

SOLAEGUI
ENGINEERS

July 24, 2018

Amber Sosa
City of Sparks
431 Prater Way
Sparks, Nevada 89431

Re: Kiley Ranch North – Updated Trip Generation Letter

Dear Amber:

This letter contains the findings of our updated trip generation review of the proposed Kiley Ranch North development located in Sparks, Nevada. The project was previously studied in 2005. The approved project was updated in 2016. Further modifications to the land use map and summary table are proposed at this time. The 2016 approved uses generally included 1,514 multi-family units, 3,022 single family units, 3,825,026 square feet of commercial buildings, 3,369,453 square feet of office / business park buildings and a 700 student school. The 2016 Master Plan Land Use Designation Table and Land Use Map are attached. The proposed 2018 modified uses generally include 2,813 multi-family units, 1,385 single family units, 3,130,790 square feet of commercial buildings, 1,615,790 square feet of office / business park buildings and a 2,150 student school. The proposed 2018 Master Plan Land Use Designation Table and Land Use Map are also attached.

Trip generation calculations are based on the Ninth Edition of *ITE Trip Generation* (2012). The calculation sheets are attached for ITE land use #230 Condominium / Townhouse, #210 Single Family Detached Housing, #820 Shopping Center, #710 Office Building and #520 Elementary School. Table 1 shows the trip generation summary for the 2016 and 2018 uses.

TABLE 1
TRIP GENERATION

<u>LAND USE</u>	<u>ADT</u>	<u>AM PEAK HOUR TOTAL</u>	<u>PM PEAK HOUR TOTAL</u>
2016 Approved Uses			
Multi-Family Housing 1,514 Dwelling Units	6,840	454	558
Single Family Houses 3,022 Dwelling Units	24,163	2,125	2,258
Shopping Center 3,825,026 Square Feet	72,552	1,440	6,885
Office / Business 3,369,453 Square Feet	19,018	3,191	3,852
School (Elementary) 700 Students	903	315	105
Sub Total	123,449	7,825	13,658
2018 Proposed Uses			
Multi-Family Housing 2,813 Dwelling Units	11,726	745	927
Single Family Houses 1,385 Dwelling Units	11,787	979	1,119
Shopping Center 3,130,790 Square Feet	63,696	1,274	6,020
Office / Business 1,615,790 Square Feet	10,879	1,772	1,888
School (Elementary) 2,150 Students	2,774	968	323
Sub Total	100,862	5,738	10,277
Comparison	-22,587	-2,087	-3,381

As indicated in Table 1, trip generation totals for the 2016 approved uses totaled 123,449 average daily trips with 7,825 AM peak hour trips and 13,658 PM peak hour trips. Trip

generation totals for the 2018 proposed uses include 100,862 average daily trips with 5,738 AM peak hour trips and 10,277 PM peak hour trips. The 2018 proposed uses generate 22,587 fewer average daily trips with 2,087 fewer AM peak hour trips and 3,381 fewer PM peak hour trips. Since the trip totals went down in each study period no further traffic analysis is deemed necessary.

We trust that this information will be helpful to you. Please contact us if you have questions or comments.

Very truly yours,
SOLAEC ENGINEERS, LTD

A circular professional engineer seal for Paul W. Solaec, P.E., Civil Engineer, No. 7183, State of Nevada. The seal is partially obscured by a large, handwritten signature in blue ink.

Paul W. Solaec, P.E.

7-24-18
EXP 6-30-20

Enclosures
Letters/ Kiley Ranch North Trip Generation Letter 2

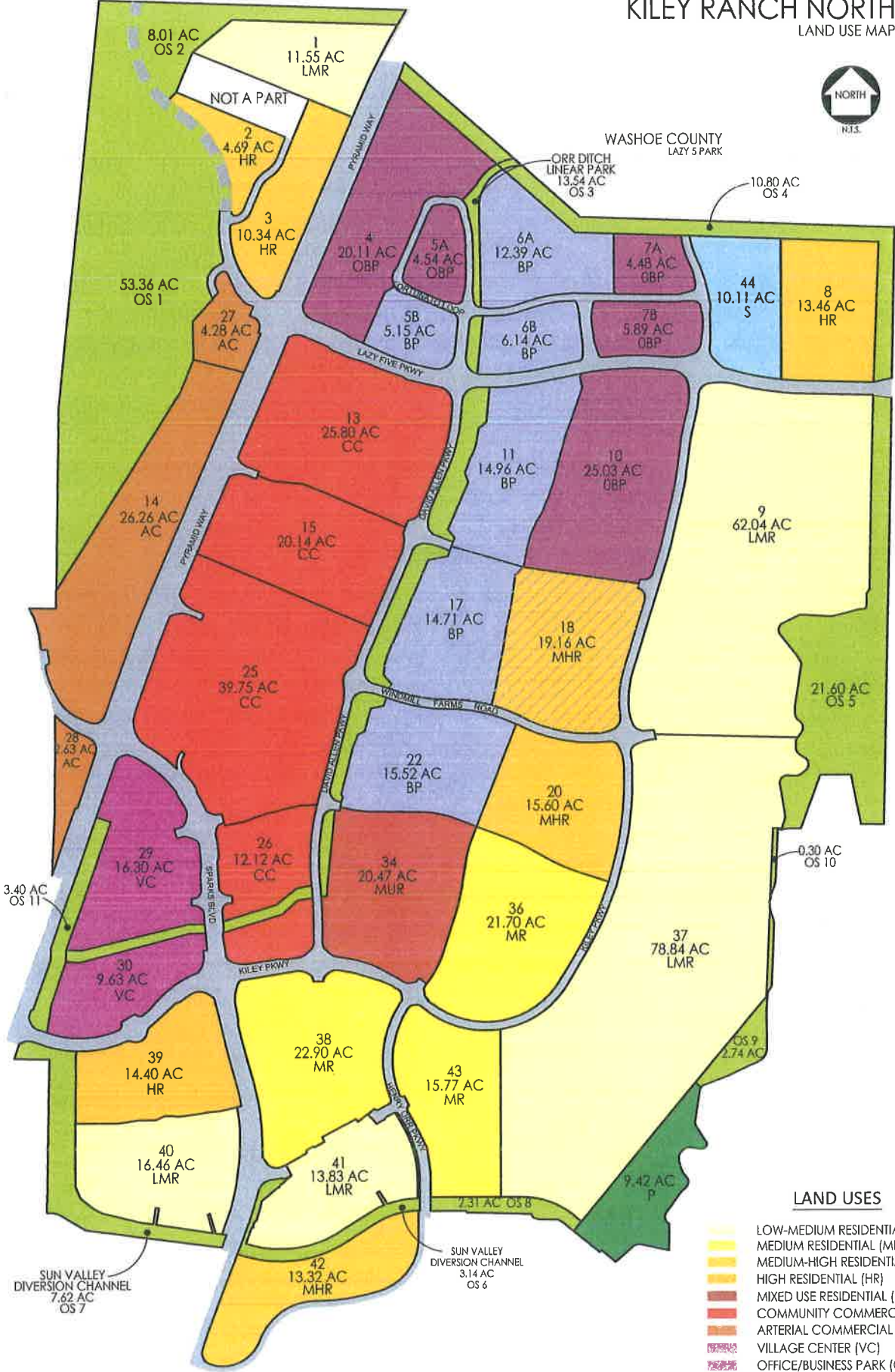
**Table 1-1: Master Plan Land Use Designation
Kiley Ranch North**

Land Use Designation			Gross Acres	Maximum Density or FAR	Permitted Total Units	Approx. Allowed Sq. Ft.	Required Open Space	Open Space Provided
RESIDENTIAL								
Low-Medium	4.0 – 7.9 du/ac	LMR	182.72	7.9 du/ac	1,443	-	-	-
Medium	6.0 – 11.9 du/ac	MR	60.37	11.9 du/ac	718	-	-	-
Medium-High	12.0–17.9 du/ac	MHR	48.08	17.9 du/ac	861	-	-	-
High	18.0 – 23.9 du/ac	HR	42.89	23.9 du/ac	1,025	-	-	-
Mixed Use Residential	5.0 – 23.9 du/ac	MUR	20.47	23.9 du/ac	489 ⁽⁵⁾⁽⁶⁾	-	15%	3.0
Total Residential			354.53		4,536⁽¹⁾⁽⁶⁾	-	-	-
NON-RESIDENTIAL								
COMMERCIAL								
Arterial Commercial		AC	33.17	0.4	-	577,954	15%	5.0
Community Commercial		CC	97.81	0.3 ⁽²⁾	-	2,230,512 ⁽²⁾	15%	14.67
Village Center Commercial		VC	25.93	0.9	82 ⁽⁸⁾	1,016,560	20%	5.19
Subtotal Commercial			156.91		-	3,825,026		24.86
OFFICE/BUSINESS PARK								
Business Park		BP	68.87	0.6	-	1,799,986	20%	13.8
Office/Business Park		OBP	60.05	0.6	-	1,569,467	20%	12
Subtotal Office/Business Park			128.92		-	3,369,453		25.8
PUBLIC FACILITIES								
Public/Institutional		PI	0	0	-	0	0	0
School		S	10.11	0.3	242 ⁽⁷⁾	132,117	20%	2.02
Subtotal Public Facilities			10.11		-	132,117		2.02
OPEN SPACE								
Park		P	9.42	-	-	-	-	9.42
Open Space		OS	126.82	-	-	-	-	126.82
Subtotal Open Space			136.24⁽⁴⁾		-	-	-	136.24
Total Non-Residential			432.18		-	7,326,596		55.68⁽⁴⁾
Roadways ⁽³⁾			87.50	-	-	-	-	-
PROJECT TOTALS			874.21		4,860⁽¹⁾⁽⁶⁾⁽⁷⁾⁽¹⁰⁾	7,326,596	174.84⁽⁴⁾	191.92⁽⁹⁾

1. Although the calculated total number of dwelling units equals 4,860 units, per the original tentative approval of the Kiley Ranch North PUD, the maximum amount of residential units allowed in Kiley Ranch North is 4,463.
2. The maximum floor area ratio for the medical campus use in the Community Commercial/Medical Campus land use category shall be 0.85, providing an over total of 2,230,512 sq. ft. floor area in Community Commercial.
3. "Roadways" include all streets shown on the Land Use Plan on the following page.
4. In addition to the 136.24 acres of open space, formally landscaped areas within other areas, which include landscape buffers, contribute approximately 55.68 acres to the overall formal and informal open space within Kiley Ranch North. Per SMC 20.18, a minimum of 20% (174.84 acres) common open space is required. A total of 191.92 acres will be provided which equates to 21.95% common open space.
5. Assumes that project builds out either all multi-family residential or all single family residential, although a mix of uses could occur.
6. Number of units/density is not applicable to assisted living, group residential care, skilled nursing facility or residential retirement facilities that have common dining facilities.
7. A maximum of 242 residential units will be permitted within the school site if the school is not built. The allowable density of the adjoining residential area will be applied to the school site. If the school is built, then these units may be transferred to the Village Center.
8. Additional units may be transferred to the Village Center as define in Permitted Units Transfers in Chapter 1 of the Development Handbook.
9. Total open space equals commercial, office/business park, public facilities, subtotal open space and MUR required open space.
10. Over time, unused residential density may be transferred by the Master Developer to undeveloped parcels.

KILEY RANCH NORTH

LAND USE MAP



LAND USES

- LOW-MEDIUM RESIDENTIAL (LMR)
- MEDIUM RESIDENTIAL (MR)
- MEDIUM-HIGH RESIDENTIAL (MHR)
- HIGH RESIDENTIAL (HR)
- MIXED USE RESIDENTIAL (MUR)
- COMMUNITY COMMERCIAL (CC)
- ARTERIAL COMMERCIAL (AC)
- VILLAGE CENTER (VC)
- OFFICE/BUSINESS PARK (OBP)
- BUSINESS PARK (BP)
- SCHOOL (S)
- PARK (P)
- OPEN SPACE (OS)
- POTENTIAL SCHOOL SITE

Average Rate Trip Calculations
 For 1514 Dwelling Units of Residential Condominium / Townhouse(230) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	4.52	0.00	1.00	6840
7-9 AM Peak Hour Enter	0.05	0.00	1.00	77
7-9 AM Peak Hour Exit	0.25	0.00	1.00	377
7-9 AM Peak Hour Total	0.30	0.00	1.00	454
4-6 PM Peak Hour Enter	0.25	0.00	1.00	374
4-6 PM Peak Hour Exit	0.12	0.00	1.00	184
4-6 PM Peak Hour Total	0.37	0.00	1.00	558
Saturday 2-Way Volume	3.90	0.00	1.00	5909
Saturday Peak Hour Enter	0.17	0.00	1.00	260
Saturday Peak Hour Exit	0.15	0.00	1.00	222
Saturday Peak Hour Total	0.32	0.00	1.00	482

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .87LN(X) + 2.46, R^2 = 0.8$
 7-9 AM Peak Hr. Total: $LN(T) = .8LN(X) + .26$
 $R^2 = 0.76, 0.17$ Enter, 0.83 Exit
 4-6 PM Peak Hr. Total: $LN(T) = .82LN(X) + .32$
 $R^2 = 0.8, 0.67$ Enter, 0.33 Exit
 AM Gen Pk Hr. Total: $LN(T) = .82LN(X) + .15$
 $R^2 = 0.8, 0.19$ Enter, 0.81 Exit
 PM Gen Pk Hr. Total: $T = .34(X) + 35.87$
 $R^2 = 0.82, 0.64$ Enter, 0.36 Exit
 Sat. 2-Way Volume: $T = 3.62(X) + 427.93, R^2 = 0.84$
 Sat. Pk Hr. Total: $T = .29(X) + 42.63$
 $R^2 = 0.84, 0.54$ Enter, 0.46 Exit
 Sun. 2-Way Volume: $T = 3.13(X) + 357.26, R^2 = 0.88$
 Sun. Pk Hr. Total: $T = .23(X) + 50.01$
 $R^2 = 0.78, 0.49$ Enter, 0.51 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 3022 Dwelling Units of Single Family Detached Housing(210) = [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	8.00	0.00	1.00	24163
7-9 AM Peak Hour Enter	0.18	0.00	1.00	531
7-9 AM Peak Hour Exit	0.53	0.00	1.00	1594
7-9 AM Peak Hour Total	0.70	0.00	1.00	2125
4-6 PM Peak Hour Enter	0.47	0.00	1.00	1423
4-6 PM Peak Hour Exit	0.28	0.00	1.00	835
4-6 PM Peak Hour Total	0.75	0.00	1.00	2258
Saturday 2-Way Volume	8.00	0.00	1.00	24166
Saturday Peak Hour Enter	0.48	0.00	1.00	1457
Saturday Peak Hour Exit	0.41	0.00	1.00	1241
Saturday Peak Hour Total	0.89	0.00	1.00	2698

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .92LN(X) + 2.72, R^2 = 0.95$
 7-9 AM Peak Hr. Total: $T = .7(X) + 9.74$
 $R^2 = 0.89, 0.25$ Enter, 0.75 Exit
 4-6 PM Peak Hr. Total: $LN(T) = .9LN(X) + .51$
 $R^2 = 0.91, 0.63$ Enter, 0.37 Exit
 AM Gen Pk Hr. Total: $T = .7(X) + 12.12$
 $R^2 = 0.89, 0.26$ Enter, 0.74 Exit
 PM Gen Pk Hr. Total: $LN(T) = .88LN(X) + .62$
 $R^2 = 0.91, 0.64$ Enter, 0.36 Exit
 Sat. 2-Way Volume: $LN(T) = .93LN(X) + 2.64, R^2 = 0.92$
 Sat. Pk Hr. Total: $T = .89(X) + 8.77$
 $R^2 = 0.91, 0.54$ Enter, 0.46 Exit
 Sun. 2-Way Volume: $T = 8.63(X) + -.63, R^2 = 0.93$
 Sun. Pk Hr. Total: $LN(T) = .91LN(X) + .31$
 $R^2 = 0.88, 0.53$ Enter, 0.47 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
For 3825.0 Th.Sq.Ft. GLA of Shopping Center(820) = [E]

Project:
Phase:

Open Date:
Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	18.97	0.00	1.00	72552
7-9 AM Peak Hour Enter	0.23	0.00	1.00	893
7-9 AM Peak Hour Exit	0.14	0.00	1.00	547
7-9 AM Peak Hour Total	0.38	0.00	1.00	1440
4-6 PM Peak Hour Enter	0.86	0.00	1.00	3305
4-6 PM Peak Hour Exit	0.94	0.00	1.00	3580
4-6 PM Peak Hour Total	1.80	0.00	1.00	6885
Saturday 2-Way Volume	23.99	0.00	1.00	91772
Saturday Peak Hour Enter	1.27	0.00	1.00	4857
Saturday Peak Hour Exit	1.17	0.00	1.00	4483
Saturday Peak Hour Total	2.44	0.00	1.00	9340

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .65LN(X) + 5.83, R^2 = 0.79$
7-9 AM Peak Hr. Total: $LN(T) = .61LN(X) + 2.24$
 $R^2 = 0.56, 0.62$ Enter, 0.38 Exit
4-6 PM Peak Hr. Total: $LN(T) = .67LN(X) + 3.31$
 $R^2 = 0.81, 0.48$ Enter, 0.52 Exit
AM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
PM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
Sat. 2-Way Volume: $LN(T) = .63LN(X) + 6.23, R^2 = 0.82$
Sat. Pk Hr. Total: $LN(T) = .65LN(X) + 3.78$
 $R^2 = 0.83, 0.52$ Enter, 0.48 Exit
Sun. 2-Way Volume: $T = 15.63(X) + 4214.46, R^2 = 0.52$
Sun. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 3369.5 Th.Sq.Ft. GFA of General Office Building(710) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	5.64	0.00	1.00	19018
7-9 AM Peak Hour Enter	0.83	0.00	1.00	2808
7-9 AM Peak Hour Exit	0.11	0.00	1.00	383
7-9 AM Peak Hour Total	0.95	0.00	1.00	3191
4-6 PM Peak Hour Enter	0.19	0.00	1.00	655
4-6 PM Peak Hour Exit	0.95	0.00	1.00	3197
4-6 PM Peak Hour Total	1.14	0.00	1.00	3852
Saturday 2-Way Volume	2.04	0.00	1.00	6872
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.00	0.00	1.00	0

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .76LN(X) + 3.68, R^2 = 0.81$
 7-9 AM Peak Hr. Total: $LN(T) = .8LN(X) + 1.57$
 $R^2 = 0.83, 0.88$ Enter, 0.12 Exit
 4-6 PM Peak Hr. Total: $T = 1.12(X) + 78.45$
 $R^2 = 0.82, 0.17$ Enter, 0.83 Exit
 AM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 PM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 Sat. 2-Way Volume: $T = 2.03(X) + 31.75, R^2 = 0.64$
 Sat. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 Sun. 2-Way Volume: $0, R^2 = 0$
 Sun. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
For 700 Students of Elementary School(520) - [R]

Project:
Phase:

Open Date:
Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	1.29	1.26	1.00	903
7-9 AM Peak Hour Enter	0.25	0.00	1.00	175
7-9 AM Peak Hour Exit	0.20	0.00	1.00	140
7-9 AM Peak Hour Total	0.45	0.70	1.00	315
4-6 PM Peak Hour Enter	0.07	0.00	1.00	49
4-6 PM Peak Hour Exit	0.08	0.00	1.00	56
4-6 PM Peak Hour Total	0.15	0.40	1.00	105
Saturday 2-Way Volume	0.00	0.00	1.00	0
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.00	0.00	1.00	0

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

**Table 1-1: Master Plan Land Use Designation
Kiley Ranch North**

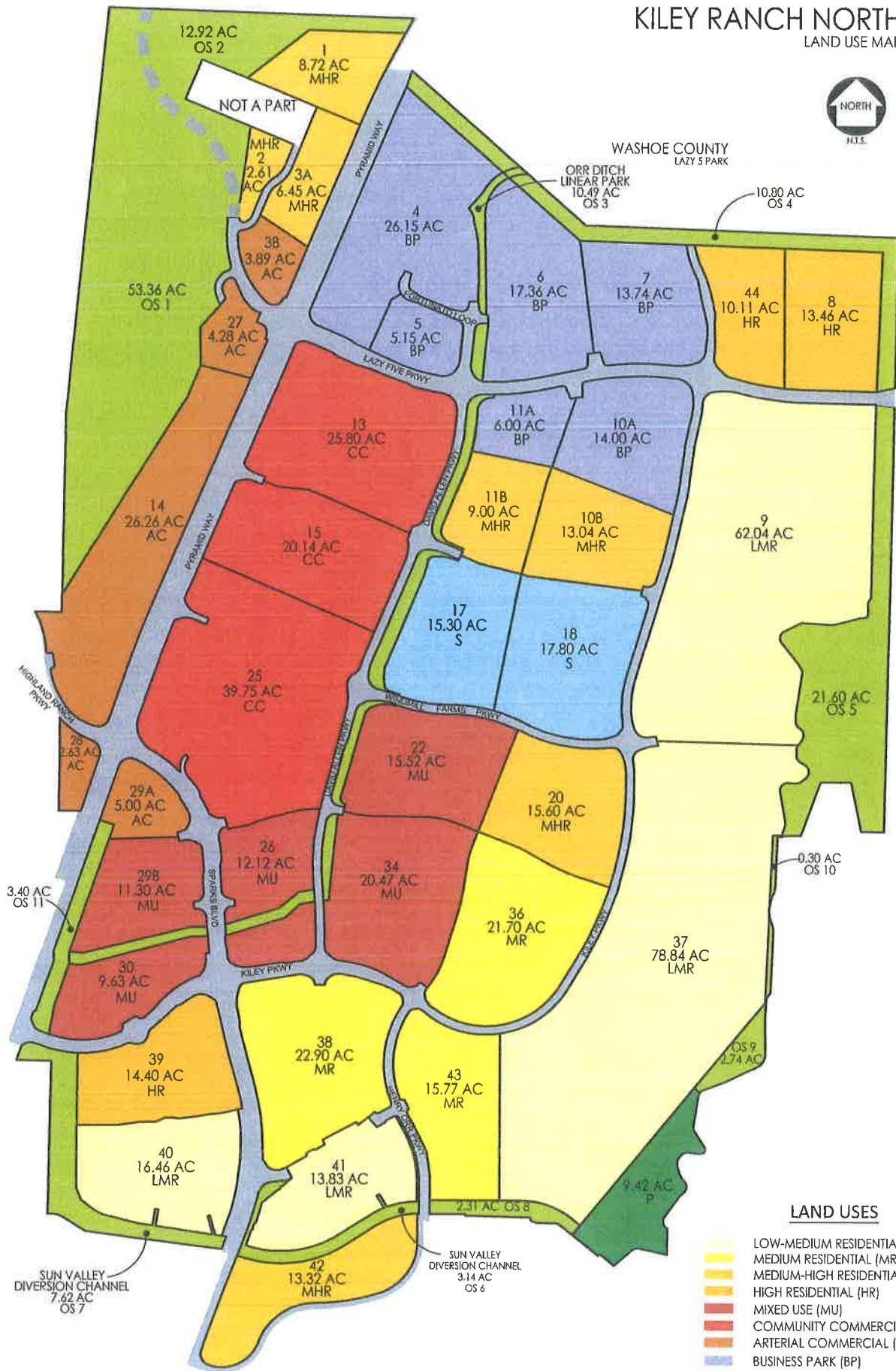
Land Use Designation			Gross Acres	Maximum Density	Permitted Total Units	Units not Achieved	Net Units	Required Open Space	Open Space Provided
RESIDENTIAL									
Low-Medium	4.0 – 7.9 du/ac	LMR	171.17	7.9 du/ac	1352	443	-	-	-
Medium	6.0 – 11.9 du/ac	MR	60.37	11.9 du/ac	718	242	-	-	-
Medium-High	12.0 – 17.9 du/ac	MHR	68.74	17.9 du/ac	1230	54	-	-	-
High	18.0 – 23.9 du/ac	HR	37.97	23.9 du/ac	907	141	-	-	-
Mixed Use ⁽⁴⁾⁽⁸⁾	5.0 – 23.9 du/ac	MU	36.45	23.9 du/ac	871 ⁽⁴⁾		-	-	-
Total Residential			374.70		5,078	880	4,198⁽⁶⁾	-	-
Net Total Permitted Units					4,198⁽⁶⁾				
NON-RESIDENTIAL									
COMMERCIAL				Minimum FAR				Assumed build out FAR	
Arterial Commercial ⁽⁷⁾	AC		42.06	0.2	366,427	15%	6.31	0.4	732,853
Community Commercial	CC		85.69	0.2	1,871,201 ⁽¹⁾	15%	12.85	0.25	1,972,071 ⁽¹⁾
Mixed Use ⁽⁸⁾	MU		32.59	0.2	283,924	15%	4.89	0.3	425,866
Subtotal Commercial			160.34		2,521,552⁽¹⁾		24.05		3,130,790⁽¹⁾
BUSINESS PARK									
Business Park ⁽⁷⁾	BP		82.40	0.3	1,076,803	20%	16.48	0.45	1,615,205
Subtotal Office/Business Park			82.40	-	1,076,803		16.48		1,615,205
PUBLIC FACILITIES									
School	S		33.1		266,972	20%	6.62		266,972
Subtotal Public Facilities			33.1	-	266,972		6.62		266,972
OPEN SPACE									
Park	P		9.42	-	-		9.42	-	
Open Space	OS		128.68	-	-		128.68	-	
Subtotal Open Space			138.10⁽³⁾	-	-		138.10⁽³⁾	-	
Total Non-Residential			393.94	-	3,865,327		47.15⁽³⁾⁽⁵⁾	-	5,012,967
Roadways ⁽²⁾			85.57	-	-		-	-	-
PROJECT TOTALS									
			874.21⁽³⁾		3,598,355⁽¹⁾	174.84⁽³⁾	185.25⁽³⁾⁽⁵⁾		4,745,995⁽¹⁾
					Plus School				Plus School
					3,865,327				5,012,967

NOTES:

1. The maximum floor area ratio for the medical campus use in the Community Commercial/Medical Campus land use category shall be 0.85, providing a total of 1,471,784 sq. ft. of floor area at Village 25.
2. "Roadways" include all streets shown on the Land Use Plan on the following page.
3. In addition to the 138.10 acres of open space, formally landscaped areas within other areas, which include landscape buffers, contribute approximately 47.15 acres to the overall formal and informal open space within Kiley Ranch North. Per SMC 20.18, a minimum of 20% (174.84 acres) common open space is required. A total of 185.25 acres will be provided which equates to 21.19% common open space.
4. Number of units/density is not applicable to assisted living, group residential care, skilled nursing facility or residential retirement facilities that have common dining facilities.
5. Total open space equals commercial, business park, public facilities and subtotal open space.
6. Over time, unused residential density may be transferred by the Master Developer to undeveloped parcels.
7. AC may have mini-storage at 60% coverage which would increase the total square footage. AC and BP could have incubators at 50% coverage which would increase the totals.
8. MU uses are estimated to be a total of 69.04 acres with 32.59 acres having office/retail uses and 36.45 acres having residential uses.

KILEY RANCH NORTH

LAND USE MAP



LAND USES

- LOW-MEDIUM RESIDENTIAL (LMR)
- MEDIUM RESIDENTIAL (MR)
- MEDIUM-HIGH RESIDENTIAL (MHR)
- HIGH RESIDENTIAL (HR)
- MIXED USE (MU)
- COMMUNITY COMMERCIAL (CC)
- ARTERIAL COMMERCIAL (AC)
- BUSINESS PARK (BP)
- SCHOOL (S)
- PARK (P)
- OPEN SPACE (OS)

Average Rate Trip Calculations
 For 2813 Dwelling Units of Residential Condominium / Townhouse(230) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	4.17	0.00	1.00	11726
7-9 AM Peak Hour Enter	0.05	0.00	1.00	127
7-9 AM Peak Hour Exit	0.22	0.00	1.00	618
7-9 AM Peak Hour Total	0.26	0.00	1.00	745
4-6 PM Peak Hour Enter	0.22	0.00	1.00	621
4-6 PM Peak Hour Exit	0.11	0.00	1.00	306
4-6 PM Peak Hour Total	0.33	0.00	1.00	927
Saturday 2-Way Volume	3.77	0.00	1.00	10611.
Saturday Peak Hour Enter	0.16	0.00	1.00	464
Saturday Peak Hour Exit	0.14	0.00	1.00	394
Saturday Peak Hour Total	0.31	0.00	1.00	858

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .87LN(X) + 2.46, R^2 = 0.8$
 7-9 AM Peak Hr. Total: $LN(T) = .8LN(X) + .26$
 $R^2 = 0.76, 0.17$ Enter, 0.83 Exit
 4-6 PM Peak Hr. Total: $LN(T) = .82LN(X) + .32$
 $R^2 = 0.8, 0.67$ Enter, 0.33 Exit
 AM Gen Pk Hr. Total: $LN(T) = .82LN(X) + .15$
 $R^2 = 0.8, 0.19$ Enter, 0.81 Exit
 PM Gen Pk Hr. Total: $T = .34(X) + 35.87$
 $R^2 = 0.82, 0.64$ Enter, 0.36 Exit
 Sat. 2-Way Volume: $T = 3.62(X) + 427.93, R^2 = 0.84$
 Sat. Pk Hr. Total: $T = .29(X) + 42.63$
 $R^2 = 0.84, 0.54$ Enter, 0.46 Exit
 Sun. 2-Way Volume: $T = 3.13(X) + 357.26, R^2 = 0.88$
 Sun. Pk Hr. Total: $T = .23(X) + 50.01$
 $R^2 = 0.78, 0.49$ Enter, 0.51 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 1385 Dwelling Units of Single Family Detached Housing(210) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	8.51	0.00	1.00	11787
7-9 AM Peak Hour Enter	0.18	0.00	1.00	245
7-9 AM Peak Hour Exit	0.53	0.00	1.00	734
7-9 AM Peak Hour Total	0.71	0.00	1.00	979
4-6 PM Peak Hour Enter	0.51	0.00	1.00	705
4-6 PM Peak Hour Exit	0.30	0.00	1.00	414
4-6 PM Peak Hour Total	0.81	0.00	1.00	1119
Saturday 2-Way Volume	8.45	0.00	1.00	11697
Saturday Peak Hour Enter	0.48	0.00	1.00	670
Saturday Peak Hour Exit	0.41	0.00	1.00	571
Saturday Peak Hour Total	0.90	0.00	1.00	1241

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .92LN(X) + 2.72, R^2 = 0.95$
 7-9 AM Peak Hr. Total: $T = .7(X) + 9.74$
 $R^2 = 0.89, 0.25$ Enter, 0.75 Exit
 4-6 PM Peak Hr. Total: $LN(T) = .9LN(X) + .51$
 $R^2 = 0.91, 0.63$ Enter, 0.37 Exit
 AM Gen Pk Hr. Total: $T = .7(X) + 12.12$
 $R^2 = 0.89, 0.26$ Enter, 0.74 Exit
 PM Gen Pk Hr. Total: $LN(T) = .88LN(X) + .62$
 $R^2 = 0.91, 0.64$ Enter, 0.36 Exit
 Sat. 2-Way Volume: $LN(T) = .93LN(X) + 2.64, R^2 = 0.92$
 Sat. Pk Hr. Total: $T = .89(X) + 8.77$
 $R^2 = 0.91, 0.54$ Enter, 0.46 Exit
 Sun. 2-Way Volume: $T = 8.63(X) + -.63, R^2 = 0.93$
 Sun. Pk Hr. Total: $LN(T) = .91LN(X) + .31$
 $R^2 = 0.88, 0.53$ Enter, 0.47 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 3130.79 Th.Sq.Ft. GLA of Shopping Center(820) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	20.35	0.00	1.00	63696
7-9 AM Peak Hour Enter	0.25	0.00	1.00	790
7-9 AM Peak Hour Exit	0.15	0.00	1.00	484
7-9 AM Peak Hour Total	0.41	0.00	1.00	1274
4-6 PM Peak Hour Enter	0.92	0.00	1.00	2890
4-6 PM Peak Hour Exit	1.00	0.00	1.00	3130
4-6 PM Peak Hour Total	1.92	0.00	1.00	6020
Saturday 2-Way Volume	25.84	0.00	1.00	80894
Saturday Peak Hour Enter	1.36	0.00	1.00	4264
Saturday Peak Hour Exit	1.26	0.00	1.00	3936
Saturday Peak Hour Total	2.62	0.00	1.00	8200

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .65LN(X) + 5.83, R^2 = 0.79$
 7-9 AM Peak Hr. Total: $LN(T) = .61LN(X) + 2.24$
 $R^2 = 0.56, 0.62$ Enter, 0.38 Exit
 4-6 PM Peak Hr. Total: $LN(T) = .67LN(X) + 3.31$
 $R^2 = 0.81, 0.48$ Enter, 0.52 Exit
 AM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 PM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 Sat. 2-Way Volume: $LN(T) = .63LN(X) + 6.23, R^2 = 0.82$
 Sat. Pk Hr. Total: $LN(T) = .65LN(X) + 3.78$
 $R^2 = 0.83, 0.52$ Enter, 0.48 Exit
 Sun. 2-Way Volume: $T = 15.63(X) + 4214.46, R^2 = 0.52$
 Sun. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 1615.79 Th.Sq.Ft. GFA of General Office Building(710) - [E]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	6.73	0.00	1.00	10879
7-9 AM Peak Hour Enter	0.97	0.00	1.00	1560
7-9 AM Peak Hour Exit	0.13	0.00	1.00	212
7-9 AM Peak Hour Total	1.10	0.00	1.00	1772
4-6 PM Peak Hour Enter	0.20	0.00	1.00	321
4-6 PM Peak Hour Exit	0.97	0.00	1.00	1567
4-6 PM Peak Hour Total	1.17	0.00	1.00	1888
Saturday 2-Way Volume	2.05	0.00	1.00	3312
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.00	0.00	1.00	0

The above rates were calculated from these equations:

24-Hr. 2-Way Volume: $LN(T) = .76LN(X) + 3.68, R^2 = 0.81$
 7-9 AM Peak Hr. Total: $LN(T) = .8LN(X) + 1.57$
 $R^2 = 0.83, 0.88$ Enter, 0.12 Exit
 4-6 PM Peak Hr. Total: $T = 1.12(X) + 78.45$
 $R^2 = 0.82, 0.17$ Enter, 0.83 Exit
 AM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 PM Gen Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 Sat. 2-Way Volume: $T = 2.03(X) + 31.75, R^2 = 0.64$
 Sat. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit
 Sun. 2-Way Volume: 0, $R^2 = 0$
 Sun. Pk Hr. Total: 0
 $R^2 = 0, 0$ Enter, 0 Exit

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

Average Rate Trip Calculations
 For 2150 Students of Elementary School(520) - [R]

Project:
 Phase:

Open Date:
 Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	1.29	1.26	1.00	2774
7-9 AM Peak Hour Enter	0.25	0.00	1.00	538
7-9 AM Peak Hour Exit	0.20	0.00	1.00	430
7-9 AM Peak Hour Total	0.45	0.70	1.00	968
4-6 PM Peak Hour Enter	0.07	0.00	1.00	151
4-6 PM Peak Hour Exit	0.08	0.00	1.00	172
4-6 PM Peak Hour Total	0.15	0.40	1.00	323
Saturday 2-Way Volume	0.00	0.00	1.00	0
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.00	0.00	1.00	0

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation Manual, 9th Edition, 2012

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