Hidden Hills Solar Electric Generating System (HHSEGS) State Route 127/Baker Boulevard Intersection Analysis

PREPARED FOR: BrightSource Energy

PREPARED BY: Lisa Valdez / CH2M HILL

DATE: December 10, 2012

INTRODUCTION

The Hidden Hills Solar Electric Generating System (HHSEGS) will be located in southern California's Mojave Desert in Inyo County adjacent to the California–Nevada border. The project's potential traffic impacts are being evaluated as part of the California Energy Commission's (CECs) Application for Certification (AFC) process. This memorandum provides additional information regarding the project's potential construction-related traffic impacts to the intersection of State Route (SR) 127 and Baker Boulevard in San Bernardino County.

The intersection analysis is based on peak hour turning movement counts collected at the intersection in October and November 2012 and based on the project information and traffic assumptions contained in the AFC, Volume 1 & Volume 2 (August 8, 2011) and the Applicant's Updated Workforce Analysis (October 1, 2012).

TRAFFIC IMPACT THRESHOLDS

The focus in this analysis is on unsignalized intersection level of service (LOS), calculated using Synchro (version 8.0). LOS is determined using seconds of delay. The LOS criteria are summarized in Table 1.

TABLE 1
Level of Service Criteria for Unsignalized Intersections

LOS	Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 and < 15
C	> 15 and < 25
D	> 25 and < 35
E	> 35 and < 50
F	> 50

Source: Transportation Research Board, 2000, Highway Capacity Manual.

The intersection of SR 127 and Baker Boulevard is a four-way stop-controlled intersection located in the town of Baker in the Desert Region of San Bernardino County. The Circulation Element of the San Bernardino County General Plan sets forth goals and policies that address regional traffic on freeways and major arterials. Specifically for the Desert region, one of the policies is that *"mitigation may be required if the unsignalized intersection level of service…decreases one level of service (LOS) to LOS B on the major, nonstopped street. Mitigation may also be required if the level of service on the minor, stopped street decreases two levels of service or drops below LOS C…"* The County's policies are based on impacts to a two-way stop-controlled intersection. For the purposes of this analysis, it is assumed that impacts to a four-way stop-controlled intersection would be similar to those of a two-way stop. As such, the project has been evaluated against these policies.

PROJECT TRIP GENERATION AND TRIP DISTRIBUTION

HHSEGS will be constructed over a 29-month period, with the peak construction effort onsite occurring during Month 19, when 2,293 workers are projected to be working onsite. Based on the traffic assumptions contained in the Updated Workforce Analysis (October 1, 2012) it is estimated that approximately 70 percent of the workforce will be from California and 30 percent of the workforce will be from Nevada. During the peak construction period, HHSEGS is estimated to generate a maximum total of 4,000 daily trips, with up to 1,411 trips occurring during the morning peak hour and 1,411 trips occurring during the afternoon peak hour. This estimate includes both auto (personnel) and truck (delivery) trips. The SR 127 intersection in Baker is being analyzed because it is assumed that on Monday morning 20 percent of the California workforce will travel through Baker on their way to the site from I-15. On Friday afternoon, 50 percent of the California workforce will travel through Baker on their way home via I-15 south. As a result, the project is anticipated to add 235 northbound through volumes to the intersection on Monday morning and 588 southbound through volumes to the intersection on Friday afternoon.

INTERSECTION LEVEL OF SERVICE

Turning movement counts were collected at the study intersection on two Mondays (October 22, 2012 and October 29, 2012) from 5:00 AM to 8:00 AM and on two Fridays (November 2, 2012 and November 9, 2012) from 4:00 PM to 7:00 PM. The count period was selected to capture the workforce schedule and anticipated time/day that workers will be travelling through the intersection. As a conservative analysis, the intersection LOS was calculated using the highest peak hour volume observed. The existing peak hour volumes are illustrated in Figure 1 (all figures are at the end of the memo) and the existing AM and PM peak hour intersection LOS is summarized in Table 2.

The project traffic was added to the existing peak hour traffic volumes and the intersection LOS analyses were updated. The existing plus construction-related traffic volumes are illustrated in Figure 2 and the results of these calculations are summarized in Table 2. As shown in the table, the intersection would operate at LOS B during the morning peak hour and at LOS E during the afternoon peak hour, under existing plus project conditions. However, this is a temporary, short-term increase in traffic that would occur for approximately one to two hours once a week during the peak construction period.

TABLE 2
SR 127/Baker Boulevard Intersection – Existing/Existing + Project LOS

		AM Peak		PM Peak	
Scenario	**Approach**	**Delay***	**LOS**	**Delay***	**LOS**
Existing Conditions	Overall delay	8.1	A	10.7	B
	Eastbound	7.6	A	10.2	B
	Westbound	8.4	A	10.7	B
	Northbound	8.2	A	12.0	B
	Southbound	8.2	A	10.1	B
Existing + Project	Overall delay	11.1	B	**37.6**	**E**
	Eastbound	8.7	A	14.4	B
	Westbound	9.6	A	14.5	B
	Northbound	12.9	B	16.0	C
	Southbound	8.7	A	67.2	F

*Seconds of delay
Impacts shown in bold.

SUMMARY

During the peak construction period, the project would result in a short-term impact at the SR 127 / Baker Boulevard intersection during the Friday afternoon peak hour when the California construction workforce is returning to home.

With implementation of the Traffic Management Plan (TMP) measures proposed in the Updated Workforce Analysis, the potential project impacts will be reduced to less-than-significant. The proposed measures are described in detail in the Updated Workforce Analysis and include a Traffic Monitoring Program, carpooling, a Rideshare and Employer-sponsored Van Program, staggered work shifts and a Traffic Control Plan (signage, flaggers, lead vehicles, etc.). Some or all of these potential measures may be implemented based on the specific circumstances at the time. The intersection operation would return to pre-project conditions once project construction is complete.

LEGEND

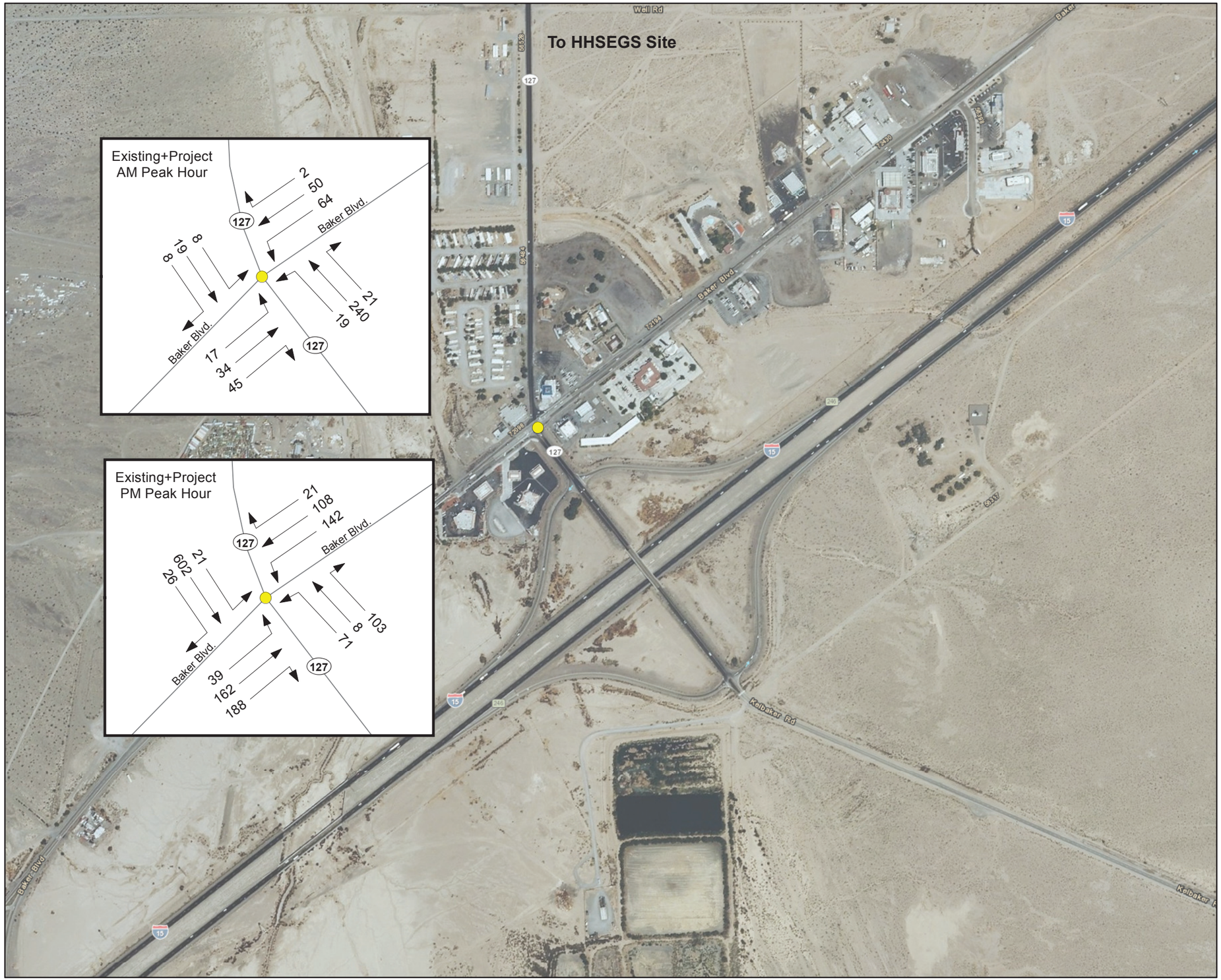
- Study Intersection
- X — Peak Hour Turning Movement
  PM Peak Hour Volume shown in ( ).

N

0 250 500

Feet

FIGURE 1
Existing Peak Hour Intersection Volume
Hidden Hills Solar Energy System



LEGEND

- Study Intersection
- X Peak Hour Turning Movement

N

0 250 500

Feet

FIGURE 2
Existing + Project Peak Hour Intersection Volume
Hidden Hills Solar Energy System