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MEMORANDUM

To: Dan Klausenstock, P.E., Engineering Manager, NV5
From: Arnold Torma T.E., Senior Engineer, KOA Corporation
Re: SX-PQ Lay Down Yard, San Diego, Traffic Information Memo
Project: JB42083
Date: February 3, 2016

Purpose of the Traffic Information Memo

This traffic information memo has been prepared for the SDG&E Sycamore to Penasquitos Transmission Line project. The project requires the need for laydown yards close to the construction job site, within the City of San Diego. Three laydown yard sites were considered, and the segmental traffic impact due to the project is analyzed.

Project Description

Three alternative Laydown Yard sites have been identified as potential locations for the staging of personnel and equipment during the construction phase of this project. These four locations are listed below and displayed on the following page in **Figure 1.**

1. West of Black Mountain Road opposite of Maya Linda Road
2. East of Camino Santa Fe north of Trade Street
3. West of Camino Santa Fe north of Trade Street

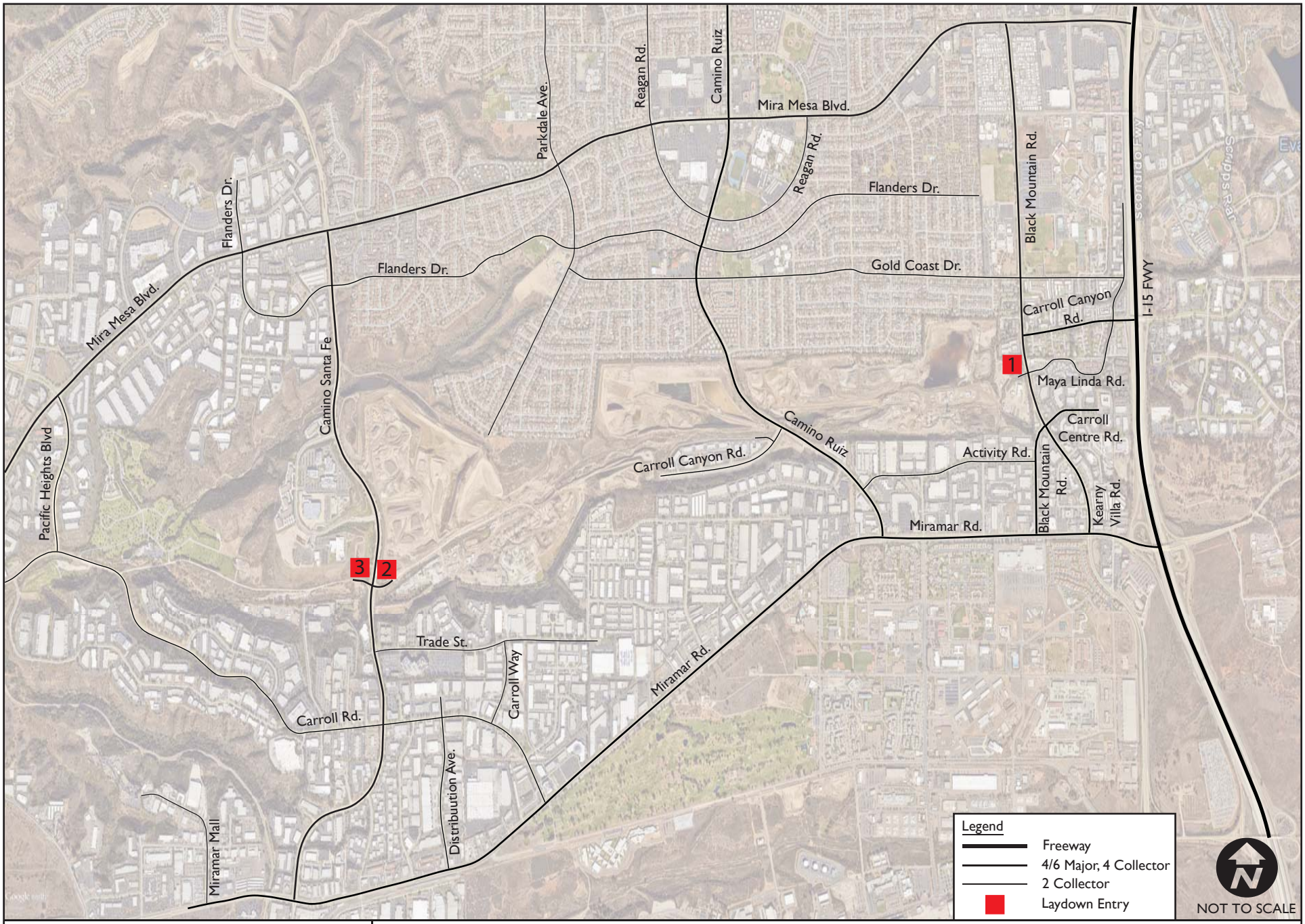
Project Trip Generation

Vehicular trip generation is a measure or forecast of the number of trips that begin or end at a project site. The project trip generation was calculated using equipment and shift requirements gathered by NV5 and applying passenger car equivalent (PCE) conversions from the Highway Capacity Manual (HCM). Based on these rates, the traffic increase for the project is calculated at 516 ADT. This ADT number was then applied to all four potential laydown yards for further segmental LOS and significant impact analysis.
This is summarized below in Table 1.

Table 1: Project Trip Generation -
Estimated Proposed Project Vehicle Trips for Equipment Deliveries

Activity	Equipment	# of Axles	Daily Trips from:					PCE Factor	PCE Subtotal / Day *
			Yard to Site	Site to Yard	Outside to Yard	Yard to Outside	Total		
Trans. Line - Trench, Vault, and Cabling	Excavator	≥ 4	6	6	6	6	24	3.0	360
	Boom Truck	≥ 4	6	6	6	6	24		
	Flat Bed Material Delivery Truck	≥ 4	6	6	6	6	24		
	Cable Pulling Rigs	≥ 4	6	6	6	6	24		
	Accessory Delivery Truck	≥ 4	6	6	6	6	24		
	Tool Van	≤ 3	3	3	3	3	12	2.0	96
	Pickup with Generator	≤ 3	3	3	3	3	12		
	Cable Pull Assist Truck	≤ 3	3	3	3	3	12		
	Traffic Control Truck	≤ 3	3	3	3	3	12		
	Workers w/ Personal Vehicles	2			30	30	60	1.0	60
		Total:	42	42	72	72	228		516

PCE Factor Source: Sycamore-Penasquitos 230-kV Transmission Line Project Draft EIR – September 2015
& HCM 2010, Exhibit 11-10
* PCE Subtotal / Day = (Total Daily Trips) x PCE Factor



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SX-PQ Laydown Yard

Figure 1: Area Map

City of San Diego, CA

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Project Trip Distribution

Trip distribution refers to the process of identifying the general destination of outbound trips and origins of inbound trips within a regional context. Trip assignment refers to the process of identifying the specific routes drivers would likely use to reach their destinations. For this project engineering judgement was used to determine the most likely distribution to and from the three proposed laydown yards. Distribution tables can be found in Attachment 1.

The principal roadway segments studied within the project study area encompassing all three potential laydown yards are listed below.

1. Black Mountain Road
2. Kearny Villa Road
3. Mira Mesa Boulevard
4. Carroll Canyon Road
5. Activity Road
6. Miramar Road
7. Camino Santa Fe
8. Carroll Road
9. Trade Street

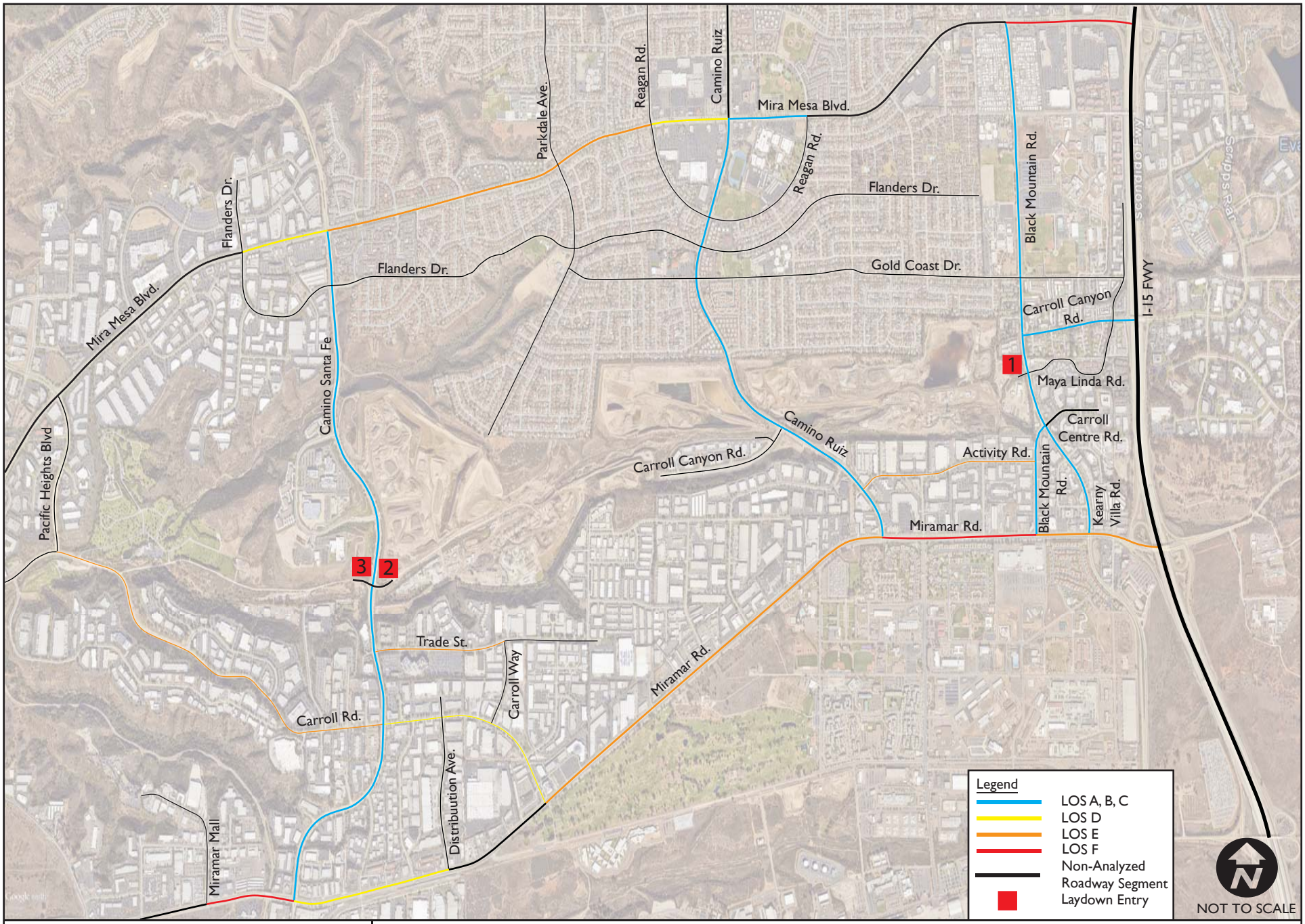
Roadway Segment Capacity Analysis

The study methodology and analysis were consistent with the *City of San Diego Traffic Impact Study Manual (1998)* and *City of San Diego Significance Determination Thresholds, Development Services Department (2011)*. These guidelines were used to determine the potential significant impacts of the Project. The City of San Diego has published daily traffic volumes standards for roadways within its jurisdiction. To determine service levels on study area roadways segments, the appropriate average daily traffic thresholds for level of service were compared to the daily capacity of the roadway segments, relative to the existing and future volumes in the study area. The thresholds for determining level of service used in this analysis are summarized in Attachment 2.

Existing Conditions and Existing + Project Conditions

Daily traffic volume counts from 2012 were compiled from Google Earth Pro data for the study roadway segments to attain a baseline condition for each laydown yard scenario. This baseline condition adjacent to each laydown yard scenario is summarized in the following pages in **Tables 2, 3,** and **4** and can be found on the following page in **Figure 2**. These roadway segments were then analyzed with the addition of project traffic based on the trip generation and trip distribution described above. The resulting ADT and LOS score for the existing + project scenario for each laydown yard is also found on **Tables 2, 3,** and **4.**

As shown in **Tables 2, 3,** and **4**, project related traffic along all analyzed roadway segments does not cause a significant impact along any roadway segment within any of the three analyzed study areas.



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SX-PQ Laydown Yard

Figure 2: Existing Conditions Segment LOS

City of San Diego, CA

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Table 2: Laydown Yard 1 - Black Mountain Road

Roadway Segment	Lanes/ Class	LOS E Capacity	Without Project			Project Traffic	With Project			Comparison	
			ADT*	V/C	LOS		ADT	V/C	LOS	**Δ V/C**	Significant?
Black Mountain Road											
Mira Mesa Blvd to Gold Coast Dr	4MA	40,000	16,274	0.407	B	2	16,276	0.407	B	0.000	No
Gold Coast Dr to Carroll Canyon Rd	4MA	40,000	24,249	0.606	C	2	24,251	0.606	C	0.000	No
Carroll Canyon Rd to laydown entry / Maya Linda Rd	4MA	40,000	18,565	0.464	B	24	18,589	0.465	B	0.001	No
Laydown Entry / Maya Linda Rd to Carroll Centre Rd	4MA	40,000	18,565	0.464	B	472	19,037	0.476	B	0.012	No
Carroll Centre Rd / Kearny Villa Rd to Miramar Road	4C	30,000	16,677	0.556	C	284	16,961	0.565	C	0.009	No
Kearny Villa Road											
Carroll Centre Rd / Black Mountain Rd to Miramar Rd	4MA	40,000	14,048	0.351	A	203	14,251	0.356	A	0.005	No
Mira Mesa Boulevard											
Black Mountain Rd to I-15	6PA	60,000	47,971	0.800	C	2	47,973	0.800	C	0.000	No
Carroll Canyon Road											
Black Mountain Rd to I-15	4C	30,000	16,832	0.561	C	8	16,840	0.561	C	0.000	No
Activity Road											
Camino Ruiz to Black Mountain Rd	2C CLTL	15,000	14,550	0.970	E	0	14,550	0.970	E	0.000	No
Miramar Road											
Camino Ruiz to Black Mountain Rd	6MA	50,000	58,712	1.174	F	26	58,738	1.175	F	0.001	No
Black Mountain Rd to I-15	6PA	60,000	49,009	0.817	C	200	49,209	0.820	C	0.003	No

Abbreviations: 2C CLTL: 2 lane Collector with a continuous left-turn lane. 4C: 4 lane Collector. 4MA: 4 lane Major Arterial. 6MA: 6 lane Major Arterial.

* Source: Google Earth Pro - 2012 AWDT's

Table 3: Laydown Yard 2 - Camino Santa Fe East

Roadway Segment	Lanes/ Class	LOS E Capacity	Without Project			Project Traffic	With Project			Comparison	
			ADT*	V/C	LOS		ADT	V/C	LOS	**Δ V/C**	Significant?
Mira Mesa Boulevard											
Flanders Dr to Camino Santa Fe	6MA	50,000	40,101	0.802	D	16	40,117	0.802	D	0.000	No
Camino Santa Fe to Parkdale Avenue	6MA	50,000	46,195	0.924	E	14	46,209	0.924	E	0.000	No
Camino Santa Fe											
Mira Mesa Blvd to Flanders Dr	6MA	50,000	12,700	0.254	A	30	12,730	0.255	A	0.001	No
Flanders Dr to Laydown Entry	6MA	50,000	11,400	0.228	A	30	11,430	0.229	A	0.001	No
Laydown Entry to Carroll Road	6MA	50,000	15,987	0.320	A	486	16,473	0.329	A	0.010	No
Carroll Road to Miramar Road	6MA	50,000	21,710	0.434	B	200	21,910	0.438	B	0.004	No
Carroll Road											
Pacific Heights Blvd to Camino Santa Fe	2C CLTL	15,000	14,538	0.969	E	2	14,540	0.969	E	0.000	No
Camino Santa Fe to Distribution Ave	2C CLTL	15,000	12,225	0.815	D	285	12,510	0.834	D	0.019	No
Miramar Road											
Eastgate Mall to Camino Santa Fe	6MA	50,000	66,900	1.338	F	149	67,049	1.341	F	0.003	No
Camino Santa Fe to Distribution Ave	6MA	50,000	40,450	0.809	D	50	40,500	0.810	D	0.001	No
Trade Street											
Camino Santa Fe to Carroll Way	2C CIFP	8,000	7,423	0.928	E	30	7,453	0.932	E	0.004	No

Abbreviations: 2C CIFP: 2 lane Collector with commercial and industrial fronting property. 2C CLTL: 2 lane Collector with a continuous left-turn lane. 6MA: 6 lane Major Arterial.

* Source: Google Earth Pro - 2012 AWDT's

Table 4: Laydown Yard 3 - Camino Santa Fe West

Roadway Segment	Lanes/ Class	LOS E Capacity	Without Project			Project Traffic	With Project			Comparison	
			ADT*	V/C	LOS		ADT	V/C	LOS	**Δ V/C**	Significant?
Mira Mesa Boulevard											
Flanders Dr to Camino Santa Fe	6MA	50,000	40,101	0.802	D	16	40,117	0.802	D	0.000	No
Camino Santa Fe to Parkdale Avenue	6MA	50,000	46,195	0.924	E	14	46,209	0.924	E	0.000	No
Camino Santa Fe											
Mira Mesa Blvd to Flanders Dr	6MA	50,000	12,700	0.254	A	30	12,730	0.255	A	0.001	No
Flanders Dr to Laydown Entry	6MA	50,000	11,400	0.228	A	30	11,430	0.229	A	0.001	No
Laydown Entry to Carroll Road	6MA	50,000	15,987	0.320	A	486	16,473	0.329	A	0.010	No
Carroll Road to Miramar Road	6MA	50,000	21,710	0.434	B	200	21,910	0.438	B	0.004	No
Carroll Road											
Pacific Heights Blvd to Camino Santa Fe	2C CLTL	15,000	14,538	0.969	E	2	14,540	0.969	E	0.000	No
Camino Santa Fe to Distribution Ave	2C CLTL	15,000	12,225	0.815	D	285	12,510	0.834	D	0.019	No
Miramar Road											
Eastgate Mall to Camino Santa Fe	6MA	50,000	66,900	1.338	F	149	67,049	1.341	F	0.003	No
Camino Santa Fe to Distribution Ave	6MA	50,000	40,450	0.809	D	50	40,500	0.810	D	0.001	No
Trade Street											
Camino Santa Fe to Carroll Way	2C CIFP	8,000	7,423	0.928	E	30	7,453	0.932	E	0.004	No

Abbreviations: 2C CIFP: 2 lane Collector with commercial and industrial fronting property. 2C CLTL: 2 lane Collector with a continuous left-turn lane. 6MA: 6 lane Major Arterial.

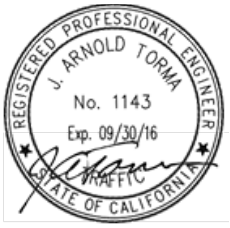
* Source: Google Earth Pro - 2012 AWDT's

Conclusion

Based on 2012 counts, the projected trip generation of the project, and the distribution of these trips onto the city roadway network, none of the three proposed laydown yards are anticipated to alter the existing level of service. More specifically, the analyzed roadway segments shall not be significantly impacted with the introduction of project traffic.

List of Preparers

J. Arnold Torma, T.E. (RTE 1143), KOA Corporation, Principal Engineer
Ryan Whipple, E.I.T. KOA Corporation, Assistant Engineer
Hai (Josh) Ngo, E.I.T. KOA Corporation, Assistant Engineer



Attachment I
Project Trip Distribution

Street Segment Analysis - SDGE SRPX Transmission Line
Black Mountain Road
Yard

no.	street	limits	classification	project ADT
1	Black Mountain Rd	Mira Mesa Blvd to Gold Coast Dr	4 major	2
3	Black Mountain Rd	Gold Coast Dr to Carroll Canyon Rd	4 major	2
4	Black Mountain Rd	Carroll Canyon Rd to laydown entry/Maya Linda Rd	4 major	24
5	Black Mountain Rd	laydown entry/Maya Linda Rd to Carroll Centre Rd	4 major	472
6	Black Mountain Rd	Black Mountain Rd/Kearny Villa Rd to Miramar Rd	4 collector	284
8	Kearny Villa Rd	Carroll Centre Rd/Black Mountain Rd to Miramar Rd	4 major	203
9	Mira Mesa Blvd	Black Mountain Rd to I-15	6 major	2
11	Carroll Canyon Rd	Black Mountain Rd to I-15	4 collector	8
12	Activity Rd	Padgett St to Black Mountain Rd	2 collector with center turn lane	0
13	Miramar Rd	Padgett St to Black Mountain Rd	6 major	26
15	Miramar Rd	Black Mountain Rd to I-15	6 primary	200

PCE project traffic source

ref. no. =	1	2	3	4	5	6
import daily PCE trips =	30	30	48	48	180	180
	empl.	empl to worksite	small truck delivery	small truck to worksite	large truck delivery	large truck to site
1	5%	0%	0%	0%	0%	0%
3	5%	0%	0%	0%	0%	0%
4	5%	0%	10%	0%	10%	0%
5	30%	100%	90%	100%	90%	100%
6	10%	100%	10%	100%	10%	100%
8	70%	0%	80%	0%	80%	0%
9	5%	0%	0%	0%	0%	0%
11	25%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%
13	10%	0%	10%	0%	10%	0%
15	60%	0%	80%	0%	80%	0%

Street Segment Analysis - SDGE SRPX Transmission Line

Camino Santa Fe East

PCE project traffic source

no.	street	limits	classification	project ADT	ref. no. = 1	2	3	4	5	6
					import daily trips = 30	30	48	48	180	180
					empl.	empl to worksite	small truck delivery	small truck to worksite	large truck delivery	large truck to site
1	Mira Mesa Blvd	Flanders Dr to Camino Santa Fe	6 major	16	15%		5%		5%	
2	Mira Mesa Blvd	Camino Santa Fe to Caminito Alvarez	6 major	14	10%		5%		5%	
3	Camino Santa Fe	Mira Mesa Blvd to Flanders Dr	6 major	30	25%		10%		10%	
4	Camino Santa Fe	Flanders Dr to project driveway	6 major	30	25%		10%		10%	
7	Camino Santa Fe	project driveway to Carroll Rd	6 major	486	75%	100%	90%	100%	90%	100%
8	Camino Santa Fe	Carroll Rd to Miramar Rd	6 major	200	60%		80%		80%	
9	Carroll Rd	Recho Rd to Camino Santa Fe	2 collector with center turn lane	2	5%					
10	Carroll Rd	Camino Santa Fe to Distribution Ave	2 collector with center turn lane	285	15%	100%	10%	100%	10%	100%
11	Miramar Rd	Eastgate Mall To Camino Santa Fe	6 major	149	40%		60%		60%	
12	Miramar Rd	Camino Santa Fe to Carroll Rd	6 major	50	15%		20%		20%	
13	Trade St	Camino Santa Fe to Carroll Way	2 collector commercial industrial fronting	30	0%	100%	0%		0%	

Street Segment Analysis - SDGE SRPX Transmission Line

Camino Santa Fe West

no.	street	limits	classification	project ADT
1	Mira Mesa Blvd	Flanders Dr to Camino Santa Fe	6 major	16
2	Mira Mesa Blvd	Camino Santa Fe to Caminito Alvarez	6 major	14
3	Camino Santa Fe	Mira Mesa Blvd to Flanders Dr	6 major	30
4	Camino Santa Fe	Flanders Dr to project driveway	6 major	30
7	Camino Santa Fe	project driveway to Carroll Rd	6 major	486
8	Camino Santa Fe	Carroll Rd to Miramar Rd	6 major	200
9	Carroll Rd	Recho Rd to Camino Santa Fe	2 collector with center turn lane	2
10	Carroll Rd	Camino Santa Fe to Distribution Ave	2 collector with center turn lane	285
11	Miramar Rd	Eastgate Mall To Camino Santa Fe	6 major	149
12	Miramar Rd	Camino Santa Fe to Carroll Rd	6 major	50
13	Trade St	Camino Santa Fe to Carroll Way	2 collector commercial industrial fronting	30

PCE project traffic source

ref. no. =	1	2	3	4	5	6
import daily trips =	30	30	48	48	180	180
	empl.	empl to worksite	small truck delivery	small truck to worksite	large truck delivery	large truck to site
1	15%		5%		5%	
2	10%		5%		5%	
3	25%		10%		10%	
4	25%		10%		10%	
7	75%	100%	90%	100%	90%	100%
8	60%		80%		80%	
9	5%					
10	15%	100%	10%	100%	10%	100%
11	40%		60%		60%	
12	15%		20%		20%	
13	0%	100%	0%		0%	

Attachment 2

Level of Service Concepts
Analysis Methodologies & Standards of Significance

Roadway Segment Level of Service Definitions

LOS	V/C	Congestion/Delay	Traffic Description
(Used for surface streets, freeways, expressways and conventional highways)			
"A"	≤0.41	None	Free flow.
"B"	>0.41-0.62	None	Free to stable flow, light to moderate volumes.
"C"	>0.62-0.80	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	>0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	>0.92-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
(Used for surface streets and conventional highways)			
"F"	>1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.
(Used for freeways and expressways)			
"F(0)"	>1.00-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F(1)"	>1.25-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
"F(2)"	>1.35-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F(3)"	>1.45	Extremely Severe 3+ hours of delay	Gridlock

Source: Caltrans, 1992.

Level of Service (LOS) Definitions

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort, convenience, and safety. Levels of service for freeway segments can generally be categorized as shown in the table above.

City of San Diego
Roadway Capacity Standards

Street Classification	Lanes	Level of Service ADT[1]				
		A	B	C	D	E
Freeway	8 lanes	60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes	45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes	30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	30,000	42,000	60,000	70,000	80,000
Primary Arterial	6 lanes	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4 lanes	5,000	7,000		13,000	15,000
(continuous left-turn lane)	2 lanes			10,000		
Collector (no fronting property)	2 lanes	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	---	---	2,200	---	---

Legend:

[1]Approximate recommended ADT based upon the City of San Diego Street Design Manual.

Notes:

The volumes and the average daily level of service listed above are only intended as a general planning guideline. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

City of San Diego
Measure of Significant Project Traffic Impacts

Level of Service with Project*	Allowable Change due to Project Impact**					
	Freeways		Roadway Sections		Intersections	Ramps***
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E	0.01	1	0.02	1	2	2
F	0.005	0.5	0.01	0.5	1	1

Notes:

* All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or an equivalent LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, project traffic impacts are generally acceptable if they do not cause any traffic queues to exceed ramp storage capacities.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. These impact changes may be measured from acceptable computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigation within the Traffic Impact Study [TIS] report that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project is "E" or "F," the project applicant shall be responsible for mitigating significant impact changes.

***See Attachment B for ramp metering analysis.

Key: V/C = Volume to Capacity ratio
Speed = Speed measured in miles per hour
Delay = Average stopped delay per vehicle measured in seconds, or minutes
LOS = Level of Service