

To: Mr. Scott Molloy
Newland Communities

Date: May 2, 2017

From: John Boarman, P.E. & Narasimha Prasad LLG Ref: 3-17-2664
LLG, Engineers

Subject: **Newland Sierra Project Alternatives Traffic Analysis**

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INTRODUCTION

This memorandum summarizes the traffic volumes and the required road improvements necessary to accommodate the volumes with the following Project Alternatives to the Newland Sierra Project (“Project”):

- I. Existing General Plan Alternative
- II. Newland Sierra Parkway Alternatives A, B, and C
- III. Multi-Family Town Center Alternative
- IV. CDFW/USFWS Land Planning Alternative A
- V. CDFW Land Planning Alternative B
- VI. CDFW Land Planning Alternative C

The Existing General Plan Alternative (Alternative I) is based off of the existing General Plan land use designations applicable to the Project Site. From the standpoint of traffic impacts, the Newland Sierra Parkway Alternatives (Alternative II) were analyzed as a single Alternative. All three of Newland Sierra Parkway Alternatives propose adding a new bypass road to the County’s road network (“Newland Sierra Parkway”), however no changes to the project’s proposed land uses were assumed under these alternatives. The Newland Sierra Parkway Alternatives would result in a significant amount of induced background traffic, necessitating the widening and improvement of Deer Springs Road south of Sarver Lane and a portion of Twin Oaks Valley Road to six-lane prime arterial classifications. For more information on the Newland Sierra Parkway Alternatives, please refer to the separate feasibility study prepared for these three alternatives entitled “Newland Sierra Parkway Feasibility Study (February 2017)”.

The Multi-Family Town Center Alternative (Alternative III) would concentrate all of the project’s proposed development into the Town Center. The CDFW/USFWS Alternatives (Alternatives IV, V, and VI) largely reflect the Project’s development areas with modifications/deletions to certain of the Project’s neighborhoods and road network. Alternatives IV and VI would result in higher traffic volumes along Sarver Lane, necessitating the widening and improvement of Sarver Lane to the County’s Community Collector classification.

Two additional Project Alternatives, the No Project (No Build) Alternative and the Agricultural Alternative, that are being analyzed by the Project's EIR did not require any traffic impact analysis because they would not generate a significant amount of traffic.

The analysis of the Project's direct and cumulative impacts and the proposed traffic mitigation included in the Traffic Impact Analysis (Sierra Traffic Impact Analysis, May 2017) is based on the "Existing plus Project" and the "Existing plus Project plus Cumulative Projects with Mountain Meadow Road connected" scenarios. The connection of Mountain Meadow Road causes additional background traffic to occur on the road network impacted by the Project, resulting in a more conservative analysis of cumulative impacts by causing cumulative impacts to become significant at lower Equivalent Dwelling Unit (EDU) thresholds in the buildout of the Project. For consistency, the analysis of the Project Alternatives impacts on the road network was based on the same scenario with Mountain Meadow Road connected (i.e., Existing plus Project Alternative plus Cumulative Projects with Mountain Meadow Road connected).

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I. EXISTING GENERAL PLAN ALTERNATIVE

The Existing General Plan Alternative assumes the Project Site is developed based on the existing General Plan land use designations for the Site, including 4.64 acres of general commercial uses, 53.64 acres of office professional uses, and 99 estate residential units. Compared to the Project, this alternative would generate 1,240 (6%) fewer ADTs but 895 (56%) more trips in the AM peak period and 441 (21%) more trips in the PM peak period.

Even though the total daily traffic generated by this alternative is less than the Project, since most of the ADTs would be related to the office uses (more than 20,000 ADTs) and virtually all of the traffic generated by the office and commercial uses would utilize the Mesa Rock Road/Deer Springs Road intersection to access these uses, the resulting Project traffic on Deer Springs Road between Mesa Rock Road and Sarver Lane would be higher than for the proposed Project.

Compared to the Project, the Existing General Plan Alternative would result in greater impacts to Deer Springs Road from Mesa Rock Road to Twin Oaks Valley Road, greater impacts to Buena Creek Road between Twin Oaks Valley Road and Monte Vista Drive, and greater impacts to North Twin Oaks Valley Road. Sarver Lane would need to be improved to the County's Rural Residential Road standards with a 48-foot-wide ROW.

Like the project, this alternative would also require the need for a new interchange at Deer Springs Road and I-15 and improvements to Camino Mayor. Also like the project, impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

Tables I-A, I-B, and I-C contain the trip generation for this alternative, a comparison of ADTs and AM and PM peak hour trips to the Project, and a comparison of the required road improvements to the Project, respectively.

TABLE I-A: EXISTING GENERAL PLAN ALTERNATIVE TRIP GENERATION

Land Use	Quantity		Rate ^a		ADT	AM Peak Hour				PM Peak Hour					
						% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
								In	Out	Total			In	Out	Total
Non-Residential															
General Commercial	4.64	Acres	1,200	/Acre	5,568	4%	3:7	67	156	223	10%	7:3	390	167	557
Office Professional	53.64	Acres	300	/Acre	16,092	14%	9:1	2,028	225	2,253	13%	2:8	418	1,674	2,092
Gross Non-Residential					21,660			2,095	381	2,476			808	1,841	2,649
Non-Res. Internal Capture & Pass-By															
Retail Internal Trips (5%) ^b					(278)			(3)	(8)	(11)			(20)	(8)	(28)
Passby Reduction ^c					(1,323)			(16)	(37)	(53)			(148)	(64)	(212)
Net Non-Residential					20,059			2,076	336	2,412			640	1,769	2,409
Residential															
Residential (Estate)	99	DU	12	/DU	1,188	8%	3:7	29	66	95	10%	7:3	83	36	119
Gross Residential					1,188			29	66	95			83	36	119
Residential Internal Capture ^b					(278)			(3)	(8)	(11)			(20)	(8)	(28)
Net Residential					910			26	58	84			63	28	91
Gross Project					22,848			2,124	447	2,571			891	1,877	2,768
Net Project					20,969			2,102	394	2,496			703	1,797	2,500

Footnotes:

^a Rates obtained from a Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002, published by SANDAG.

^b Equal reduction applies to Residential. Total internal capture for project is 556 ADT (2 x 278 ADT).

^c Passby Reduction assumes a 25% Daily and AM reduction and 40% PM reduction for the retail only.

TABLE I-B: EXISTING GENERAL PLAN ALTERNATIVE VS. PROPOSED PROJECT TRIPS


	Proposed Project	Existing GP Alt.	Diff. in Trips	Percentage Diff.
ADTs	22,209	20,969	-1,240	-6%
AM Peak Trips	1,601	2,496	+895	+56%
PM Peak Trips	2,059	2,500	+441	+21%

TABLE I-C: EXISTING GENERAL PLAN ALTERNATIVE VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	Existing General Plan Alternative			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	11,800	36,800	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	8,710	33,200	4.1A Major (84-98')	5,600	30,100	4.1B Major (84-98')
Deer Springs Rd: Sarver Ln. to Twin Oaks Valley Rd.	8,610	33,100	4.1A Major (98') ^a	8,190	32,690	4.1A Major (98') ^a
Sarver Lane: Offsite Portion	350	700	Rural Res. Rd. (48')	8,220	8,520	Mod. Li. Col. (60-66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	1,040	4,800	No Change to Existing	430	4,230	No Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	7,550	32,300	4-Lane Major Arterial ^a	8,000	32,700	4-Lane Major Arterial ^a
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	4,950	19,400	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	1,710	18,800	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	230	260	Hillside Res. Rd. (40')	150	180	Hillside Res. Rd. (40')

Footnotes:

a. Within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.

 Indicates required road improvements are less compared to the Project or no improvements are required compared to the Project.

II. NEWLAND SIERRA PARKWAY ALTERNATIVES A, B, AND C

A detailed feasibility study was prepared assessing the grading, engineering, and long-term traffic impacts of the Newland Sierra Parkway Alternatives (refer to the “Newland Sierra Parkway Feasibility Study”, February 2017).

The Newland Sierra Parkway Alternatives are based on the inclusion of a hypothetical bypass road (“Newland Sierra Parkway”) being incorporated into the proposed Project with the supposition that this bypass road would divert a substantial amount of existing and future traffic, including project traffic, away from Deer Springs Road. The stated intent behind these Alternatives is to avoid the widening of Deer Springs Road.

Although each alternative includes a different alignment through the project Site and portions of offsite property, for this hypothetical new road, each alternative is based on a bypass road which connects in two places to Deer Springs Road, one connection each where the Sarver Lane and Mesa Rock Road intersections are today. Therefore, from a traffic modeling perspective and in the context of forecasting traffic volumes and assessing traffic impacts on the existing road network, the alternatives have been modeled as a single alternative. Other than the inclusion of this bypass road and different engineering, grading, and environmental impacts associated with each of the three alternatives, all other project details, including the project’s land uses, are assumed to be the same as the proposed project under these alternatives. Thus, the trip generation and the project’s trip distribution on the surrounding road network (excluding the two segments analyzed herein) associated with these alternatives is the same as the proposed project.

SANDAG modeling was performed for the Newland Sierra Parkway Feasibility Study to forecast how trips would be distributed between the two roads, Deer Springs Road and the hypothetical Newland Sierra Parkway. The SANDAG modeling results showed that, even with the addition of Newland Sierra Parkway to the road network, the segment of Deer Springs Road between Sarver Lane and Mesa Rock Road would continue to experience a failing Level of Service (LOS). As the project would contribute more than 200 ADTs to this segment (under any one of the Newland Sierra Parkway Alternatives), Deer Springs Road would need to be widened and improved to the County’s 4.1B Major Road classification, undermining the intent of the alternatives to serve as true alternatives to the widening of Deer Springs Road necessitated by the project.

The SANDAG modeling results also showed that adding Newland Sierra Parkway to the County’s road network would result in a significant amount of induced background traffic that would use the combination of two roads (Newland Sierra Parkway and Deer Springs Road). The SANDAG modeling of Newland Sierra

Parkway and Deer Springs Road both serving as four-lane roads between the same two points resulted in the majority of the background traffic remaining on Deer Springs Road. Deer Springs Road, as a four-lane road and being the more direct route between the same two points, would carry the majority of the traffic using the network of two roads.

Compared to the project, the induced demand created by having two four-lane roads under the Newland Sierra Parkway Alternatives (in lieu of just one under the proposed project) would result in greater impacts to the I-15/Deer Springs Road Interchange, reduced impacts to Deer Springs Road between what are currently Mesa Rock Road and Sarver Lane, greater impacts to Deer Springs Road between Sarver Lane/Newland Sierra Parkway and Twin Oaks Valley Road, greater impacts to Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road (within the City of San Marcos), and greater impacts to Buena Creek Road and its intersections with Twin Oaks Valley Road, Monte Vista Drive, and S. Santa Fe Ave.

Compared to the project, the higher traffic volumes that would result under the Newland Sierra Parkway Alternatives would require the widening of the segment of Deer Springs Road between Sarver Lane and Twin Oaks Valley Road and the segment of Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road to six lanes. Like the project, the Newland Sierra Parkway Alternatives would also result in the need for a new interchange at Deer Springs Road and I-15, although the Newland Sierra Parkway Alternatives would necessitate a larger, higher capacity interchange compared to the project.

In summary, Newland Sierra Parkway Alternatives would result in greater traffic impacts than the proposed project due to additional segment and intersection impacts. Like the project, impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

TABLE II: NEWLAND SIERRA PARKWAY ALTERNATIVES VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	Newland Sierra Parkway Alternative			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	13,350	43,010 ^a	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	1,310	21,940	4.1B Major (84'-98')	5,600	30,100	4.1B Major (84'-98')
Newland Sierra Parkway: Mesa Rock Rd. to Sarver Ln.	4,220	12,750	4.1A Major (98')	Not Part of Network		
Deer Springs Rd: Newland Sierra Pkwy. to Twin Oaks Vly. Rd.	8,190	38,010	6-Lane Prime Arterial ^b	8,190	32,690	4.1A Major (98') ^c
Sarver Lane: Offsite Portion	Removed from Road Network			8,220	8,520	Mod. Li. Col. (60-66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	430	4,230	No Change to Existing	430	4,230	No Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	8,000	37,360	6-Lane Major Arterial ^b	8,000	32,700	4-Lane Major Arterial ^c
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	3,960	19,060	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	2,390	20,190	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	150	180	Hillside Res. Rd. (40')	150	180	Hillside Res. Rd. (40')

Footnotes:

- a. The widening of Deer Springs Road to 4 lanes in conjunction with providing four lanes on Newland Sierra Parkway creates induced background traffic. Refer to the Newland Sierra Parkway Feasibility Study (Feb. 2017).
- b. Under the Newland Sierra Parkway Alternatives, within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 6-lane Arterials and the ROW width is at the discretion of San Marcos.
- c. Under the Proposed Project, within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.

Indicates required road improvements are greater compared to the Project.

III. MULTIFAMILY TOWN CENTER ALTERNATIVE

The Multifamily Town Center Alternative assumes development is concentrated into the far southeastern portion of the Project Site. This alternative would consist of 2,135 multifamily units, 81,000 square feet of retail, 10.3 acres of community parks, 24.3 acres of neighborhood parks, and a school site on 435 acres of the Site. Compared to the Project, this alternative would generate 4,677 (21%) fewer ADTs, 333 (21%) fewer trips in the AM peak period, and 557 (27%) fewer trips in the PM peak period.

Compared to the Project, the Multifamily Town Center Alternative would result in greater impacts to Deer Springs Road between Mesa Rock Road and Sarver Lane, reduced impacts to Deer Springs Road between Sarver Lane and Twin Oaks Valley Road, reduced impacts to Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road (within the City of San Marcos), and reduced impacts to Buena Creek Road and its intersections with Twin Oaks Valley Road, Monte Vista Drive, and S. Santa Fe Ave. This alternative would also not have any impacts to N. Twin Oaks Valley Road or generate any traffic on Sarver Lane as both the Sarver Lane and Camino Mayor access points would be eliminated by this alternative. However, because Sarver Lane would serve as an emergency access for this alternative, Sarver Lane would need to be improved to the County's Rural Residential Road standard.

Like the project, this alternative would require a new interchange at Deer Springs Road and I-15, and impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

Tables III-A, III-B, and III-C contain the trip generation for this alternative, a comparison of ADTs and AM and PM peak hour trips to the Project, and a comparison of the required road improvements to the Project, respectively.

TABLE III-A: MULTIFAMILY TOWN CENTER ALTERNATIVE TRIP GENERATION

Land Use	Quantity		Rate ^a	ADT	AM Peak Hour					PM Peak Hour				
					% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
							In	Out	Total			In	Out	Total
NON-RESIDENTIAL														
Community Park	10.3	Acres	50 /Acre	515	13%	5:5	34	33	67	9%	5:5	23	23	46
Neighborhood Parks	24.3	Acres	5 /Acre	122	13%	5:5	8	8	16	9%	5:5	6	5	11
Retail	81	KSF ^b	120 /KSF	9,720	4%	6:4	233	156	389	10%	5:5	486	486	972
School Site	555	Students	1.6 /Student	888	32%	6:4	170	114	284	9%	4:6	32	48	80
Gross Non-Residential				11,245			445	311	756			547	562	1,109
Non-Residential Internal Capture & Pass-By														
Parks Internal Capture (75%)				(477)			(32)	(31)	(63)			(22)	(21)	(43)
Retail Internal Capture (15%)				(1,458)			(35)	(23)	(58)			(73)	(73)	(146)
School Internal Capture (33%)				(293)			(56)	(38)	(94)			(11)	(16)	(26)
Non-Residential Internal Capture ^c				(2,228)			(123)	(92)	(215)			(105)	(110)	(215)
Pass-by Reduction ^d				(2,066)			(50)	(33)	(83)			(165)	(165)	(330)
Net Non-Residential				6,950			272	186	458			277	287	564
RESIDENTIAL														
Multifamily Apartments	2,135	DU	6 /DU	12,810	8%	2:8	205	820	1,025	9%	7:3	807	346	1,153
Gross Residential				12,810			205	820	1,025			807	346	1,153
Residential Internal Capture ^c				(2,228)			(123)	(92)	(215)			(105)	(110)	(215)
Net Residential				10,582			82	728	810			702	236	938
Gross Project				24,055			650	1,131	1,781			,354	908	2,262
Net Project				17,532			354	914	1,268			978	524	1,502

Footnotes:

^a Rates obtained from a Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002, published by SANDAG.

^b 1,000 SF

^c Equal reduction applies to Residential. Total internal capture for project is 4,456 ADT (2 x 2,228 ADT).

^d Pass-by Reduction assumes a 25% Daily and AM reduction and 40% PM reduction for the retail only.

TABLE III-B: MULTIFAMILY TOWN CENTER ALTERNATIVE VS. PROPOSED PROJECT TRIPS

	Proposed Project	MF Town Center Alt.	Diff. in Trips	Percentage Diff.
ADTs	22,209	17,532	-4,677	-21%
AM Peak Trips	1,601	1,268	-333	-21%
PM Peak Trips	2,059	1,502	-557	-27%

TABLE III-C: MULTIFAMILY TOWN CENTER ALTERNATIVE VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	Multifamily Town Center Alternative			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	10,450	35,450	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	6,550	31,050	4.1A Major (84'-98')	5,600	30,100	4.1B Major (84'-98')
Deer Springs Rd: Sarver Ln. to Twin Oaks Valley Rd.	6,550	31,050	4.1A Major (98') ^a	8,190	32,690	4.1A Major (98') ^a
Sarver Lane: Offsite Portion	0	300	Rural Res. Rd. (48')	8,220	8,520	Mod. Li. Col. (60-66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	280	4,080	No Change to Existing	430	4,230	No Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	6,310	31,010	4-Lane Major Arterial ^a	8,000	32,700	4-Lane Major Arterial ^a
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	2,630	17,030	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	2,100	19,200	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	0	30	No Change to Existing	150	180	Hillside Res. Rd. (40')

Footnotes:

- a. Within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.
- * Daily volumes estimated.

Indicates required road improvements are less compared to the Project or no improvements are required compared to the Project.

IV. CDFW/USFWS ALTERNATIVE A

The CDFW/USFWS Alternative A assumes development is concentrated into the western half of the Project Site. This alternative would consist of 1,353 total dwelling units, including 896 single family dwelling units and 457 multifamily dwelling units, 10.3 acres of community parks, and 16.3 acres of neighborhood parks developed on 540 acres of the Project site. This alternative would not include any commercial retail uses or a school site. Compared to the Project, this alternative would generate 9,892 (45%) fewer ADTs, 632 (39%) fewer trips in the AM peak period, and 824 (40%) fewer trips in the PM peak period.

Compared to the Project, CDFW/USFWS Alternative A would result in greater impacts to Deer Springs Road from Mesa Rock Road to Sarver Lane, reduced impacts on Deer Springs Road between Sarver Lane and Twin Oaks Valley Road, reduced impacts on North Twin Oaks Valley Road, reduced impacts to Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road (within the City of San Marcos), and reduced impacts to Buena Creek Road and its intersections with Twin Oaks Valley Road, Monte Vista Drive, and S. Santa Fe Ave. Like the project, this alternative would require a new interchange at Deer Springs Road and I-15. Additionally, as this alternative would result in significantly higher volumes along Sarver Lane, Sarver Lane would need to be improved to the Community Collector classification.

Like the project, impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

Tables IV-A, IV-B, and IV-C contain the trip generation for this alternative, a comparison of ADTs and AM and PM peak hour trips to the Project, and a comparison of the required road improvements to the Project, respectively.

TABLE IV-A: CDFW/USFWS ALTERNATIVE A TRIP GENERATION

Land Use	Quantity		Rate ^a		ADT	AM Peak Hour					PM Peak Hour				
						% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
								In	Out	Total			In	Out	Total
NON-RESIDENTIAL															
Community Park	10.3	Acres	50	/Acre	515	13%	5:5	34	33	67	9%	5:5	23	23	46
Neighborhood Parks	16.3	Acres	5	/Acre	82	13%	5:5	6	5	11	9%	5:5	4	3	7
Net Non-Residential	26.6	Acres			597			40	38	78			27	26	53
Non-Residential Internal Capture ^b					(448)			(30)	(29)	(59)			(20)	(20)	(40)
Net Non-Residential					149			10	9	19			7	6	13
RESIDENTIAL															
Single Family	896	DU	10	/DU	8,960	8%	3:7	215	502	717	10%	7:3	627	269	896
Multi-Family	457	DU	8	/DU	3,656	8%	2:8	58	234	292	10%	7:3	256	110	366
Gross Residential					12,616			273	736	1,009			883	379	1,262
Residential Internal Capture ^b					(448)			(30)	(29)	(59)			(20)	(20)	(40)
Net Residential					12,168			243	707	950			863	359	1,222
Gross Project					13,213			313	774	1,087			910	405	1,315
Net Project					12,317			253	716	969			870	365	1,235

Footnotes:

^a Rates obtained from a Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002, published by SANDAG.

^b An internal capture rate of 75% was used for the parks. An equal reduction applies to the Residential. Total internal capture for this Alternative is 896 ADT (2 x 448 ADT).

TABLE IV–B: CDFW/USFWS ALTERNATIVE A VS. PROPOSED PROJECT TRIPS

	Proposed Project	CDFW/USFWS Alt. A	Diff. in Trips	Percentage Diff.
ADTs	22,209	12,317	-9,892	-45%
AM Peak Trips	1,601	969	-632	-39%
PM Peak Trips	2,059	1,235	-824	-40%

TABLE IV–C: CDFW/USFWS ALTERNATIVE A VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	CDFW/USFWS Alternative A			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	7,640	32,640	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	7,640	32,140	4.1A Major (98')	5,600	30,100	4.1B Major (84'-98')
Deer Springs Rd: Sarver Ln. to Twin Oaks Valley Rd.	4,310	28,810	4.1A Major (98') ^a	8,190	32,690	4.1A Major (98') ^a
Sarver Lane: Offsite Portion	12,190	12,490	Comm. Col. (74')	8,220	8,520	Mod. Li. Col. (60-66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	120	3,920	No Change to Existing	430	4,230	no Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	4,310	29,010	4-Lane Major Arterial ^a	8,000	32,700	4-Lane Major Arterial ^a
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	1,850	16,250	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	1,480	18,580	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	120	150	Hillside Res. Rd. (40')	150	180	Hillside Res. Rd. (40')

Footnotes:

a. Within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.

Indicates required road improvements are greater compared to the Project.

V. CDFW ALTERNATIVE B

The CDFW Alternative B assumes the residential development is concentrated into the western half of the Project Site and the retail development is concentrated into the eastern section of the site. This alternative would consist of 1,333 total dwelling units, including 781 single family dwelling units and 552 multifamily dwelling units, 81,000 square feet of commercial uses, 10.3 acres of community parks, and 22.0 acres of neighborhood parks. This alternative would not include a school site. Compared to the Project, this alternative would generate 5,558 (25%) fewer ADTs, 474 (30%) fewer trips in the AM peak period, and 514 (25%) fewer trips in the PM peak period.

Compared to the Project, CDFW Alternative B would result in greater impacts to Deer Springs Road from Mesa Rock Road to Sarver Lane, reduced impacts on Deer Springs Road between Sarver Lane and Twin Oaks Valley Road, reduced impacts on North Twin Oaks Valley Road, reduced impacts to Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road (within the City of San Marcos), and reduced impacts to Buena Creek Road and its intersections with Twin Oaks Valley Road, Monte Vista Drive, and S. Santa Fe Ave. Like the project, this alternative would require a new interchange at Deer Springs Road and I-15 and improvements to Camino Mayor.

Like the project, impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

Tables V-A, V-B, and V-C contain the trip generation for this alternative, a comparison of ADTs and AM and PM peak hour trips to the Project, and a comparison of the required road improvements to the Project, respectively.

TABLE V-A: CDFW ALTERNATIVE B TRIP GENERATION

Land Use	Quantity		Rate ^a	ADT	AM Peak Hour					PM Peak Hour					
					% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume			
							In	Out	Total			In	Out	Total	
NON-RESIDENTIAL															
Community Park	10.3	Acres	50 /Acre	515	13%	5:5	34	33	67	9%	5:5	23	23	46	
Neighborhood Parks	22.0	Acres	5 /Acre	110	13%	5:5	7	7	14	9%	5:5	5	5	10	
Retail	81	KSF ^b	120 /KSF	9,720	4%	6:4	233	156	389	10%	5:5	486	486	972	
Gross Non-Residential				10,345			274	196	470			514	514	1,028	
Non-Residential Internal Capture & Pass-By															
Parks Internal Capture (75%)				(469)			(31)	(30)	(61)			(21)	(21)	(42)	
Retail Internal Capture (15%)				(1,458)			(35)	(23)	(58)			(73)	(73)	(146)	
Non-Residential Internal Capture ^c				(1,927)			(66)	(53)	(119)			(94)	(94)	(188)	
Pass-by Reduction ^d				(2,066)			(50)	(33)	(83)			(165)	(165)	(330)	
Net Non-Residential				6,352			158	110	268			255	255	510	
RESIDENTIAL - Sarver Lane / Camino Mayor															
Single Family		781	DU	10 /DU	7,810	8%	3:7	188	437	625	10%	7:3	547	234	781
Multi-Family		552	DU	8 /DU	4,416	8%	2:8	71	282	353	10%	7:3	309	133	442
Gross Residential				1,333 DU	12,226			259	719	978			856	367	1,223
Residential Internal Capture ^c				(1,927)			(66)	(53)	(119)			(94)	(94)	(188)	
Net Residential					10,299			193	666	859			762	273	1,035
Gross Project					22,571			533	915	1,448			1,370	881	2,251
Net Project					16,651			351	776	1,127			1,017	528	1,545

Footnotes:

^a Rates obtained from a Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002, published by SANDAG.

^b 1,000 SF

^c Equal reduction applies to Residential. Total internal capture for project alternative is 3,854 ADT (2 x 1,927 ADT).

^d Pass-by Reduction assumes a 25% Daily and AM reduction and 40% PM reduction for the retail only.

TABLE V-B: CDFW ALTERNATIVE B VS. PROPOSED PROJECT TRIPS

	Proposed Project	CDFW Alt. B	Diff. in Trips	Percentage Diff.
ADTs	22,209	16,651	-5,558	-25%
AM Peak Trips	1,601	1,127	-474	-30%
PM Peak Trips	2,059	1,545	-514	-25%

TABLE V-C: CDFW ALTERNATIVE B VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	CDFW/USFWS Alternative A			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	6,490	31,490	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	6,310	30,810	4.1A Major (84'-98')	5,600	30,100	4.1B Major (84'-98')
Deer Springs Rd: Sarver Ln. to Twin Oaks Valley Rd.	3,710	28,210	4.1A Major (98') ^a	8,190	32,690	4.1A Major (98') ^a
Sarver Lane: Offsite Portion	9,560	9,860	Mod. Light Col. (66')	8,220	8,520	Mod. Light Col. (66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	100	3,900	No Change to Existing	430	4,230	No Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	3,710	28,410	4-Lane Major Arterial ^a	8,000	32,700	4-Lane Major Arterial ^a
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	1,540	15,940	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	1240	18,340	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	100	130	Hillside Res. Rd. (40')	150	180	Hillside Res. Rd. (40')

Footnotes:

a. Within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.

VI. CDFW ALTERNATIVE C

The CDFW Alternative C also assumes the residential development is concentrated into the western half of the Project Site. Additional residential development is assumed on a site (the Quarry site) adjacent to N. Twin Oaks Valley Road, north of Camino Mayor. This alternative would consist of 1,549 total dwelling units, including 787 single family dwelling units and 762 multifamily dwelling units, 10.3 acres of community parks, and 16.3 acres of neighborhood parks. This alternative would not include a school site or any commercial uses. Compared to the Project, this alternative would generate 8,542 (38%) fewer ADTs, 632 (33%) fewer trips in the AM peak period, and 824 (33%) fewer trips in the PM peak period.

Compared to the Project, CDFW Alternative C would result in greater impacts to Deer Springs Road from Mesa Rock Road to Sarver Lane, reduced impacts on Deer Springs Road between Sarver Lane and Twin Oaks Valley Road, reduced impacts on North Twin Oaks Valley Road, reduced impacts to Twin Oaks Valley Road between Deer Springs Road and Buena Creek Road (within the City of San Marcos), and reduced impacts to Buena Creek Road and its intersections with Twin Oaks Valley Road, Monte Vista Drive, and S. Santa Fe Ave. Like the project, this alternative would require a new interchange at Deer Springs Road and I-15 and improvements to Camino Mayor. Additionally, as this alternative would result in significantly higher volumes along Sarver Lane, Sarver Lane would need to be improved to the Community Collector classification.

Like the project, impacts to Caltrans and San Marcos facilities (the I-15 interchange, freeway mainlines, and Twin Oaks Valley Road), to the intersection of Robelini Dr./S. Santa Fe Ave, and to the segment of S. Santa Fe Ave. between Robelini Dr. and Buena Creek Rd. would remain significant and unavoidable.

Tables VI-A, VI-B, and VI-C contain the trip generation for this alternative, a comparison of ADTs and AM and PM peak hour trips to the Project, and a comparison of the required road improvements to the Project, respectively.

TABLE VI-A: CDFW ALTERNATIVE C TRIP GENERATION

Land Use	Quantity		Rate ^a	ADT	AM Peak Hour					PM Peak Hour				
					% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
							In	Out	Total			In	Out	Total
NON-RESIDENTIAL														
Community Park	10.3	Acres	50 /Acre	515	13%	5:5	34	33	67	9%	5:5	23	23	46
Neighborhood Parks	16.3	Acres	5 /Acre	82	13%	5:5	6	5	11	9%	5:5	4	3	7
Gross Non-Residential				597			40	38	78			27	26	53
Non-Residential Internal Capture (75%) ^b				(448)			(30)	(29)	(59)			(20)	(20)	(40)
Net Non-Residential				149			10	9	19			7	6	13
Residential														
Single Family	787	DU	10 /DU	7,870	8%	3:7	189	441	630	10%	7:3	551	236	787
Multi Family	762	DU	8 /DU	6,096	8%	2:8	98	390	488	10%	7:3	427	183	610
Gross Residential				13,966			287	831	1,118			978	419	1,397
Residential Internal Capture ^b				(448)			(30)	(29)	(59)			(20)	(20)	(40)
Net Residential				13,518			257	802	1,059			958	399	1,357
Gross Project				14,563			327	869	1,196			1,005	445	1,450
Net Project				13,667			267	811	1,078			965	405	1,370

Footnotes:

^a Rates obtained from a Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002, published by SANDAG.

^b Equal reduction applies to Residential. Total internal capture for project alternative is 896 ADT (2 x 448 ADT).

TABLE VI-B: CDFW ALTERNATIVE C VS. PROPOSED PROJECT TRIPS

	Proposed Project	CDFW Alt. B	Diff. in Trips	Percentage Diff.
ADTs	22,209	13,667	-8,542	-38%
AM Peak Trips	1,601	1,078	-632	-33%
PM Peak Trips	2,059	1,370	-824	-33%

TABLE VI-C: CDFW ALTERNATIVE C VS. PROPOSED PROJECT REQUIRED ROAD IMPROVEMENTS

Road Segment	CDFW/USFWS Alternative A			Proposed Project		
	Project Alt. ADTs	Total ADTs	Required Classification (ROW)	Project ADTs	Total ADTs	Required Classification (ROW)
I-15 Interchange, Deer Springs Rd: Mesa Rock to I-15	8,610	33,610	New Interchange	13,350	38,350	New Interchange
Deer Springs Rd: Mesa Rock Rd. to Sarver Lane	8,610	33,110	4.1A Major (84'-98')	5,600	30,100	4.1B Major (84'-98')
Deer Springs Rd: Sarver Ln. to Twin Oaks Valley Rd.	4,920	29,420	4.1A Major (98') ^a	8,190	32,690	4.1A Major (98') ^a
Sarver Lane: Offsite Portion	12,680	12,980	Comm. Col. (74')	8,220	8,520	Mod. Light Col. (66')
N. Twin Oaks Valley Rd: Camino Mayor to Deer Springs Rd.	990	4,790	No Change to Existing	430	4,230	No Change to Existing
Twin Oaks Valley Rd: Deer Springs Road to Buena Creek Rd.	5,060	29,760	4-Lane Major Arterial ^a	8,000	32,700	4-Lane Major Arterial ^a
Buena Creek Rd: Twin Oaks Valley Rd. to Monte Vista Dr.	2,060	16,460	Intersections Imps.	3,960	18,360	Intersections Imps.
Buena Creek Rd: Monte Vista Dr. to S. Santa Fe Ave.	1,630	18,730	Intersections Imps.	2,390	19,490	Intersections Imps.
Camino Mayor: Offsite Portion	870	900	Hillside Res. Rd. (40')	150	180	Hillside Res. Rd. (40')

Footnotes:

a. Within the City of San Marcos, Deer Springs Road and Twin Oaks Valley Road become 4-lane Major Arterials and the ROW width is at the discretion of San Marcos.

Indicates required road improvements are greater compared to the Project.