APPENDIX 4.12

Transportation and Traffic

FEHR & PEERS
TRANSPORTATION CONSULTANTS

MEMORANDUM

Date: September 17, 2007

To: Shabnam Barati, Impact Sciences

From: Sam Tabibnia

Subject: ***Trip Generation for Helios and CRT EIRS***

WC07-2465

This memorandum presents the methodology and assumptions used in estimating trip generation for the EIRs for the proposed Helios and Computational Research and Theory (CRT) Buildings at the Lawrence Berkeley National Lab (LBNL). Both projects are part of the recently approved LBNL Long Range Development Plan (LRDP). The methodology and assumptions presented in this memorandum are consistent with the methodology and analysis used in the LBNL LRDP EIR.

LRDP EIR

The transportation/traffic analysis completed for the LRDP EIR assumed that the daily and peak hour traffic generated by LBNL is directly proportional to the Adjusted Daily Population (ADP) of the LBNL main hill site. Traffic counts collected at the three LBNL gates and ADP in 2003 were used to establish the baseline for the EIR analysis. The traffic analysis was based on a 29 percent growth in ADP from 4,000 in 2003 to 5,150 in 2025.[1] Table 1 summarizes the existing and LRDP vehicle trip generation as presented in the LRDP EIR.

The LRDP EIR assumed that parking supply at the main hill site would also increase by 29 percent. Vehicle trip generation is expected to be directly proportional to overall parking supply because the main hill site is somewhat isolated, parking supply in the vicinity of the site is limited, and parking demand at the site can be controlled by the number of parking permits issued by LBNL.

TABLE 1
LBNL POPULATION AND VEHICLE TRIP GENERATION

	Adjusted Daily Population	***Trip Generation***						
		Daily	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Existing (2003)	4,000	5,700	540	70	610	75	585	660
LRDP	1,150	1,600	150	20	170	20	160	180
Source: Data presented in section IV.L of the LBNL LRDP EIR.								

[1] The LRDP program has been reduced to 25 percent growth from 4,000 ADP in 2003 to 5,000 ADP in 2025. However, the traffic analysis in the LRDP EIR was completed for a 29 percent growth and is more conservative.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

EXISTING CONDITIONS

Fehr & Peers conducted a parking study at the LBNL main hill site in September 2007. Based on the current parking inventory, the LBNL main hill site currently provides about 2,160 parking spaces. The parking supply is slightly lower than the parking supply reported in 2003 and used in the LRDP EIR due to construction staging at several parking facilities.

Since these parking spaces are scattered through many parking lots, the last few spaces can be difficult to locate. Thus, the practical capacity of the entire site is considered to be 90 percent. Based on parking occupancy counts in September 2007, the peak parking occupancy at the Lab was 81 percent, which occurred in mid-afternoon. In general, most parking lots were occupied at or near their capacities. However, several more remote lots have more unoccupied spaces available. Considering the practical capacity of the site, about 190 parking spaces are currently available.

PROPOSED PROJECTS

The proposed Helios project is estimated to increase the LBNL population by 500 ADP and the proposed CRT project is estimated to increase the LBNL population by 303 ADP. Although some of these employees are currently at other LBNL buildings and would relocate to the new buildings, this analysis assumes that the 803 ADP at these two buildings would be new to the main hill site to account for potential back-fill of existing spaces and present a conservative analysis. A 50-space parking lot would be constructed as part of the Helios Project. However, the CRT project would not include any additional parking supply.

Table 2 presents the estimated vehicle trip generation for these projects assuming that they would have the same trip generation rates per ADP as the existing site. This also assumes that vehicle trip generation would not be constrained by parking supply (i.e., adequate parking supply would be available to meet expected demand.) The Helios and CRT projects combined would represent about 70 percent of the population increase expected under the LBNL LRDP. As shown in Table 2, if parking supply is not accounted for, the two projects combined would represent about 70 percent of the LRDP vehicle trip generation as presented in the LRDP EIR.

TABLE 2
PROJECT VEHICLE TRIP GENERATION
UNCONSTRAINED PARKING

	Adjusted Daily Population	***Trip Generation***						
		Daily	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Helios	500	696	65	9	74	9	70	78
CRT	303	422	40	5	45	5	42	47
Total New	***803***	***1,117***	***105***	***14***	***119***	***14***	***112***	***126***
LRDP	1,150	1,600	150	20	170	20	160	180
Percent of LRDP	70%	70%	70%	70%	70%	70%	70%	70%

Source: Fehr & Peers, 2007 and data presented in section IV.L of the LBNL LRDP EIR.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

As shown in Table 3, the total main hill site parking supply would need to be increased by about 461 spaces to maintain the same parking supply to ADP ratio as existing conditions and the LRDP analysis. However, the Helios and CRT projects combined would increase overall parking supply by about 50 spaces. There are also currently 190 spaces available at the main hill site. Thus, about 240 parking spaces would be available for the Helios and CRT projects before parking demand would exceed the total parking supply at the main hill site. Since only 52 percent of the parking demand generated by the Helios and CRT projects can be met, it is estimated that the limited parking supply would also constrain the project vehicle trip generation presented in Table 2 by 52 percent.

TABLE 3
LBNL POPULATION AND PARKING SUPPLY

	Adjusted Daily Population	***Parking Supply***
Existing Conditions (2007)	4,000	2,160 [1]
LRDP	1,150	660 [2]
ADP and Parking Supply to Meet Helios and CRT Combined Demand	803	461 [2]
Parking Supply Available to meet Helios and CRT Parking Demand		240 [3]
Percent Parking Demand for Helios and CRT that can be Satisfied		52%

1. Parking supply based on data collected in September 2007.
2. Based on 1.7 ADP per parking spaces as documented in the LRDP EIR.
3. Includes 190 parking spaces currently available and 50 parking spaces at the new Helios lot.

Source: Fehr & Peers, 2007.

Table 4 presents the project vehicle trip generation constrained by the limited on-site parking supply. The trip generation for the two projects combined would represent about 36 percent of the total vehicle trip generation estimated in the LRDP EIR.

TABLE 4
PROJECT VEHICLE TRIP GENERATION
CONSTRAINED PARKING

	Adjusted Daily Population	***Trip Generation***						
		Daily	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Helios	500	353	34	4	38	5	36	41
CRT	303	214	21	3	24	3	22	25
Total New	***803***	***567***	***55***	***7***	***62***	***8***	***58***	***66***
LRDP	1,150	1,600	150	20	170	20	160	180
Percent of LRDP	70%	36%	36%	36%	36%	36%	36%	36%

Source: Fehr & Peers, 2007.

Based on data collected in 2000 and presented in the LRDP EIR, about 52 percent of LBNL employees drive alone to work, and 48 percent use other modes including the LBNL shuttle, other transit, and bicycles. Based on this mode split data, Table 5 presents the estimated total person-trips generated by the main hill site under existing conditions, LRDP buildout, and Helios and CRT projects. Each person is estimated to generate about 2.7 daily trips, 0.28 AM peak hour trips, and 0.29 PM peak hour trips. As vehicle trip generation deceases due to limited parking, more employees and visitors would shift to other modes.

TABLE 5
PERSON TRIP GENERATION

	Adjusted Daily Population	***Trip Generation***						
		Daily	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Existing (2003)	4,000	10,960	1,038	135	1,173	144	1,125	1,269
LRDP	1,150	3,080	288	38	327	38	308	346
Helios	500	1,340	130	20	150	20	130	150
CRT	303	810	80	10	90	10	80	90
Total New	***803***	***2,150***	***210***	***30***	***240***	***30***	***210***	***240***

Source: Fehr & Peers, 2007 and LBNL LRDP EIR.

CONCLUSIONS

We intend to use the vehicle trip generation presented in Table 4 for the traffic analysis for the Helios and CRT project EIRs. These estimates are based on the following assumptions:

- Parking supply and demand at the main hill site has would not be changed by any of the LBNL projects that are under construction or planned to be completed prior to the Helios and CRT projects.
- The proportion of parking permits to parking supply issued by LBNL for the main hill site would remain similar to the current ratio.
- The LBNL parking supply would not be increased above the 50-space Helios Lot. Stacked or attendant parking would not be implemented to meet typical weekday parking demand.
- The LBNL Transportation Demand Management (TDM) program would be expanded to discourage the use of single-occupant vehicles and meet the additional demand by employees and visitors who cannot drive to the site. This would include expansion of the existing shuttle service.

Please contact us with questions or comments.