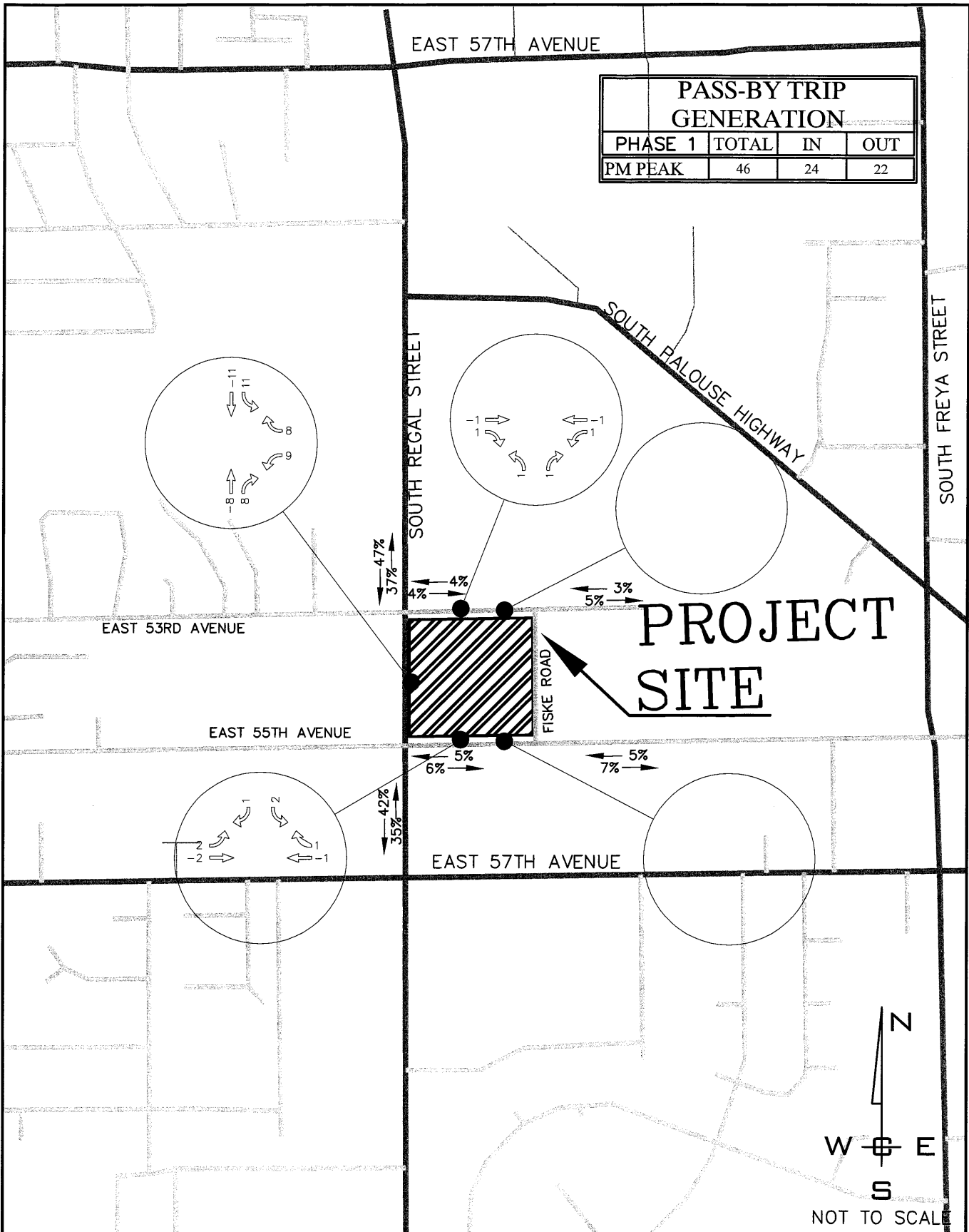
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FIGURE 7

AM PASS-BY TRIP DISTRIBUTION



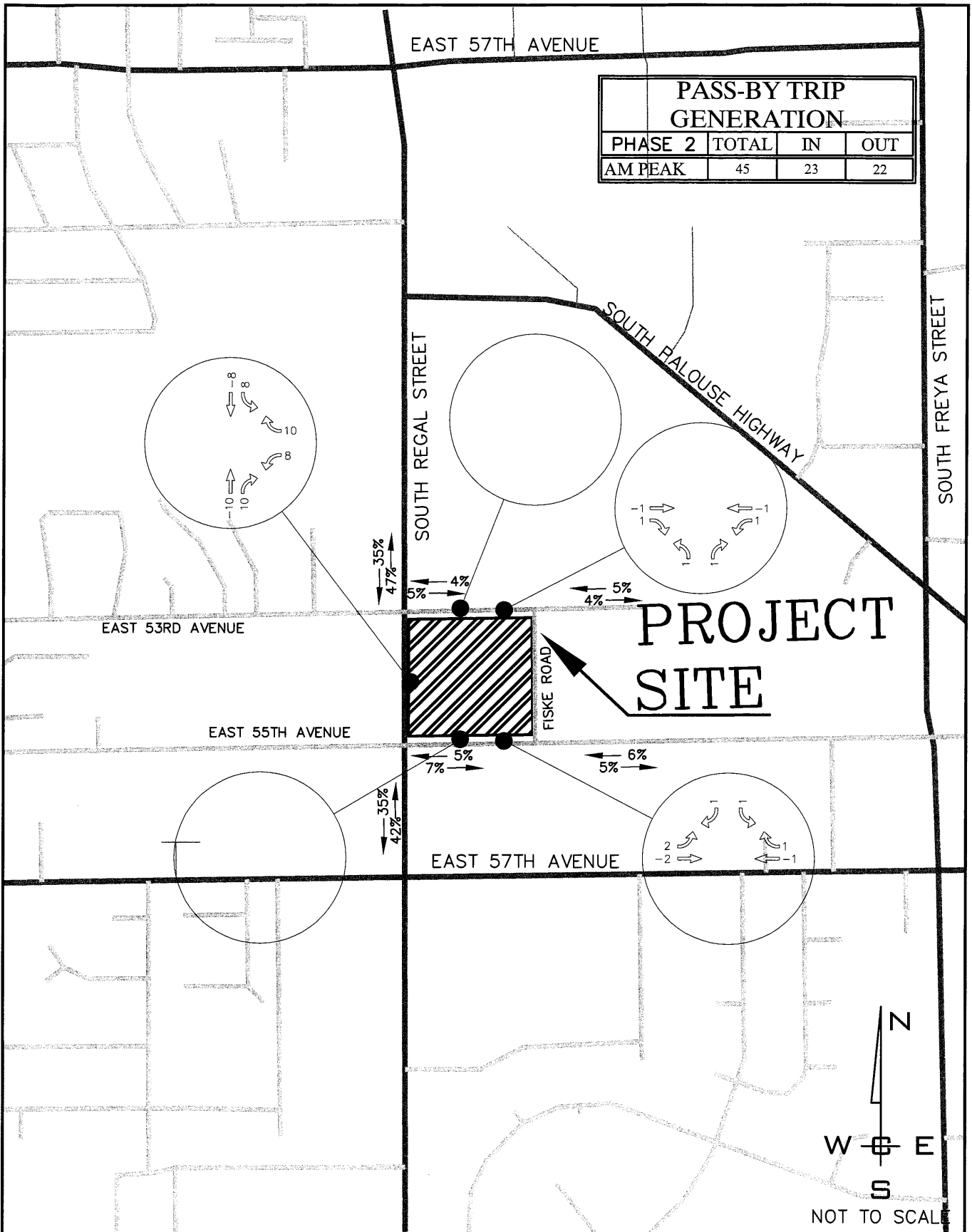
PROJ #: 15-1537
 DATE: 10/18/16
 DRAWN: BNG
 APPROVED: TRW

TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD
 STREET TO EAST 55TH STREET
 SPOKANE, WASHINGTON

WCE
 WHIPPLE CONSULTING ENGINEERS
 CIVIL AND TRANSPORTATION ENGINEERING
 2528 NORTH SULLIVAN ROAD
 SPOKANE VALLEY, WASHINGTON 99216
 PH: 509-893-2617 FAX: 509-926-0227

FIGURE 8

PM PASS-BY TRIP DISTRIBUTION



PASS-BY TRIP GENERATION			
PHASE 2	TOTAL	IN	OUT
AM PEAK	45	23	22

PROJECT SITE

PROJ #: 15-1537
 DATE: 10/18/16
 DRAWN: BNG
 APPROVED: TRW

TRIP GENERATION AND DISTRIBUTION
COMMONS ON REGAL
 SOUTH REGAL STREET & EAST 53RD
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FIGURE 9

AM PASS-BY TRIP DISTRIBUTION

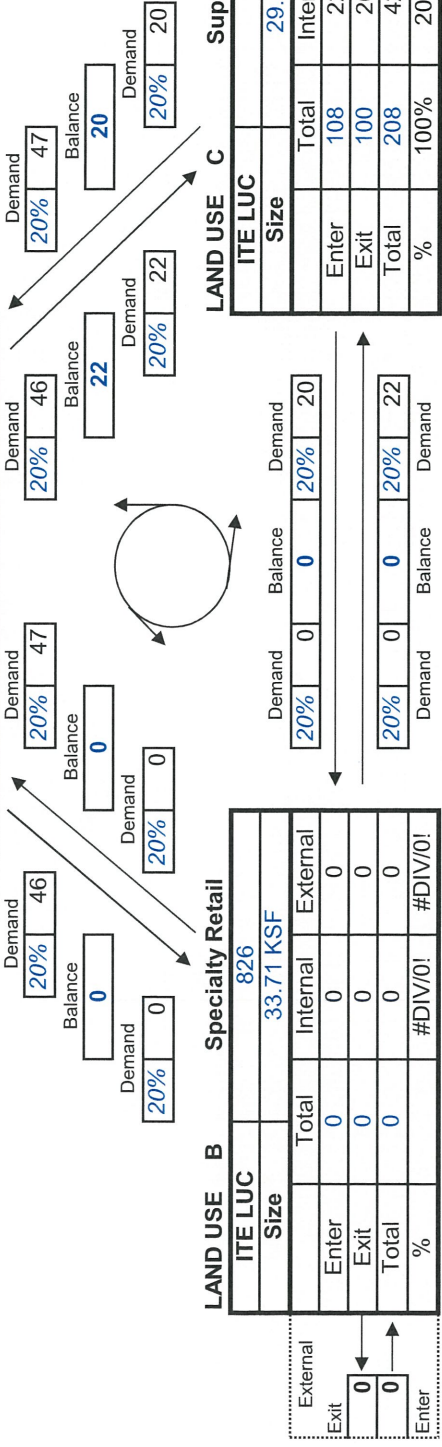
Whipple Consulting Engineers
 Multi-Use Trip Generation Worksheet
 Project Commons on Regal
 Project # 15-1537
 Analyst BNG
 Date 10/20/2016
 Peak Hour AM

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

LAND USE A Fast Food	
ITE LUC	Size
	934
	10.2 KSF
Total	237
Enter	20
Exit	22
Total	42
%	9%
	91%

LAND USE B Specialty Retail	
ITE LUC	Size
	826
	33.71 KSF
Total	0
Enter	0
Exit	0
Total	0
%	#DIV/0!

LAND USE C Super Market	
ITE LUC	Size
	850
	29.457 KSF
Total	108
Enter	22
Exit	20
Total	42
%	100%
	80%



Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	217	0	86	303
Exit	206	0	80	286
Total	423	0	166	589
Single-use Trip Gen Est.	465	0	208	673

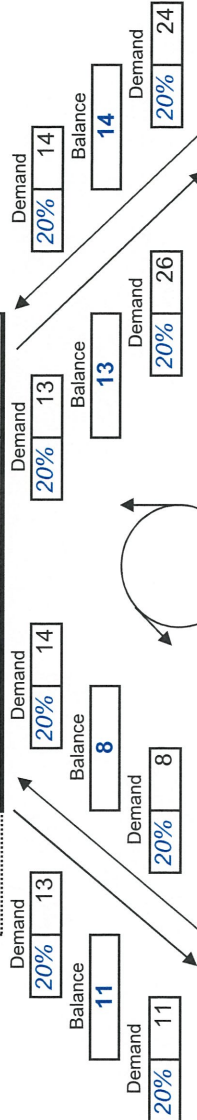
INTERNAL CAPTURE
12%

Whipple Consulting Engineers
 Multi-Use Trip Generation Worksheet
 Project Commons on Regal
 Project # 15-1537
 Analyst BNG
 Date 10/20/2016
 Peak Hour **PM**

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

LAND USE A		Fast Food	
ITE LUC	Size	Total	External
	934	10.2 KSF	
Enter	68	22	46
Exit	63	24	39
Total	131	46	85
%	100%	35%	65%

External	
Exit	39
Enter	46



LAND USE B		Specialty Retail	
ITE LUC	Size	Total	External
	826	33.71 KSF	
Enter	54	30	24
Exit	42	23	19
Total	96	53	43
%	100%	55%	45%

External	
Exit	19
Enter	24

LAND USE C		Super Market	
ITE LUC	Size	Total	External
	850	29.457 KSF	
Enter	129	28	101
Exit	118	33	85
Total	247	61	186
%	100%	25%	75%

External	
Exit	118
Enter	129

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	46	24	101	171
Exit	39	19	85	143
Total	85	43	186	314
Single-use Trip Gen Est.	131	96	247	474

INTERNAL CAPTURE 34%

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.789897961
R Square	0.623938789
Adjusted R Square	0.498585053
Standard Error	18.08263077
Observations	17

ANOVA					
	df	SS	MS	F	Significance F
Regression	4	6510.103925	1627.525981	4.977424728	0.013417212
Residual	12	3923.778428	326.9815357		
Total	16	10433.88235			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-26.555	23.771	-1.117	0.286	-78.347	25.237	-78.347	25.237
Arterial ADT ('000s)	0.809	0.366	2.210	0.047	0.011	1.608	0.011	1.608
GSF (in KSF)	13.880	6.409	2.166	0.051	-0.083	27.843	-0.083	27.843
Transit Dist. (ft)	0.007	0.009	0.758	0.463	-0.013	0.026	-0.013	0.026
Transit Freq. (HFT = 1)	-9.460	10.686	-0.885	0.393	-32.743	13.822	-32.743	13.822

SUMMARY OUTPUT 2 (w/o Transit)

Regression Statistics	
Multiple R	0.765822971
R Square	0.586484824
Adjusted R Square	0.527411227
Standard Error	17.55515533
Observations	17

ANOVA					
	df	SS	MS	F	Significance F
Regression	2	6119.313651	3059.656826	9.928036502	0.002067475
Residual	14	4314.568701	308.1834787		
Total	16	10433.88235			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-41.065	18.796	-2.185	0.046	-81.379	-0.752	-81.379	-0.752
Arterial ADT ('000s)	0.811	0.351	2.310	0.037	0.058	1.565	0.058	1.565
GSF (in KSF)	18.349	4.637	3.957	0.001	8.404	28.293	8.404	28.293

Final Equation

Fast Casual Trip = 18.35*KSF+0.81*ADT-41.07

$$\begin{aligned}
 &P = 62.83 \\
 &C = 62.83 \\
 &\quad \underline{\quad} \\
 &\quad 125.66 \\
 &\quad 46.91 \\
 &\quad \underline{\quad} \\
 &\quad 172.57 \\
 &\quad - \text{Pass By} -
 \end{aligned}$$

Fast Casual Trip Data

General Description:

Made to order food at an establishment with no wait staff, possible drive-thru, dine-in seating

PM Peak

Location	Address	Date	Arterial ADT ('000s)		GSF (in KSF)	Transit Dist. (ft)	Transit Freq. (HFT = 1)		Total Trips		Trip Rate		Exit	
			Arterial ADT ('000s)	GSF (in KSF)			Transit Freq. (HFT = 1)	Transit Dist. (ft)	Enter	Exit	Enter	Exit	Enter	Exit
Blaze Pizza	926 N Division	7/28/2016	50	2.325	750	1	22	14	8	9.5	60%	40%		
Chipotle	926 N Division	7/28/2016	50	2.19	750	1	66	32	34	30.1	50%	50%		
Dickey's BBQ Pit	12628 N Division	7/28/2016	28.5	3.481	2000	1	35	18	17	10.1	50%	50%		
Panera Bread	15716 E Indiana Ave	7/28/2016	35	5.017	1400	0	93	52	41	18.5	60%	40%		
Five Guys Burgers	9502 N Newport Hwy	7/28/2016	20	2.685	300	1	24	11	13	8.9	50%	50%		
Blaze Pizza	926 N Division	8/18/2016	50	2.325	750	1	55	33	22	23.7	60%	40%		
Chipotle	926 N Division	8/18/2016	50	2.19	750	1	58	27	31	26.5	50%	50%		
Dickey's BBQ Pit	12628 N Division	8/17/2016	28.5	3.481	2000	1	33	21	12	9.5	60%	40%		
Panera Bread	15716 E Indiana Ave	8/23/2016	35	5.017	1400	0	94	59	35	18.7	60%	40%		
Five Guys Burgers	9502 N Newport Hwy	8/17/2016	20	2.685	300	1	33	17	16	12.3	50%	50%		
MOD Pizza	3104 E Palouse Hwy	8/23/2016	19	2.4	1100	0	31	15	16	12.9	50%	50%		
Wingstop	9333 N Newport Hwy	8/10/2016	20	2.25	100	1	18	11	7	8	60%	40%		
Qdoba	901 S Grand Blvd	8/11/2016	16	3.15	200	1	19	10	9	6	50%	50%		
Qdoba	1120 N Division	8/10/2016	50	3.2	200	1	19	12	7	5.9	60%	40%		
Pita Pit	818 E Sharp	8/11/2016	28.7	1.6	300	1	14	7	7	8.8	50%	50%		
Schlotzky's	901 N Sullivan	8/10/2016	35	2.4	200	0	23	11	12	9.6	50%	50%		
Qdoba	1527 N Pines	8/11/2016	31	2.4	200	0	20	11	9	8.3	60%	40%		

*HFT = 15-min headways

