APPENDIX J
Preliminary Transportation Demand Analysis

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Memorandum

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To: Justin Murphy and Charles Taylor (City of Menlo Park)
CC: David Bohannon ((David D. Bohannon Organization), Jennifer Renk (Luce, Forward, Hamilton & Scripps LLP), Phil Erickson and Sue Chan (Community Design & Architecture)
From: Michael Mowery and Jim West
Date: 7 July 2009
Re: Transportation Demand Management Program for Menlo Gateway in Menlo Park, CA – ***Version 8***

The intent of the following Transportation Demand Management (TDM) program is to provide options for reducing vehicle trips and mitigate impacts of the proposed Menlo Gateway development located at 101-155 Constitution and 100-190 Independence Drive in Menlo Park, CA.

The project includes redevelopment of the following parcels:

1. The parcels bounded by Independence Drive, Chrysler Drive, and the Bayshore Freeway (US 101) (the "Independence parcels").

2. The parcels bounded by Constitution Drive, Chrysler Drive, the Bayfront Expressway, and Independence Drive (the "Constitution parcels").

The proposed development would include offices, research and development uses, as well as a hotel, health club, café, restaurants, and convenience retail/community facilities that would serve the office/R&D uses. Existing office and research/development uses would be removed and replaced with new multi-story office buildings totaling 200,000 square feet on the Independence parcels and 494,669 square feet on the Constitution parcels. The office development is anticipated to have 2,200 employees based on data contained in *Trip Generation, 7th Edition* published by the Institute of Transportation Engineers (ITE).[1]

[1] *Trip Generation 7th Edition*, Institute of Transportation Engineers, 2003.

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In addition to the office building, other uses include a 230 room hotel, 76,414 square foot health club, 6,947 square foot restaurant, and 10,420 square foot retail facility. The non-office uses are anticipated to have 300 employees based on data contained in *Trip Generation, 7th Edition*. Only some TDM measures for these facilities are included in this TDM plan since employees of these uses tend to work in specified shifts and carpools and vanpools are less used and flexible hours are unavailable since they are direct customer service based. Also, based on the distance to the airport, a regular shuttle is not anticipated to be provided by the hotel.

The development is currently being reviewed through an Environmental Impact Report, which includes the evaluation of potential transportation impacts of the project; however, this is an independent Transportation Demand Management (TDM) Program to continue the public facilitation of the project prior to the formal release of the Draft EIR (DEIR) document. It should be noted that ITE *Trip Generation 8th Edition* was released in the Fall of 2008; however, the *7th Edition* was referenced for this TDM evaluation for consistency with the project EIR documentation, which is using the *7th Edition*.

According to the City of Menlo Park Transportation Demand Management (TDM) Guidelines, a combination of acceptable options/measures may be used to "reduce the net number of trips that the project is anticipated to generate on the City's circulation network to a non-significant level."[2] Furthermore, the City/County Association of Governments of San Mateo County (C/CAG) requires that if the project generates 100 or more peak hour trips, "local jurisdictions must ensure that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development." [3]

Measures in this memorandum are consistent with the measures outlined in C/CAG's TDM Guidelines.

[2] Transportation Demand Management (TDM) Guidelines, City of Menlo Park.
[3] Revised C/CAG guidelines for the Implementation of the Land Use Component of the Congestion Management Program, September 21, 2004.

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The following is a summary of recommended Transportation Demand Management Measures and their associated trip reductions. The necessary trip credits are based on the incremental increase in project trips between the existing office/R&D uses and the proposed Menlo Gateway project. Calculations for trip generation, internal capture, and pass-by reductions are consistent with ITE *Trip Generation, 7th Edition* and *Trip Generation Handbook, 2nd Edition*.[4]

It should be noted that trip generation for the proposed uses in this TDM plan are slightly different than reported in the project EIR documentation due to rounding differences. Differences resulted in one PM trip greater and 3 daily trips greater than reported in the DEIR. AM trips for the new project were the same between the TDM plan and the DEIR.

Calculations are attached to this memorandum.

The 1,075 trip credits outlined in this TDM program mitigate the projected 1,068 net project trips estimated for the Menlo Gateway development based on the probable and potential measures described below at the time of project opening.

It is noted that the methodology as described in the C/CAG guidelines no longer applies to the way the Guaranteed Ride Program is currently operated. Therefore, Kimley-Horn contacted the Peninsula Traffic Congestion Relief Alliance (who administers the program) and C/CAG for clarification on the new trip credit methodology. Per C/CAG direction, trip credit is equal to 1 percent of the total number of employees enrolled in the program.

It is also noted that assumed percentages and levels of participation in TDM elements as outlined in this document are consistent with mode split data as contained in the U.S. Census. Menlo Park residents were reported to use the following transportation alternatives: 70% drive alone; 8% carpool; 4% transit; 9% walk, bike or other; and, 9% work at home.

[4] *Trip Generation Handbook, 2nd Edition*, Institute of Transportation Engineers, 2004.

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TDM MEASURES AT OPENING OF PROJECT

Bicycle Lockers and Racks

Convenient and secure bicycle storage helps increase bicycling. Bike lockers and/or racks should be provided at both the Independence site and the Constitution site to encourage more commuters to bicycle. Racks and lockers should be designed for medium to long-term parking security for greatest benefit. A minimum of 2 lockers and 8 racks should be conveniently located at each office building (30 total) which would qualify for one peak hour trip credit per three lockers or racks.

(The Peninsula Traffic Congestion Relief Alliance will subsidize 50 percent of the cost bike lockers and racks up to $500 per unit.)[5]

Showers and Changing Rooms

Although cyclists and walkers can change in restrooms and store a change of clothes in the workplace, dedicated facilities are more likely to encourage regular cycling and walking. Showers and a changing room should be provided for employees that are commuting by bicycle or walking to the Independence and the Constitution sites. A total of two shower facilities with changing rooms per gender per office building should be provided to avoid waits at peak times, and to encourage and accommodate increased use. This measure would qualify for two peak hour trip credits per combination shower and changing room installed. In addition, the project is eligible for an additional five trip credits because the project will have five or more bike lockers.

Shuttle Service

In the vicinity of the project site, bus service is limited; however, the Caltrain Marsh Road Area Shuttle runs between the project site and the Menlo Park Caltrain station. Persons riding Caltrain can use the shuttle for free. During the AM the shuttle dwells at the Menlo Park station while waiting for two trains that arrive six minutes apart. The delay in departure after the first train results in time transfer delays for the first group of passengers but helps the shuttle operate at near capacity.

[5] For more information on the Peninsula Traffic Congestion Relief Alliance and their programs see http://www.commute.org/.

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The increase in project employment is anticipated to increase shuttle demand. Therefore, the project should sponsor the costs of providing a new shuttle during the AM and PM peak hours of the weekday. The shuttle should accommodate 20 seated passengers and should run for three hours in the AM and three hours in the PM peak hours. The shuttle can serve either the first or second of the train pairs in the AM to reduce the transfer time for passengers. Sponsoring a new shuttle will also ensure sufficient capacity on this popular route.

In addition, few "Baby Bullet" trains stop at the Menlo Park Station and instead stop at the Palo Alto or Redwood City stations. Therefore, the project should also sponsor or operate a shuttle between the site and the Redwood City Caltrain Station where passengers can access the limited-stop bullet trains. A shuttle should accommodate 20 seated passengers and should run for three hours in the AM and three hours in the PM peak hours.

These measures would qualify for one peak hour trip credit for each peak hour round trip seat. In addition, the project is eligible for one additional trip credit per round trip seat if a Guaranteed Ride Program is also in place.

Subsidized Public Transit Tickets
Subsidizing transit passes reduce the number of single-occupant vehicles on the road by encouraging employees to use an alternative method for getting to work, which can also save them money. Transit passes should be subsidized at a reduced cost for employees in the project area who use Caltrain. Subsidized rail passes should be provided to employees at a minimum of $20 per month to qualify for a trip reduction credit. This measure would qualify for one peak hour trip credit for each subsidized pass provided to employees. The percentage of subsidized rail passes per total Menlo Gateway employment is consistent with the transit mode share reported by the U.S. Census.

(Employees in San Mateo County can try transit for free. Many of the local public transit agencies including Caltrain, SamTrans, BART, AC Transit, and VTA provide transit tickets to get people to try transit as a one-time incentive.)

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Subsidize Pedestrians/Bicyclists Who Commute to Work
Employees that regularly bicycle or walk to work should be subsidized a minimum of $20 per month to defray commute costs, such as clothing, shoes, bike tires or lights, helmets, etc. This measure would qualify for one peak hour trip credit for each subsidized pass provided to employees. This measure would qualify for one peak hour trip credit for each subsidized employee. The percentage of pedestrian and bicycle subsidies per total Menlo Gateway employment is consistent with the pedestrian and bicycle mode share reported by the U.S. Census.

Vanpool Program
Vanpools provide an alternative between driving alone and riding public transit. This option offers greater vehicle carrying capacity and reduced costs while still providing flexibility and convenience to the users. Programs usually involve commuters traveling in a passenger van with one member of the group acting as the driver and person responsible for the vehicle. To encourage vanpooling, a guaranteed ride home provision should also be implemented to ensure employees a ride home if they cannot leave at the same time as the vanpool or in the event of an emergency. Based on the size of the project, a vanpool program with two vanpools at the Independence and two at the Constitution site should be provided. This TDM measure would qualify for seven peak hour trip credits for each vanpool and is increased to ten credits with the addition of a guaranteed ride home program.

(The Peninsula Traffic Congestion Relief Alliance offers startup cash incentives to new vanpool drivers and riders. Employees who agree to drive for six months will receive a $500 cash incentive. Other employees who agree to become passengers of the vanpool for three months consecutively will be reimbursed half of their vanpool costs up to $100 per month.)

Preferential Carpool and Vanpool Parking
Providing close-in parking for vanpool and carpool vehicles and requiring drive-alone commuters to park further away is another incentive that should be provided at each site. Preferential parking reduces the number of peak hour trips and if the spaces are reserved or sheltered it makes the incentive benefit even greater when placed near the entrance to buildings. A total of 208 preferential carpool spaces and four vanpool spaces are

recommended to be provided between the two sites. This percentage is consistent with the average carpool rate in Menlo Park. This measure would qualify for two peak hour trip credits for each reserved carpool space and seven peak hour trip credits for each reserved vanpool space. The percentage of carpool and vanpool spaces per total Menlo Gateway parking is consistent with the carpool mode share reported by the U.S. Census.

(The Peninsula Traffic Congestion Relief Alliance offers gas cards and cash incentives to carpool participants. Employees who commit to carpooling together at least 2 days per week for 8 consecutive weeks receive a $60 gas card as a one-time incentive per passenger. Employees traveling in a hybrid or clean air vehicle are eligible for one-time $80 cash incentive.)

Commute Assistance Center
A commute assistance center compliments other TDM measures by supporting and encouraging the use of other strategies. A center disseminates information on TDM services and incentives to site employees. Trained staff can provide commute planning help and conduct special promotional activities to increase commuter's interest in options other than driving alone. A commute assistance center should be created in the lobby of one of the buildings to offer on-site, one stop access for transit and commute alternatives information. This measure would qualify for one peak hour trip credit for each feature offered in the center with an additional one peak hour credit for each hour the center is staffed with a live person (up to 20 trips per each 200 tenants). It is assumed that a center would include a transit information brochure rack, a desk and chairs for trip planning, a telephone with commute and transit information phone numbers, and offer on-site transit ticket sales. The center should be open for one hour per weekday, preferably during the lunch hour.

Employee Commute Survey
An employee commute survey should be conducted twice per year to assess the current use of alternative commute options within the Menlo Gateway project. Results of the survey should be used to identify adjustments that could be made to sustain or increase the use of transit, carpool/vanpool, bicycling, and walking. This measure would qualify for three peak hour trip credits for a survey that is administered twice yearly.

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Alternative Work Schedules
Alternative work schedules such as staggered or flexible work hours and compressed work schedules should be offered to employees to reduce the number of peak hour trips. Staggered and flexible work hours qualify for one peak hour credit for every employee that is offered the opportunity to work an alternate schedule. A compressed work strategy qualifies for one peak hour credit for every five employees offered the opportunity to work a compressed schedule. Tenants anticipated to occupy the office buildings are likely to be well suited to offer alternative work schedules to their employees. Therefore it was conservatively assumed that up to 3 percent of office building employees would be offered/work staggered and flexible work hours and 3 percent would be offered/work a compressed work schedule.

Provision of On-Site Amenities
On-site amenities encourage employees and visitors to stay on site during the work day, thus reducing the need to bring an automobile to work or leave the site to run errands. Eligible example features include banking, grocery shopping, dry cleaners, exercise facilities, and child care center. The Menlo Gateway project will provide a fitness center, restaurant and retail services that each qualify for five peak hour credits.

Guaranteed Ride Home Program
A Guaranteed Ride Home program provides commuters that carpool, vanpool, bike, walk or take transit to work with a free ride home when unexpected emergencies arise. Employees that leave their personal vehicles at home are able to take a free taxi ride or use a 24-hour car rental in the case of an emergency. The project should partner with the Peninsula Traffic Congestion Relief Alliance to set up a guaranteed ride home program. This TDM measure would qualify for one peak hour trip credit for each 100 employees enrolled in the program.

(The Peninsula Traffic Congestion Relief Alliance will subsidize 75 percent of the costs for a taxi or 24-hour car rental and the employer pays 25 percent.)

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Combination of Elements
Experience has shown that offering multiple and complementary TDM components can magnify the impact of the overall program. Therefore, if any ten TDM elements are combined, the project's TDM plan qualifies for an additional credit of five peak hour trips. Since more than ten qualifying elements are proposed to be implemented, a five trip credit is assumed.

Create Connections for Non-Motorized Travel
Infrastructure improvements that create connections walking and bicycling reduce the need for driving alone to work. These improvements include gap closure of missing sidewalks and bikeways. The Menlo Gateway project should construct three missing sidewalk segments to provide for connectivity between the two parts of the development project, to join other pedestrian facilities, and to provide greater access to shuttle service. Segments should include new sidewalk between the north end of the project to Marsh Road; new sidewalk on Chrysler between Constitution and Independence; and, new sidewalk on Independence between Constitution and the northwest corner of the project site. This TDM measure would qualify for five peak hour trip credits for each connection made.

Install and Maintain Alternative Transportation Kiosks
Transportation kiosks contain alternative commute information for use by employees and visitors. The project should install and maintain kiosks in the lobbies of each office building as well as the fitness club and hotel. This TDM measure would qualify for five peak hour trip credits for each kiosk.

TDM MEASURES IN FUTURE YEARS
The TDM Program includes other measures that could be included in the future. These measures are summarized below. Future measures are not included in the calculation of trip credits.

Telecommuting
The option of telecommuting could be offered to employees to further reduce the number of trips expected during the peak hours. This measure would qualify for one peak hour trip credit for each high-speed internet connection installed in employee's homes to facilitate telecommuting. It is assumed that this option could be offered to roughly 3 percent of the employees.

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Shuttle Service
The Dumbarton Rail is projected to be completed in 2019, which will link Caltrain, the Altamont Express, Amtrak's Capitol Corridor and BART, as well as East Bay bus systems at a multi-modal transit center in Union City and the Caltrain station in Redwood City. It is assumed that a new shuttle service from the planned Dumbarton rail stop near Willow Road/Bayfront Expressway to the Constitution and Independence sites will be implemented to encourage use of public transportation for employees coming from areas in the East Bay as well as throughout the peninsula. The shuttle would also include a guaranteed ride home program. One percent of employees are assumed to use this service. The measure qualifies for one peak hour trip credit for each peak hour round trip seat on the shuttle and is increased to two trips with the guaranteed ride home program in place.

TDM MEASURES CONSIDERED BUT NOT ASSUMED

Several other potential measures were considered but not assumed to be implemented. These include charging employees for parking, monthly transportation allowance for using an alternative mode of transportation, cash payments in return for not using parking, shared parking with offsite uses, creation or participation in a Transportation Management Association, designing roads that discourage automobile access, providing on-site child care services, and others. Some of these measures could be implemented in the future but were considered to be less likely than others previously discussed; therefore, no trip credits were assumed.

Menlo Gateway Transportation Demand Management Program

Measure	Rate	Notes	Peak Trip Credit Rate	Program Elements	Trip Credits
Bicycle Storage - Class 1 Bike Lockers	one credit per 3 bike lockers/racks		1/3	6	2
Bicycle Storage - Class 2 Bike Racks	one credit per 3 bike lockers/racks		1/3	24	8
Showers/Changing Room	ten credits per 1 shower/changing room	A	10	12	120
Additional credits for combination w/ 5 bike lockers	five credits for 5 or more bike lockers		5	1	5
Shuttle Service AM/PM to Menlo Park Station (fund new 20 pass shuttle in peak hour)	one credit per 1 peak hour round trip seat	B	1	20	20
Shuttle Service AM/PM to Redwood City Station (fund new 20 pass shuttle in peak hour)	one credit per 1 peak hour round trip seat	B	1	20	20
Additional credits with guaranteed ride home program	one credit per 1 shuttle credit		1	40	40
Subsidize transit tickets	one trip credit for each transit pass subsidized at $20/month/one year	C	1	100	100
Subsidize pedestrians/bicyclists who commute to work	one trip credit for each employee subsidized at $20/month/one year	D	1	125	125
Preferential carpool parking	two credits per 1 space reserved	E	2	208	416
Preferential vanpool parking	seven credits per 1 space reserved	E	7	4	28
Implement vanpool program	seven credits per vanpool formed		7	4	28
Additional credits with guaranteed ride home program	three credits per vanpool		3	4	12
Operation of a commute assistance center	one credit per program feature	F	1	5	5
Additional credits for staffing the center	one credit for each hour staffed (up to 20 trips/200 tenants)	F	1	5	5
Employee commute survey	three credits for survey administered twice yearly		3	1	3
Compressed work week	one credit for every 5 employees offered the opportunity for four-day work week	G	1/5	44	9
Flexible hours	one credit for every 1 employee offered flex time	H	1	44	44
Provision of on-site amenities	five credits per feature	I	5	3	15
Join Alliance's guaranteed ride home program	two credits for every 100 employees enrolled in program w/ Alliance	J	0.01	2500	25
Combination of ten TDM elements	five credits for combination of 10 elements		5	1	5
Create connections for non-motorized travel	five credits per each connection	K	5	3	15
Install/maintain alternative transportation kiosks	five credits for each kiosk implemented	L	5	5	25

Total	**1075**
Trip Credit Goal	**1068**
Trip Credits Needed	**-7**

Notes:

A Assumed 2 showers per 2 genders per 3 office buildings.

B Assumed project will operate/fund equivalent of 20 round trip seats during peak hour.

C Assumed 4% of ~2500 employees. (Consistent percent as transit mode share for Menlo Park)

D Assumed 5% of ~2500 employees. (Consistent percent as bike/walk mode share for Menlo Park)

E Assumed that 8% of 2667 site parking is devoted to a combination of carpool and vanpool spaces. (Consistent percent as carpool mode share for Menlo Park)

F Assumed features include: transit information brochure rack; computer kiosk connected to Internet; telephone; staffed 5 hr/wk (with commute and transit information numbers); desk and chairs (for personalized trips planning); and, transit pass sales.

G Assumed 2% of ~2200 office employees. (Compressed work week assumed to not be available to other site employees.)

H Assumed 2% of ~2200 office employees. (Compressed work week assumed to not be available to other site employees.)

I Assumed site amenities include on-site fitness center, restaurant, and retail services

J Assumed full enrollment of all projected project employees. Credit based on 1% of total enrolled per C/CAG.

K Assumed sidewalk connection between north end of project to Marsh Road; sidewalk on Chrysler between Constitution and Independence; and, sidewalk on Independence between Constitution and NW corner of project site.

L Assumed that kiosks are located in 3 office buildings, heath club, and hotel.

Other Assumptions:

Existing alternate mode split in Menlo Park is 4% transit; 9% combined bike, walk, other; 8% carpool per US Census data.

Total employees at 3 office buildings projected to be approximately 2200.

Total employees for hotel, restaurant, and fitness center projected to be approximately 300.

Alliance will pay 50% of per unit costs for bike racks/lockers, up to $500/unit.

Alliance will provide free gas cards, bus passes, and other funding startup incentives.

Trip Generation Planner (ITE 7th Edition) - Summary Report

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Weekday Trip Generation
Trips Based on Average Rates/Equations

Project Name **Menlo Gateway**
Project Number **097711000**

						Rates			Total Trips							Net Trips after Internal Capture							Net Trips after Internal Capture & Pass-By						
ITE Code	Internal Capture Land Use	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Daily Rate	AM Rate	PM Rate	Daily Trips	AM Trips	PM Trips	AM Trips In	AM Trips Out	PM Trips In	PM Trips Out	Daily Trips	AM Trips	PM Trips	AM Trips In	AM Trips Out	PM Trips In	PM Trips Out	Daily Trips	AM Trips	PM Trips	AM Trips In	AM Trips Out	PM Trips In	PM Trips Out
310	Residential	Hotel	Room(s)	230	Avg	8.17	0.56	0.59	1880	129	136	79	50	72	64	1540	105	104	64	41	56	48	1540	105	104	64	41	56	48
492	Retail	Health/Fitness Club	1,000 Sq Ft	76.414	Avg	32.93	2.87	3.38	2518	219	258	99	120	147	111	1998	188	216	86	102	128	88	1998	188	216	86	102	128	88
710	Office	General Office Building (1)	1,000 Sq Ft	694.669	Avg	11.01	1.55	1.49	7650	1077	1035	948	129	176	859	7512	1067	1026	944	123	172	854	7512	1067	1026	944	123	172	854
931	Retail	Quality Restaurant	1,000 Sq Ft	6.947	Avg	89.95	0.81	7.49	626	6	52	5	1	35	17	360	5	35	4	1	24	11	360	5	20	4	1	13	6
814		Specialty Retail Center	1,000 Sq Ft	10.42	Avg	44.32	*	2.71	462		28			12	16	462		28			12	16	462		28			12	16
710 Ex		Existing General Office Building (1)	1,000 Sq Ft	-218.73	Avg	11.01	1.55	1.49	-2410	-339	-326	-298	-41	-55	-271	-2410	-339	-326	-298	-41	-55	-271	-2410	-339	-326	-298	-41	-55	-271
					Totals				10726	1092	1183	833	259	387	796	9462	1026	1083	800	226	337	746	9462	1026	1068	800	226	326	741

Calculated Net Project Trips
PM Peak Controls Trip Credits Needed

Notes:
(1) AM and/or PM rates correspond to peak hour of generator

A Trip Generation data from ITE *Trip Generation, 7th Edition*
B AM/PM rates correspond to peak of adjacent street traffic (if data available)
C Includes weekday rates only
D Total trips include pass-by trips w/ no internal capture
E Pass-by rates from ITE *Trip Generation Handbook, 2nd Edition*
F Internal capture rates from ITE *Trip Generation Handbook, 2nd Edition*
G Worksheet is intended as a planning tool. Verify results w/ ITE *Trip Generation 7th Edition*