



July 2, 2020

**To: Jamie Thelen, Shakopee Housing Group, LLC
Steve Soltau, Shakopee Crossings, LP**

From: Vernon Swing, PE

Re: Trip Generation Study – Core Crossings Mixed Use, Shakopee, MN

Per your request, Swing Traffic Solutions, LLC has conducted a trip generation analysis for the proposed Core Crossings Mixed Use Development in Shakopee, MN, which will include a 61-unit mid-rise apartment building, a 27,636 square foot grocery store, a 4,000 square foot retail outlot with a 19,600 square foot retail strip style shopping center. The proposed mixed use development is located within the Shakopee Crossings Development. The Shakopee Crossing area is part of an AUAR Environmental review document completed in the early 2001, which included an extensive traffic study of the local and regional roadways. The AUAR considered development occurring in 7 distinct subareas (see attached Figure reproduced from the AUAR Traffic Study). The proposed Core Crossings Mixed Use site will be located in the subarea identified as Northeast, which also currently includes a Home Improvement Store, a Multi-Plex Theatre, a Coffee and Bagel shop, McCoys Copper Pint sit-down restaurant, a Park and Ride lot, a church, and a planned 365-unit mid-rise apartment complex, of which 100-units are currently built. This memorandum identifies the anticipated site generated traffic for the proposed use combined with the current uses, and compares the findings with the anticipated traffic forecast for the Northeast subarea as document in the Shakopee Crossings AUAR.

Trip Generation

The trip generation for the proposed Core Crossings development has been estimated based on the methodology described by the Institute of Transportation Engineers (ITE) in *Trip Generation*, 10th Edition. Further, different developments generate trips with different purposes, for example an office development generates trips that are destined to the office while a convenience store generates trips that are on their way to a primary destination, but stop as they are passing by for gas or convenience items making trips referred to as pass-by trips. Or shopping centers with restaurants, banks and large retail anchors generate trips individually that they share with the neighboring developments. In other words, a visitor to Home Depot may also visit the coffee outlot and eat at the bagel restaurant outlot. The Core Crossings Mixed Use includes a mid-rise apartment which corresponds with ITE Land Use Code 221, a grocery store which corresponds with Land Use Code 850, and a strip retail shopping center (including the 4,000 square foot retail outlot) which corresponds with Land Use Code 820. Also, to be consistent with the Shakopee Crossings AUAR, the trip generation estimates have been adjust for shared traffic at a rate of 20 percent, and for pass-by traffic for the retailers at a rate of 20 percent. Table 1 summarizes the findings.



STS
Swing Traffic Solutions

Table 1
Trip Generation

Land Use	ITE Code	AM Peak Hour		PM Peak Hour		Daily Trips
		Enter	Exit	Enter	Exit	
Mid Rise Apartments	221	6 Trips	16 Trips	16 Trips	11 Trips	332 Trips
Grocery	850	63 Trips	42 Trips	130 Trips	125 Trips	2,950 Trips
Retail Strip and Outlot	820	14 Trips	8 trips	43 Trips	47 Trips	891 Trips
SUBTOTAL		83 Trips	66 Trips	189 Trips	183 Trips	4,173 Trips
<i>Shared Traffic Adjustment</i>		<i>-17 Trips</i>	<i>-13 Trips</i>	<i>-38 Trips</i>	<i>-37 Trips</i>	<i>-835 Trips</i>
<i>Pass-by Traffic Adjustment</i>		<i>-15 Trips</i>	<i>-10 Trips</i>	<i>-35 Trips</i>	<i>-34 Trips</i>	<i>-768 Trips</i>
TOTAL Net Trips		51 Trips	43 Trips	116 Trips	112 Trips	2,570 Trips

As shown in Table 1, the site is estimated to generates 51 net entering and 43 net exiting trips during the morning traffic peak, 116 net entering and 112 net entering trips during the afternoon traffic peak hour, and 2,570 net trips per day.

To compare these estimated trips with the trips forecast for the Northeast Area, it is first necessary to include the trips associated with the other developments in the Northeast Area. As mentioned above the Northeast Area is partially developed including: A Home Improvement Store, a Multi-Plex Theatre, a Coffee and Bagel shop, a restaurant, a Park and Ride lot, a church, and a 100-unit mid-rise apartment complex (as 365 units are planned in the ultimate build-out the total for 365 unit trips are assumed). Table 2 summarizes the trip generation for the existing land uses based again on the ITE methodology. It is noted the coffee and bagel shop and McCoys Copper Pint are considered restaurants and per the AUAR their pass-by trip adjustment is 37 percent.

Table 2
Trip Generation

Land Use	ITE Code	AM Peak Hour		PM Peak Hour		Daily Trips
		Enter	Exit	Enter	Exit	
Home Improvement Store	862	107 Trips	81 Trips	162 Trips	182 Trips	3,689 Trips
Move Multiplex	445	n/a	n/a	30 Trips	50 trips	-
Coffee/Bagel	937	106 Trips	103 Trips	51 Trips	51 Trips	1,928 Trips
Quality Restaurant	931	-	-	26 Trips	13 Trips	419 Trips
Park and Ride Lot	90	166 Trips	44 Trips	54 Trips	161 Trips	1,408 Trips
Mid Rise Apartments	221	34 Trips	97 Trips	98 Trips	63 Trips	1,986 Trips
SUBTOTAL		413 Trips	325 Trips	421 Trips	520 Trips	9,430 Trips
<i>Shared Traffic Adjustment</i>		<i>-83 Trips</i>	<i>-65 Trips</i>	<i>-89 Trips</i>	<i>-106 Trips</i>	<i>-1,957 Trips</i>
<i>Pass-by Traffic Adjustment</i>		<i>-61 Trips</i>	<i>-58 Trips</i>	<i>-54 Trips</i>	<i>-71 Trips</i>	<i>-1,504 Trips</i>
TOTAL Net Trips		270 Trips	202 Trips	278 Trips	343 Trips	5,969 Trips

The proposed Core Crossings Mixed Use development combined with the existing uses in the Northeast Area results in 321 entering trips and 245 exiting trips during the morning traffic peak hour, 394 entering trips and 455 exiting trips during the afternoon traffic peak hour and 8,539 daily trips.

The AUAR anticipated different land uses for the Northeast area, including a 600,000 square foot corporate campus, 120 townhomes, and a 150,000 square foot general office building. These uses had



Swing Traffic Solutions

very intense peaking characteristics which required the roadways serving the area to be built with additional lanes in each direction to accommodate the anticipated demand. The adjust trip generation reported in the Shakopee Crossings AUAR was 845 trips entering and 109 trips exiting during the morning traffic peak hour, 141 trips entering and 776 exiting trips during the afternoon traffic peak hour, and 5,719 daily trips. In other words, the roads were built to accommodate 845 inbound trips and 776 exiting trips so the land uses studied could be successful. The current land uses combined with the proposed Core Crossings Mixed Use development will generate less traffic than has been planned for during the critical traffic peak times. Therefore, the existing roadway network has sufficient capacity to accommodate the proposed development.

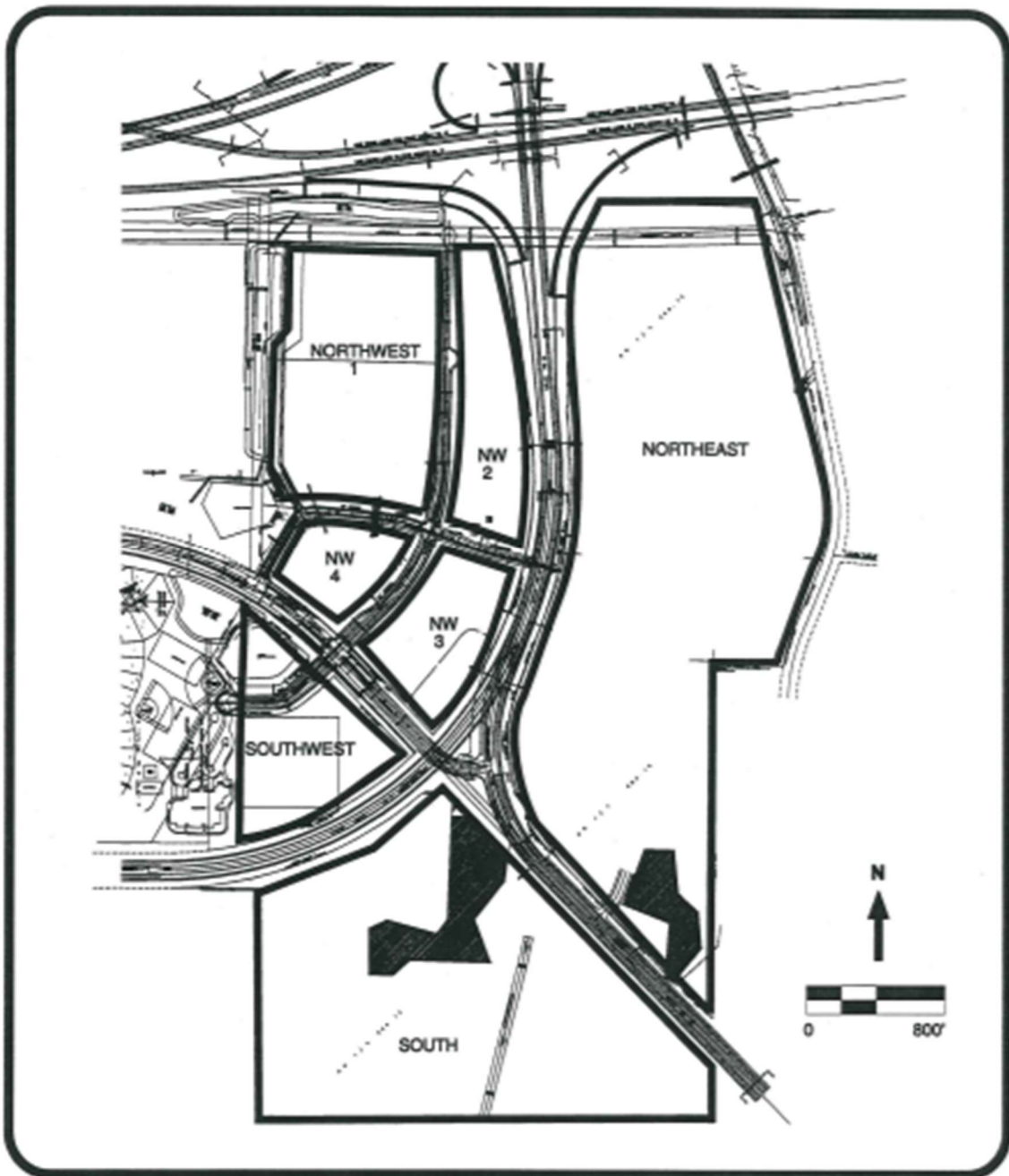
In conclusion, the development will generate less peak hour traffic than initially anticipated for the area and has appropriate access to the site and to the surrounding roadway network. In other words, the roadway network serving the proposed development will function well with the proposed addition of the Core Crossings Mixed Use development to the Shakopee Crossings area.

Please contact Vernon Swing at vswingtraffic@gmail.com or 612-968-4142 with any questions.



STS

Swing Traffic Solutions



SHAKOPEE CROSSINGS



BENSHOOF & ASSOCIATES, INC.
TRANSPORTATION ENGINEERS AND PLANNERS

TRAFFIC STUDY FOR
SHAKOPEE CROSSINGS
DEVELOPMENT ACCESS

FIGURE 3

TRIP GENERATION
SUB-AREAS



STS

Swing Traffic Solutions

TABLE 1
AM PEAK HOUR TRIP GENERATION FOR SHAKOPEE CROSSINGS

Land Use	Size	Gross		Internal		Pass-by		Net New	
		In	Out	In	Out	In	Out	In	Out
Northeast									
Corporate Campus	600,000 sq. ft	820	62	164	12	0	0	656	49
Townhomes	120 Units	10	43	2	9	0	0	8	35
Office	150,000 sq. ft.	227	31	45	6	0	0	181	25
		1057	136	211	27	0	0	845	109
South									
Townhomes	360 Units	29	130	6	26	0	0	23	104
Retail	150,000 sq. ft.	95	61	19	12	19	12	57	36
		124	191	25	38	19	12	80	140
Southwest									
Townhomes	114 Units	9	41	2	8	0	0	7	33
Retail	7,000 sq. ft.	4	3	1	1	1	1	3	2
Pharmacy w/ Drive-up	18,000 sq. ft.	27	21	5	4	8	6	14	10
School	700 Students	120	83	24	17	0	0	96	67
		160	148	32	30	9	7	120	112
Northwest 1									
Home Improvement	135,000 sq. ft.	108	92	22	18	22	18	65	55
Discount Superstore	225,000 sq. ft.	211	203	42	41	42	41	127	122
Gas	12 VFP	60	60	12	12	30	30	18	18
		379	355	76	71	94	89	210	195
Northwest 2									
Hotel	70 Rooms	27	20	5	4	0	0	22	16
Fast Food	4,000 sq. ft.	102	98	20	20	41	39	41	39
Restaurant	18,000 sq. ft.	87	80	17	16	26	24	43	40
Retail	12,000 sq. ft.	8	5	2	1	2	1	5	3
		224	203	44	41	69	64	111	98
Northwest 3									
Daycare	12,500 sq. ft.	84	75	17	15	17	15	51	45
Bank	6,000 sq. ft.	29	22	6	4	6	4	17	13
Gas/Convenience	12 VFP	60	60	12	12	30	30	18	18
Retail	54,000 sq. ft.	34	22	7	4	7	4	20	13
		207	179	42	35	60	53	106	89
Northwest 4									
Retail	68,450 sq. ft.	43	28	9	6	9	6	26	17
		43	28	9	6	9	6	26	17
Total		2194	1240	439	248	260	231	1498	760



STS

Swing Traffic Solutions

TABLE 2

PM PEAK HOUR TRIP GENERATION FOR SHAKOPEE CROSSINGS

Land Use	Size	Gross		Internal		Pass-by		Net New	
		In	Out	In	Out	In	Out	In	Out
Northeast									
Corporate Campus	600,000 sq. ft	92	742	18	148	0	0	73	594
Townhomes	120 Units	42	23	8	5	0	0	34	18
Office	150,000 sq. ft.	42	205	8	41	0	0	34	164
		176	970	34	194	0	0	141	776
South									
Townhomes	360 Units	126	68	25	14	0	0	101	54
Retail	150,000 sq. ft.	314	340	63	68	63	68	189	204
		440	408	88	82	63	68	290	258
Southwest									
Townhomes	114 Units	40	22	8	4	0	0	32	17
Retail	7,000 sq. ft.	15	16	3	3	3	3	9	10
Pharmacy w/ Drive-up	18,000 sq. ft.	92	95	18	19	28	29	46	48
School	700 Students	77	91	15	18	0	0	62	73
		224	224	44	44	31	32	149	148
Northwest 1									
Home Improvement	135,000 sq. ft.	182	205	36	41	36	41	109	123
Discount Superstore	225,000 sq. ft.	421	438	84	88	84	88	253	263
Gas	12 VFP	80	80	16	16	40	40	24	24
		683	723	136	145	160	169	386	410
Northwest 2									
Hotel	70 Rooms	24	25	5	5	0	0	19	20
Fast Food	4,000 sq. ft.	70	64	14	13	28	26	28	26
Restaurant	18,000 sq. ft.	117	78	23	16	35	23	59	39
Retail	12,000 sq. ft.	25	27	5	5	5	5	15	16
		236	194	47	39	68	54	121	101
Northwest 3									
Daycare	12,500 sq. ft.	78	87	16	17	16	17	47	52
Bank	6,000 sq. ft.	60	63	12	13	12	13	36	38
Gas/Convenience	12 VFP	80	80	16	16	40	40	24	24
Retail	54,000 sq. ft.	113	123	23	25	23	25	68	74
		331	353	67	71	91	95	175	188
Northwest 4									
Retail	68,450 sq. ft.	143	155	29	31	29	31	86	93
		143	155	29	31	29	31	86	93
Total		2233	3027	445	606	442	449	1348	1974



STS

Swing Traffic Solutions

**TABLE 3
DAILY TRIP GENERATION FOR SHAKOPEE CROSSINGS**

Land Use	Size	Gross	Internal	Pass-by	Net New
Northeast					
Corporate Campus	600,000 sq. ft.	4632	926	0	3706
Townhomes	120 Units	703	141	0	563
Office	150,000 sq. ft.	1812	362	0	1450
		7147	1429	0	5719
South					
Townhomes	360 Units	2110	422	0	1688
Retail	150,000 sq. ft.	6438	1288	1288	3863
		8548	1710	1288	5551
Southwest					
Townhomes	114 Units	668	134	0	534
Retail	7,000 sq. ft.	300	60	60	180
Pharmacy w/ Drive-up	18,000 sq. ft.	1587	317	476	793
School	700 Students	714	143	0	571
		3269	654	536	2078
Northwest 1					
Home Improvement	135,000 sq. ft.	4732	946	946	2839
Discount Superstore	225,000 sq. ft.	10566	2113	2113	6340
Gas	12 VFP	1953	391	977	586
		17251	3450	4036	9765
Northwest 2					
Hotel	70 Rooms	624	125	0	500
Fast Food	4,000 sq. ft.	1984	397	794	794
Restaurant	18,000 sq. ft.	2346	469	704	1173
Retail	12,000 sq. ft.	515	103	103	309
		5469	1094	1601	2776
Northwest 3					
Daycare	12,500 sq. ft.	991	198	198	594
Bank	6,000 sq. ft.	854	171	171	512
Gas/Convenience	12 VFP	1953	391	977	586
Retail	54,000 sq. ft.	2318	464	464	1391
		6116	1224	1810	3083
Northwest 4					
Retail	68,450 sq. ft.	2938	588	588	1763
		2938	588	588	1763
Total		50738	10149	9859	30735