Archaeological Resources

Airport Vicinity Development Checklist

Parking Study

Trip Generation Comparison

Parking Master Plan

CivTech

Expires 30 JUN 22

April 21, 2020

Mr. Chuck Chisholm
K. Hovnanian Phoenix Division, Inc.
20830 North Tatum Boulevard, Suite 250
Phoenix, Arizona 85050

RE: TRAFFIC STATEMENT FOR MULTIFAMILY DEVELOPMENT NORTH SIDE OF OAK STREET ROAD WEST OF 64TH STREET – SCOTTSDALE, ARIZONA

Dear Mr. Chisholm:

Thank you for engaging CivTech to prepare this traffic statement for the proposed multifamily housing development, proposed to redevelop four existing parcels as 89 dwelling units (DUs) of multifamily residential housing, located on the north side of Oak Street west of 64th Street in the City of Scottsdale, Arizona.

The existing four parcels include approximately 8.14 acres of office space (currently occupied by Vitalant Blood Bank) zoned as Service Residential (SR), approximately 1.38 acres of vacant land zoned as SR, and approximately 0.28 acres zoned as Single-Family Residential (R1-10). The proposed project would combine the four parcels into a single development under the zoning of Medium Density Residential District (R-3). There is a single proposed full access driveway for the site located on Oak Street. The vicinity of the site is shown in **Figure 1**. The proposed site plan is included as an **Attachment A**.

FIGURE 1 – VICINITY MAP

EXISTING CONDITIONS

Existing Land Use

As mentioned previously, the existing four parcels include approximately 8.14 acres of office land use (currently occupied by the Vitalant Blood Bank) zoned as SR, approximately 1.38 acres of vacant land zoned as SR, and approximately 0.28 acres zoned as R1-10. Utilizing an assumed Floor Area Ratio (FAR) of 0.3, over the 9.52 acres zoned as SR, results in approximately 124,000 SF of existing office space. There is also one (1) vacant lot of single family residential housing.

Existing Roadway Network

64th Street is a north-south 4-lane roadway classified as a minor arterial by the City of Scottsdale. Within the vicinity of the site, 64th Street has two (2) through lanes and a bike in each direction of travel separated by a raised median. Just north of the intersection of 64th Street and Oak Street, and on the east side of 64th Street, a local two (2) lane frontage roadway with one (1) through lane in each direction of travel is separated from the arterial 64th Street by a concrete wall. The posted speed limit for the 64th Street minor arterial is 40 miles per hour (mph). The posted speed limit for the 64th Street local street is 25 mph.

Oak Street is an east-west 2-lane roadway classified as a minor arterial roadway by the City of Scottsdale. Within the vicinity of the site, Oak Street has one (1) through lane and a bike lane in each direction of travel. The posted speed limit is 30 mph.

Existing Site Access

The current development has four (4) existing site driveways along Oak Street that provide access to the existing Vitalant Blood Bank facility. All four driveways provide full movement access. The first driveway is located in the east side of the existing facility on Oak Street approximately 665 feet west of 64th Street and will be removed upon build out. The second driveway is located approximately 830 feet west of 64th Street and will be reconfigured upon build out. The third driveway is located approximately 1,025 feet west of 64th Street and will be removed upon build out. The fourth driveway is located approximately 1,259 feet west of 64th Street and will also be removed upon buildout.

PROPOSED DEVELOPMENT

Proposed Land Use

The proposed development will consist of 89 DUs of multifamily housing and will be located north of Oak Street west of 64th Street in the City of Scottsdale, Arizona. The land is currently occupied by approximately 8.14 acres of office space zoned as Service Residential (SR), approximately 1.38 acres of vacant land zoned as SR, and approximately 0.28 acres zoned as Single-Family Residential (R1-10).

Site Access

There is a single proposed full access driveway located on Oak Street approximately 840 feet west of 64th Street. The existing driveway at this location will be reconfigured for the proposed project. The driveway will be one way stop controlled, with a stop sign on the southbound approach, while the eastbound and westbound approaches remain free-flow.

Adjacent Street Volumes

CivTech reached out to the City of Scottsdale for the most recent 24-hour directional traffic counts on Oak Street. The City of Scottsdale conducted a traffic count on January 14, 2020 for each approach of the intersection of 64th Street and Oak Street. For the purpose of this project, CivTech is analyzing the roadway adjacent to the site; which is the eastbound and westbound approaches along Oak Street. The AM and PM peak hour bi-directional counts are indicated in **Figure 2**. The traffic count data sheets are provided in **Attachment B**.

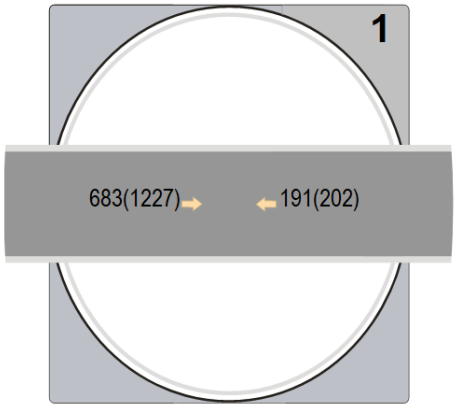


FIGURE 2 – ADJACENT STREET VOLUMES AM(PM)

Trip Generation

The potential trip generation for the proposed development was estimated utilizing the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* and *Trip Generation Handbook, 3rd Edition*. The ITE *Trip Generation Manual* contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The report provides information for daily and peak hour trips.

The existing scenario land use code (LUC) for the single-family home is LUC 210 and for the General Office Building is LUC 710.

The proposed development will consist of 89 multifamily homes. The LUC for multifamily homes is LUC 221. The trip generation comparison for the existing development and the proposed development is summarized in **Table 1**. Detailed trip generation calculations are included as an **Attachment C**.

TABLE 1 – TRIP GENERATION AND COMPARISON

Proposed Use	ITE LUC	Size Units*	Daily Total	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Original Build Scenario									
Single-Family Homes	210	1 DU	16	2	4	6	1	0	1
General Office Building	710	127 KSF	1,308	123	20	143	22	118	140
Total External Trips			**1,324**	**125**	**24**	**149**	**23**	**118**	**141**
Proposed Build Scenario									
Multifamily (Mid-Rise) Housing	221	89 DUs	484	8	23	31	24	16	40
Total External Trips			**484**	**8**	**23**	**31**	**24**	**16**	**40**
Difference of Total Trips (Proposed - Original)			**-840**	**-117**	**-1**	**-118**	**1**	**-102**	**-101**

* KSF = 1,000 Square Feet; DUs = Dwelling Units

As summarized in **Table 1**, the proposed development is anticipated to generate 484 weekday daily trips with 31 trips occurring (8 in/23 out) during the AM peak hour and 40 trips occurring (24 in/16 out) during the PM peak hour. Comparing the trip generations from the existing land uses to the proposed land use, the proposed development is anticipated to generate 840 fewer weekday daily trips with 118 fewer trips occurring (-117 in/-1 out) during the AM peak hour and 101 fewer trips occurring (1 in/-102 out) during the PM peak hour.

CONCLUSIONS

From the above, the following can be conducted:

- The project is proposed to redevelop four existing parcels as 89 dwelling units (DUs) of multifamily residential housing replacing the existing four parcels that include approximately 8.14 acres of office space (currently occupied by Vitalant Blood Bank), zoned as Service Residential (SR), approximately 1.38 acres of vacant land, zoned as SR, and approximately 0.28 acres, zoned as Single-Family Residential (R1-10).

- The proposed development is anticipated to generate 484 weekday daily trips with 31 trips occurring (8 in/23 out) during the AM peak hour and 40 trips occurring (24 in/16 out) during the PM peak hour.

- Comparing the existing land use to the proposed land use, the proposed development is anticipated to generate 840 fewer weekday daily trips with 118 fewer trips occurring (-117in/-1 out) during the AM peak hour and 101 fewer trips occurring (1 in/-102 out) during the PM peak hour.

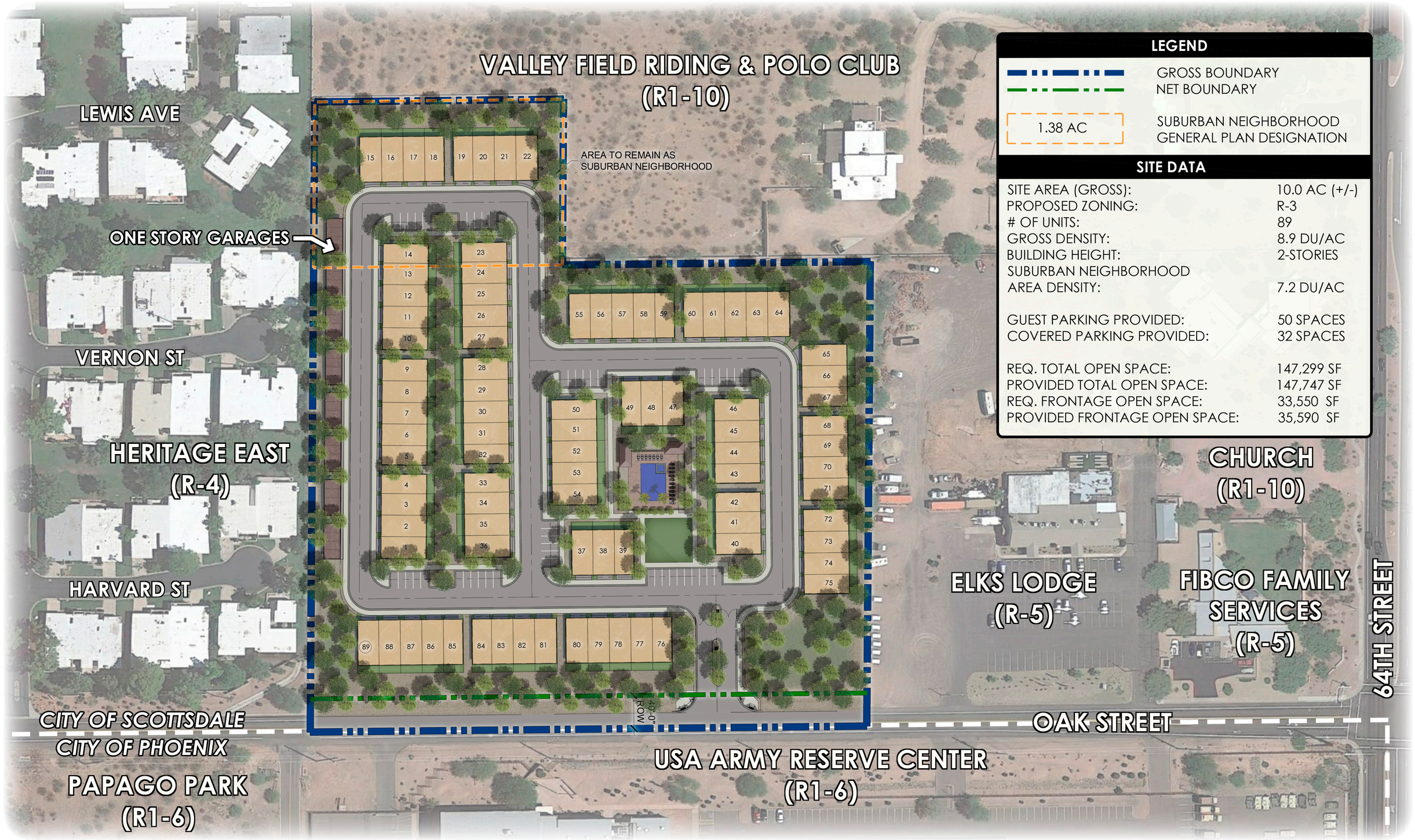
Thank you for allowing CivTech to assist you on this project. Please contact me with any questions you may have on this statement.

Sincerely,

CivTech

Benjamin A. Good, P.E., PTOE
Project Manager/Senior Traffic Engineer

Attachments (3)
A. Site Plan
B. Traffic Count Data
C. Trip Generation Calculation



RVi
120 S. Ash Avenue
Tempe, Arizona 85281
Tel: 480.994.0994
www.rviplanning.com
For illustrative purposes only. Subject to change without notice.

LUNA • CONCEPT PLAN

SCOTTSDALE, AZ
2020-03-05
19004481
K HOVNANIAN

K Hovnanian Homes

0 25' 50' 100'

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1				City of Scottsdale												Page 1	
2				7447 E. Indian School Rd. Suite 205													
3	Count by Tony			Scottsdale Az, 85251													
4	64th St. & Oak St.			Traffic Engineering										Site Code: 85			
5	1/13/2020													Station ID: 2			
6	App. Vol. EB																
7																	
8																	
9																	
10		13-Jan-20		Tue		Wed		Thu		Fri		Sat		Sun		Average Day	
11		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12	12:00		23	0	25	6										3	24
13	12:15		32	1	20	4										3	26
14	12:30		24	4	31	2										3	28
15	12:45		28	4	29	2										3	29
16	01:00		22	1	27	2										2	25
17	01:15		19	1	25	2										2	22
18	01:30		24	2	26	1										2	25
19	01:45		33	2	25	1										2	29
20	02:00		31	0	24	1										1	28
21	02:15		21	0	24	1										1	23
22	02:30		40	1	29	1										1	35
23	02:45		37	0	25	1										1	31
24	03:00		23	3	39	1										2	31
25	03:15		38	0	37	1										1	38
26	03:30		38	0	41	1										1	40
27	03:45		36	0	28	1										1	32
28	04:00		43	1	48	1										1	46
29	04:15		41	0	56	1										1	49
30	04:30		42	4	41	0										2	42
31	04:45		39	5	49	4										5	44
32	05:00		46	4	46	5										5	46
33	05:15		49	6	47	5										6	48
34	05:30		36	8	55	5										7	46
35	05:45		28	8	44	8										8	36
36	06:00		25	10	24	11										11	25
37	06:15		28	10	31	10										10	30
38	06:30		23	11	32	17										14	28
39	06:45		26	7	26	19										13	26
40	07:00		12	26	31	22										24	22
41	07:15		5	32	23	27										30	14
42	07:30		11	45	25	35										40	18
43	07:45		9	43	7	34										39	8
44	08:00		11	40	14	47										44	13
45	08:15		9	30	15	30										30	12
46	08:30		10	34	13											34	12
47	08:45		9	19	10											19	10
48	09:00		7	27	21											27	14
49	09:15		9	33	12											33	11
50	09:30	21	4	28	11											25	8
51	09:45	23	4	29	10											26	7
52	10:00	27	4	21	7											24	6
53	10:15	17	6	30	11											24	9
54	10:30	24	4	21	14											23	9
55	10:45	16	6	32	17											24	12
56	11:00	33	3	18	4											26	4
57	11:15	24	4	18	10											21	7
58	11:30	31	5	38	8											35	7
59	11:45	32	1	26	10											29	6
60	Total	248	1028	683	1227	309	0	0	0	0	0	0	0	0	0	677	1128
61	Day Total	1276		1910		309		0		0		0		0		1804	
62	% Splits	19.4%	80.6%	35.8%	64.2%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	62.5%
63																	
64																	
65	Peak	11:00	04:30	07:15	04:45	07:30										07:15	04:45
66	Vol.	120	176	160	197	146										152	184
67	P.H.F.	0.909	0.898	0.889	0.879	0.777										0.864	0.958

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1				City of Scottsdale												Page 1	
2				7447 E. Indian School Rd. Suite 205													
3	Count by Tony			Scottsdale Az, 85251													
4	64th St. & Oak St.			Traffic Engineering										Site Code: 85			
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7																	
8																	
9																	
10		13-Jan-20		Tue		Wed		Thu		Fri		Sat		Sun		Average Day	
11		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12	12:00		2	1	3	1										1	3
13	12:15		7	1	4	0										1	6
14	12:30		6	0	5	1										1	6
15	12:45		13	0	6	2										1	10
16	01:00		13	1	5	0										1	9
17	01:15		4	0	9	0										0	7
18	01:30		7	0	3	0										0	5
19	01:45		6	0	4	0										0	5
20	02:00		5	0	6	0										0	6
21	02:15		6	0	7	0										0	7
22	02:30		6	0	7	0										0	7
23	02:45		9	1	4	0										1	7
24	03:00		10	0	12	0										0	11
25	03:15		5	0	3	1										1	4
26	03:30		4	0	7	0										0	6
27	03:45		2	0	10	0										0	6
28	04:00		4	0	8	0										0	6
29	04:15		10	1	4	0										1	7
30	04:30		9	2	8	2										2	9
31	04:45		7	2	10	1										2	9
32	05:00		5	0	4	1										1	5
33	05:15		13	2	10	2										2	12
34	05:30		6	6	6	3										5	6
35	05:45		7	3	4	3										3	6
36	06:00		7	1	4	3										2	6
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41	07:15		1	8	1	10										9	1
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43	07:45		0	10	1	12										11	1
44	08:00		5	13	4	5										9	5
45	08:15		4	8	2	14										11	3
46	08:30		1	5	1											5	1
47	08:45		3	6	5											6	4
48	09:00		1	6	4											6	3
49	09:15		0	10	1											10	1
50	09:30		1	11	2											11	2
51	09:45	5	1	9	3											7	2
52	10:00	9	0	2	1											6	1
53	10:15	10	0	5	0											8	0
54	10:30	7	0	9	0											8	0
55	10:45	5	0	7	0											6	0
56	11:00	5	0	6	0											6	0
57	11:15	7	1	6	0											7	1
58	11:30	3	1	8	1											6	1
59	11:45	5	0	7	0											6	0
60	Total	56	216	191	202	96	0	0	0	0	0	0	0	0	0	191	209
61	Day Total	272		393		96		0		0		0		0		400	
62	% Splits	20.6%	79.4%	48.6%	51.4%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.7%	52.3%
63																	
64																	
65	Peak	09:45	00:15	07:15	03:00	07:30										07:30	04:30
66	Vol.	31	39	47	32	44										45	32
67	P.H.F.	0.775	0.750	0.734	0.667	0.786										0.804	0.667

NWC Oak and 64th Street

Proposed

Trip Generation

March 2020

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) *Trip Generation Manual*, 10th Edition and methodology described within ITE's *Trip Generation Handbook*, 3rd Edition. These references will be referred to as *Manual and Handbook*, respectively. The *Manual* contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The *Handbook* indicates an established methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size

Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
Homes	1.000	Dwelling Units	210	Single-Family Detached Housing
General Office Building	124	1,000 square feet	710	General Office Building
Apartments	89	Dwelling Units	221	Multifamily Housing (Mid-Rise)

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit." This assessment is used in Box 4. The *Manual* separates data into 4 setting categories - **Rural, General Urban/Suburban**, **Dense Multi-Urban Use** and **Center City Core**. This worksheet uses the following abbreviations, respectively: ***R***, ***G***, ***D***, and ***C***. The *Manual* does not have data for all settings of all land use codes. See the table on the next page titled "Site Context and Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.

Site Context and Time Periods - Actual Setting, Setting Data Available for LUC, Setting Used in Analyses

Proposed Use	Setting		ADT Available	ADT Used	AM Peak Hour Available	AM Peak Hour Used	PM Peak Hour Available	PM Peak Hour Used	(not used)		
Homes	General Urban/Suburbar	G	G	G	G	G	G	G			
General Office Building	General Urban/Suburbar	G	G	G	G D C	G	G D C	G			
Apartments	General Urban/Suburbar	G	G D	G	G D	G	G D	G			

If the desired setting is not available within the *Manual,* adjustments may be made in Boxes 6 through 8.

Box 4 - Is Study Site Multimodal?

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the *Box 5 through 8* approach is required if the study site is located in an infill setting, contains a mix of uses on-site, or is near significant transit service."

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the *Handbook* has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Equation Type: Equation Used [Equated Rate] (Type Abbreviations: Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C"))

Proposed Use	ADT	R^2	AM Peak Hour	PM Peak Hour	(not used)
Homes	: LN(T)=0.92*LN(X)+2.71 [15.	0.95	FC: T=0.71*X+4.8 [5.51]	FC: LN(T)=0.96*LN(X)+0.2 [1.22]	
General Office Building	: LN(T)=0.97*LN(X)+2.5 [10.5	0.83	FC: T=0.94*X+26.49 [1.15]	FC: LN(T)=0.95*LN(X)+0.36 [1.13]	
Apartments	FC: T=5.45*X-1.75 [5.43]	0.77	FC: LN(T)=0.98*LN(X)-0.98 [0.34]	FC: LN(T)=0.96*LN(X)-0.63 [0.45]	

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

Proposed Use	ADT				AM Peak Hour				PM Peak Hour				(not used)
	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total	
Homes	50%	8	8	16	25%	2	4	6	63%	1	0	1	
General Office Building	50%	654	654	1,308	86%	123	20	143	16%	22	118	140	
Apartments	50%	242	242	484	26%	8	23	31	61%	24	16	40	
Totals		**904**	**904**	**1,808**		**133**	**47**	**180**		**47**	**134**	**181**	

Box 6 - Convert Baseline Vehicle Trips to Person Trips

If no vehicle trip reductions are to be applied, this portion may be ignored. The *Handbook* states "There are not enough samples to derive precise percentages by mode...however, for all but one, ...the motor vehicle percentage of total person trips is at least 96 percent." and "[vehicle occupancy for] many of the most commonly analyzed land use codes are not [available]." This form assumes that the total baseline vehicle trips for all land use codes accounts fo 90% of total person trips. Unless otherwise specified, this form later reverses the conversion in Box 8.

Other Trips

Proposed Use	ADT			AM Peak Hour			PM Peak Hour			(not used)
	In	Out	Total	In	Out	Total	In	Out	Total	
Homes	8	8	16	2	4	6	1	0	1	
General Office Building	654	654	1,308	123	20	143	22	118	140	
Apartments	242	242	484	8	23	31	24	16	40	
Totals	**904**	**904**	**1,808**	**133**	**47**	**180**	**47**	**134**	**181**	

School District

Determination of Adequate Facilities

City of Scottsdale Project Number: 41 -PA- 2020

Project name: Luna on Oak
Project Location 6210 E. Oak Street
Applicant Name: John Berry Phone: 602-385-2727
Applicant E-mail: JB@BerryRiddell.com Fax: 602-385-2757

School District: Balsz Unified

I, _____ hereby certify that the following determination has been made in regards to the Referenced project:

- ⎦ The school district had adequate school facilities to accommodate the projected number of additional students generated by the proposed rezoning within the school district's attendance area; or
- ⎦ The school district will have adequate school facilities via a planned capital improvement to be constructed within one year of the date of notification of the district and located within the school district's attendance area; or
- ⎦ The school district has determined an existing or proposed charter school as contracted by the district can be provide adequate school facilities for the projected increase in students; or
- ⎦ The applicant and the school district have entered into an agreement to provide, or help to provide, adequate school facilities within the school district's attendance area in a timely manner (a copy said agreement is attached hereto); or
- ⎦ The school district does not have adequate school facilities to accommodate projected growth attributable to the rezoning.

Attached are the following documents supporting the above certification:

- ⎦ Maps of the attendance areas for elementary, middle and high schools for this location.
- ⎦ Calculations of the number of students that would be generated by the additional homes.
- ⎦ School capacity and attendance trends for the past three years.

Or;
I, _____, hereby request a thirty (30) day extension of the original discussion and response time.

_____ _____
Superintendent or Designee Date

3-GP-2020
4/30/2020