From: Rushmore, Kathy [mailto:kathy.rushmore@urs.com]
Sent: Monday, February 25, 2013 3:29 PM
To: Hope, John@Energy
Cc: Heiser, John@Energy; Worl, Robert@Energy; Shileikis, Dale
Subject: RE: HECA Traffic Table A160-2

John,

Attached is the analysis of Wasco Way that you requested. Please let us know if you have any additional questions on this.

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RESPONSE TO QUESTION ON FEBRUARY 6, 2013
FROM CALIFORNIA ENERGY COMMISSION (CEC)

CEC'S QUESTION ON FEBRUARY 6, 2013

The analysis of Peak-Hour Intersection LOS (shown in Tables 5.10-7 and 5.10-8, pages 5.10-34 and 5.10-35, of the AFC) does not include any intersections along Wasco Way. If it assumed that construction workers may use Wasco Way during the PM peak hour, then it seems that construction worker traffic would also affect the intersections of Wasco Way/Stockdale Highway and Wasco Way/SR 58. Therefore, operation of these two intersections would need to also be included in the analysis for the PM peak hour (as part of Tables 5.10-7 and 5.10-8).

RESPONSE

As previously indicated, Wasco Way listed on Table A160-2 (provided in response to CEC's Set 2 Data Requests) represents worst-case daily traffic expected from construction workers leaving the Project Site who may use this route and travel north/northwest during the PM peak hour. The portion of Wasco Way between Stockdale Highway and Highway 58 is expected to be used by some of the construction workforce leaving the Project Area while a higher number of other workers are expected to travel east on Stockdale Highway or via Tupman Road to SR 119 east out of the Project Area.

Below provides a response to CEC's follow-up request for additional intersection analysis at the intersections of Wasco Way/Stockdale Highway and Wasco Way/SR 58.

Roadway Conditions:

URS conducted a field survey of the aforementioned intersections on February 7, 2013. The following describes the results of the survey, including the current roadway conditions along the relevant Wasco Way route.

Wasco Way/Stockdale Highway: This junction is the most westerly termini of Stockdale Highway; the improved asphalt paving and road striping ends at the east leg of this junction, while the west leg appears to be a private road/driveway marked "dead end" with poor pavement conditions leading to a farmhouse and farming property. Similarly, the south leg of the junction is marked "not a through road" and leads to a farm property and the roadway has slightly better conditions than the west leg of the junction. Several feet to the east of the junction, a 15-mile per hour (MPH) advisory sign with 90-degree right-turn arrow is posted indicating the public route will proceed northbound to Wasco Way. Other than the advance speed sign and right-turn arrow, the junction is not controlled by any form of traffic device. Based on the described conditions and no traffic control of this junction, this location is considered a de-facto traffic curve and was not be analyzed for intersection level of service (LOS).

Wasco Way/State Route 58 (SR 58): This intersection is currently controlled by stop signs on Wasco Way on both the northbound and southbound approach. SR 58 is free-flowing with no restrictions on either the eastbound or westbound direction. This intersection was analyzed for intersection level of service (LOS) as discussed below.

Findings:

Tables 5.10-7 and 5.10-8 have been updated and provided to include the intersection of Wasco Way at SR 58 (see Revised Tables 5.10-7 and 5.10-8 below). Although it was assumed that construction workers would use Wasco Way during the PM peak hour only, the AM peak hour conditions was evaluated nevertheless to illustrate that the Project construction traffic will not impact this location. The result of the Highway Capacity Manual intersection LOS analysis showed acceptable LOS C conditions during both AM and PM hours during project construction. Project added trips did not result in a change from LOS B to an unacceptable LOS during both AM and PM hours during project construction resulting in no significant Project impact. The attached intersection LOS calculation worksheets are provided to support the updated analysis. Revised Tables 5.10-7 and 5.10-8 summarize the peak intersection LOS under Year 2016 No Project Conditions. The intersection (No. 26) of Wasco Way and SR 58 was added to the last row of the tables in response to this CEC request.

Although the CEC requested an intersection analysis of Wasco Way/Stockdale Highway, as indicated above, an LOS analysis was not considered necessary based on the conditions described above.

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Revised Amended AFC Table 5.10-7
Peak-Hour Intersection LOS – Year 2016 No Project Conditions

Intersection		Control	a.m. Peak Hour		p.m. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1.	I-5 NB Ramp/Stockdale Highway	Unsignalized	8.9	A	12.0	B
2.	I-5 SB Ramp/Stockdale Highway	Unsignalized	9.3	A	14.3	B
3.	I-5 NB Ramp/SR 119	Unsignalized	11.6	B	19.7	C
4.	I-5 SB Ramp/SR 119	Unsignalized	12.5	B	20.4	C
5.	SR 119/SR 43	Signalized	26.2	C	24.2	C
6.	SR 43/Stockdale Highway	Unsignalized	12.5	B	36.4	E
7.	Stockdale Highway/Morris Road	Unsignalized	8.8	A	9.5	A
8.	SR 119/Tupman Road	Unsignalized	21.9	C	105.0	F
9.	Tupman Road/Grace Avenue	Unsignalized	7.0	A	7.0	A
10.	Tupman Road/Station Road	Unsignalized	8.7	A	8.6	A
11.	Dairy Road/Stockdale Highway	Unsignalized	8.7	A	9.8	A
12.	Dairy Road/Adohr Road	Unsignalized	9.0	A	8.9	A
13.	SR 43/Poso Avenue	Unsignalized	11.2	B	12.4	B
14.	SR 43/Kimberlina Road	Signalized	24.1	C	21.2	C
15.	SR 43/Shafter Avenue	Signalized	12.9	B	13.2	B
16.	SR 43/Central Avenue	Signalized	9.1	A	10.5	B
17.	SR 43/Lerdo Highway	Signalized	22.3	C	21.8	C
18.	SR 43/7th Standard Road	Unsignalized	12.4	B	27.5	D
19.	SR 43/SR 58 (Rosedale Hwy West)	Unsignalized	11.3	B	15.4	C
20.	SR 43/SR 58 (Rosedale Hwy East)	Unsignalized	11.3	B	17.2	C
21.	H Street/9th Street	Unsignalized	8.6	A	8.7	A
22.	H Street/Wasco Avenue	Unsignalized	8.7	A	9.0	A
23.	Wasco Avenue/Poso Avenue	Unsignalized	10.4	B	10.8	B
24.	Wasco Avenue/Kimberlina Road	Unsignalized	10.5	B	10.4	B
25.	J Street/9th Street	Unsignalized	8.5	A	8.6	A
26.	Wasco Way/SR 58	Unsignalized	14.6	B	14.4	B

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Revised Amended AFC Table 5.10-8
Peak-Hour Intersection LOS – Year 2016 Project Construction Conditions
(Alternatives 1 and 2)

Intersection		Control	a.m. Peak Hour		p.m. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1.	I-5 NB Ramp/Stockdale Highway	Unsignalized	11.5	B	15.8	C
2.	I-5 SB Ramp/Stockdale Highway	Unsignalized	10.8	B	32.4	D
3.	I-5 NB Ramp/SR 119	Unsignalized	21.6	C	30.8	D
4.	I-5 SB Ramp/SR 119	Unsignalized	14.0	B	34.7	D
5.	SR 119/SR 43	Signalized	27.6	C	27.3	C
6.	SR 43/Stockdale Highway	Unsignalized	15.9	C	142.2	F
7.	Stockdale Highway/Morris Road	Unsignalized	10.7	B	13.5	B
8.	SR 119/Tupman Road	Unsignalized	25.4	D	OVRFL	F
9.	Tupman Road/Grace Avenue	Unsignalized	7.9	A	11.6	B
10.	Tupman Road/Station Road	Unsignalized	9.4	A	14.5	B
11.	Dairy Road/Stockdale Highway	Unsignalized	11.6	B	28.2	D
12.	Dairy Road/Adohr Road	Unsignalized	16.2	C	14.1	B
13.	SR 43/Poso Avenue	Unsignalized	11.4	B	13.0	B
14.	SR 43/Kimberlina Road	Signalized	24.0	C	20.8	C
15.	SR 43/Shafter Avenue	Signalized	12.8	B	13.2	B
16.	SR 43/Central Avenue	Signalized	9.1	A	10.4	B
17.	SR 43/Lerdo Highway	Signalized	22.2	C	22.1	C
18.	SR 43/7th Standard Road	Unsignalized	12.6	B	33.0	D
19.	SR 43/SR 58 (Rosedale Hwy West)	Unsignalized	11.7	B	21.8	C
20.	SR 43/SR 58 (Rosedale Hwy East)	Unsignalized	11.7	B	32.2	D
21.	H Street/9th Street	Unsignalized	8.6	A	8.7	A
22.	H Street/Wasco Avenue	Unsignalized	8.7	A	9.0	A
23.	Wasco Avenue/Poso Avenue	Unsignalized	10.4	B	10.8	B
24.	Wasco Avenue/Kimberlina Road	Unsignalized	10.5	B	10.4	B
25.	J Street/9th Street	Unsignalized	8.5	A	8.6	A
26.	Wasco Way/SR 58	Unsignalized	20.2	C	17.7	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Noel Casil*
Agency/Co.	*URS Corp*
Date Performed	*2/14/2013*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Wasco Way at SR-58*
Jurisdiction	*Kern*
Analysis Year	*2016 No Project*

Project Description

East/West Street: *SR-58* North/South Street: *Wasco Way*

Intersection Orientation: *East-West* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*28*	*354*	*57*	*10*	*95*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*28*	*354*	*57*	*10*	*95*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*15*	*5*	*5*	*28*	*28*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*20*	*15*	*5*	*5*	*28*	*28*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*28*	*10*		*40*			*61*	
C (m) (veh/h)	*1505*	*1159*		*421*			*559*	
v/c	*0.02*	*0.01*		*0.10*			*0.11*	
95% queue length	*0.06*	*0.03*		*0.31*			*0.37*	
Control Delay (s/veh)	*7.4*	*8.1*		*14.4*			*12.2*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*14.4*			*12.2*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Noel Casil*
Agency/Co.	*URS Corp*
Date Performed	*2/14/2013*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Wasco Way at SR-58*
Jurisdiction	*Kern*
Analysis Year	*2016 Construction*

Project Description

East/West Street: *SR-58* | North/South Street: *Wasco Way*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*28*	*354*	*57*	*10*	*95*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*28*	*354*	*57*	*10*	*95*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*15*	*313*	*5*	*28*	*28*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*20*	*15*	*313*	*5*	*28*	*28*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*28*	*10*		*348*			*61*	
C (m) (veh/h)	*1505*	*1159*		*627*			*486*	
v/c	*0.02*	*0.01*		*0.56*			*0.13*	
95% queue length	*0.06*	*0.03*		*3.41*			*0.43*	
Control Delay (s/veh)	*7.4*	*8.1*		*17.7*			*13.5*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*17.7*			*13.5*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Noel Casil*
Agency/Co.	*URS Corp*
Date Performed	*2/14/2013*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Wasco Way at SR-58*
Jurisdiction	*Kern*
Analysis Year	*2016 No Project*

Project Description *HECA AFC*

East/West Street: *SR-58* | North/South Street: *Wasco Way*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*31*	*385*	*62*	*5*	*46*	*2*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*31*	*385*	*62*	*5*	*46*	*2*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*42*	*32*	*11*	*3*	*5*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*42*	*32*	*11*	*3*	*5*	*5*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*31*	*5*		*85*			*13*	
C (m) (veh/h)	*1572*	*1124*		*458*			*538*	
v/c	*0.02*	*0.00*		*0.19*			*0.02*	
95% queue length	*0.06*	*0.01*		*0.67*			*0.07*	
Control Delay (s/veh)	*7.3*	*8.2*		*14.6*			*11.9*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*14.6*			*11.9*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Noel Casil*
Agency/Co.	*URS Corp*
Date Performed	*2/14/2013*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Wasco Way at SR-58*
Jurisdiction	*Kern*
Analysis Year	*2016 Construction*

Project Description *HECA AFC*

East/West Street: *SR-58* North/South Street: *Wasco Way*

Intersection Orientation: *East-West* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*31*	*385*	*62*	*108*	*46*	*2*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*31*	*385*	*62*	*108*	*46*	*2*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*42*	*32*	*11*	*3*	*5*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*42*	*32*	*11*	*3*	*5*	*5*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*31*	*108*		*85*			*13*	
C (m) (veh/h)	*1572*	*1124*		*321*			*391*	
v/c	*0.02*	*0.10*		*0.26*			*0.03*	
95% queue length	*0.06*	*0.32*		*1.04*			*0.10*	
Control Delay (s/veh)	*7.3*	*8.5*		*20.2*			*14.5*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*20.2*			*14.5*		
Approach LOS	--	--	*C*			*B*		

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