Appendix D
Analysis with Provision of Remote Parking Lots

Introduction

An alternative measure was developed to mitigate the SUMC Project's significant impacts on intersection level of service (LOS) and roadways. The measure involves the development of remote parking lots. These lots would be located near freeway interchanges. ~~either be located at the periphery of the Stanford University campus, near freeway interchanges.~~ For example, one possible location would be at the interchange of I-280 and Sand Hill Road. Also, the parking lots could be an existing Park & Ride lot that currently has transit service to and from the SUMC Sites, such as the Ardenwood Park & Ride Lot in the East Bay.

The remote parking lots would be used by those employees who have long distance commutes, and who do not live near public transit. It would enable them to continue to drive a significant portion of the distance to work. These employees would park in the remote lots, and then take a shuttle bus or other alternative mode of transportation for the remaining distance to the SUMC.

This mitigation measure was developed for informational purposes only, as an alternative to Mitigation Measure TR-2.3, which involves ~~enhancment~~enhancement ~~ed~~ of Stanford's current Transportation Demand Management (TDM) program through possible implementation of the Caltrain GO Pass or an equivalent TDM measure. The GO Pass is the main optional element of Mitigation Measure TR-2.3. The purpose of the GO Pass is to encourage SUMC employees to use alternative modes to the auto, in particular Caltrain, for all or large portions of their commute trip.

Mitigation Measure Involving Remote Parking Lots

The alternative mitigation measure to the enhanced TDM program is provided below. Mitigation Measure TR-2.5 is the fifth priority measure relative to the higher four priority measures identified in Section 3.4, Transportation.

TR-2.5 *Provide Remote Parking Facilities.* The SUMC Project sponsors shall either pay for the construction of new parking lots, or negotiate with the owners of existing lots to allow SUMC employees to use their lots. A total of 639 spaces shall be provided.

The SUMC Project sponsors shall ensure that there is adequate shuttle bus service between the remote parking lots and the SUMC Sites. In some cases, adequate shuttle bus service would entail modifying an existing shuttle bus route. In other cases, adequate shuttle bus service would entail the establishment of a new shuttle bus route.

The SUMC Project sponsors shall construct two transit centers near the SHC replacement hospital to receive shuttle buses in the morning and to provide a staging area for departing shuttle buses in the afternoon.

Finally, The SUMC Project sponsors shall develop and implement a monitoring process to ensure on-site parking demand reduction of 639 spaces by 2025. The SUMC Project sponsors shall report monitoring results to the City.

Construction of remote parking lots or leasing existing parking lots near freeway interchanges would provide remote parking spaces for use by SUMC's long distance "regional" commuters.

Regional employees who work typical weekday periods between 6:00 a.m. and 6:00 p.m., and who use I-280, US 101, and SR 84, would be required to park in the remote parking lots and use a shuttle bus to reach either the hospitals or medical office buildings. Existing shuttle services to the SUMC would be increased and improved in order to meet the needs of drivers who use the remote parking facilities. In addition, the "guaranteed ride home" program that is part of the current TDM program would be made available to employees who use the remote parking facilities. Traffic to and from SUMC would be reduced and this would serve as mitigation for impacted intersections.

The remote parking lots would be placed near freeway interchanges. Potential locations are shown in Table D-1. Placement of parking facilities near freeway interchanges would only serve regional trips from outside the immediate area of Menlo Park, Palo Alto, and Mountain View. Seventy percent of the regional peak hour hospital trips traveling on the freeways are assumed to be employee trips and could be removed from the local intersections in Palo Alto, East Palo Alto, and Menlo Park. The remote lots along I-280 and US 101 could be combined into one location or be at two locations, depending on the availability of property. The proposed remote parking spaces would be assigned by place of residence. For example, someone living in south Palo Alto would not be assigned to a remote lot but someone in San Jose or Fremont would. Existing lots can be used if Stanford could secure the rights to use the spaces. One possible location is the Ardenwood Park and Ride Lot in Fremont.

Table D-1
Potential Remote Parking Lots

Site / Location	Potential Number of Spaces	Required Action by SUMC Project sponsors
Stanford Linear Accelerator Center (SLAC)	24	Property belongs to Stanford. Designate a section of one of the existing surface lots for use by SUMC employees.
I-280 / Sand Hill Road interchange	116	Build a surface parking lot.
3000 Hanover Street, in the Research Park	100	Obtain approval from the existing owner to construct a 100 space parking structure, and modify existing shuttle routes.
Stanford Outpatient Center at 450 Broadway Street	178	Property belongs to Stanford. Construct a second parking deck, and add a new shuttle bus route.
1880 Embarcadero Road	146	Acquire and demolish existing office building, then build parking structure, and add a new shuttle bus route.
Ardenwood Park & Ride Lot	75	Negotiate with AC Transit to lease a portion of the lot.

Source: AECOM Transportation, 2010.

A monitoring process would need to be instituted to ensure achievement of the desired results. On-site parking as part of the project would be proportionately reduced by the amount of remote parking. The on-site parking reduction would be 639 spaces in 2025. Remote parking lots could be used as potential mitigation instead of the GO Pass. Both measures would not be jointly implemented with the exception of a lot in the East Bay, such as Ardenwood Park and Ride Lot, which could be implemented with the GO Pass since Caltrain does not serve the East Bay.

Reduction of Impacts on Intersection LOS

For informational purposes, the remote parking lots were analyzed to determine to what extent they would mitigate the SUMC Project's intersection impacts. Just as with the mitigation measures addressing intersection impacts that are discussed in Section 3.4, Transportation, it is recognized that the remote parking lots would need to be combined with the other measures. Provision of remote parking spaces was first combined with traffic adaptive signal technology (Mitigation Measure TR-2.1) and the addition of pedestrian and bicycle undercrossings (Mitigation Measure TR-2.2). The combination of these three measures would result in the reduction of SUMC Project impacts to a less-than-significant level at three of the original five intersections, in the AM Peak Hour:

- El Camino Real / University Avenue – Palm Drive [intersection #10]
- El Camino Real / Page Mill Road-Oregon Expressway [intersection #16]
- Arboretum Road / Galvez Street [intersection #37]

However, the following two intersections would remain significantly impacted in the AM peak hour:

- Santa Cruz Avenue / Sand Hill Road [intersection #30]
- Alpine Road / I-280 NB Off-Ramp [intersection #62]

During the PM peak hour, impacts at the following five intersections would be reduced to less-than-significant levels:

- El Camino Real / Ravenswood Avenue [intersection #3]
- El Camino Real / University Avenue -Palm Drive [intersection #10]
- El Camino Real / Page Mill Road-Oregon Expressway [intersection #16]
- Middlefield Road / Lytton Avenue [intersection #19]
- Junipero Serra Boulevard / Campus Drive West [intersection #26]

However, the following seven of the original 12 intersections would remain significantly impacted by the SUMC Project in the PM Peak Hour:

- Middlefield Road / Willow Road [intersection #18]

- Junipero Serra Boulevard – Foothill Expressway / Page Mill Road [intersection #23]
- Arboretum Road / Galvez Street [intersection #37]
- Middlefield Road / Ravenswood Avenue [intersection #46]
- Bayfront Expressway / Willow Road [intersection #52]
- University Avenue / Bayfront Expressway [intersection #53]
- Alpine Road / I-280 NB Off-Ramp [intersection #62]

Implementation of the feasible intersection improvements (Mitigation Measure TR-2.4) was then added to the other mitigation measures to determine the combined effect of all four mitigation measures. Just as above, this analysis is provided for informational purposes only.

If the following four mitigation measures:

- Traffic adaptive signal technology (Mitigation Measure TR-2.1)
- Additional bicycle / pedestrian undercrossings (Mitigation Measure TR-2.2)
- Feasible intersection improvements (Mitigation Measure TR-2.4)
- Remote parking lots (Mitigation Measure TR-2.5)

were to be implemented together, there would be no change in the number of adversely impacted intersections during the AM Peak Hour. The following two intersections would remain significantly impacted in the AM peak hour:

- Santa Cruz Avenue / Sand Hill Road [intersection #30]
- Alpine Road / I-280 NB Off-Ramp [intersection #62]

In the PM peak hour, project impacts at six intersections would be alleviated. However, the following six intersections would remain significantly impacted:

- El Camino Real / Ravenswood Avenue [intersection #3]
- El Camino Real / University Avenue -Palm Drive [intersection #10]
- Middlefield Road / Willow Road [intersection #18]
- Middlefield Road / Lytton Avenue [intersection #19]
- Junipero Serra Boulevard – Foothill Expressway / Page Mill Road [intersection #23]
- University Avenue / Bayfront Expressway [intersection #53]

Reduction of Impacts on Menlo Park Roadways

The addition of remote parking lots were also analyzed to determine to what extent they would help mitigate significantly impacted roadways in Menlo Park. The combination of additional pedestrian and bicycle undercrossings (Mitigation Measure TR-2.2) and remote parking spaces, would not alleviate the significant impacts on the four roadway segments in Menlo Park (see Table D-2).

Table D-2
2025 with SUMC Project Roadway ADT Analysis with Remote Parking Lots and Additional Undercrossings (Menlo Park)

Roadway	Type	Segment	No Build	With SUMC	Impact
Marsh Road	Minor Arterial	West of US 101	39454	39715	Y
Sand Hill Road	Minor Arterial	East of Santa Cruz Avenue	33407	34647	Y
Willow Road	Minor Arterial	East of Middlefield Road	23823	24277	Y
	Collector	West of Middlefield Road	6315	6315	N
Alpine Road	Minor Arterial	West of Junipero Serra Boulevard	25120	25460	Y
Middlefield Road	Minor Arterial	North of Ravenswood Avenue	14359	14552	N
	Minor Arterial	South of Ravenswood Avenue	25215	24755	N
Ravenswood Avenue	Minor Arterial	East of El Camino Real	22705	22430	N
Santa Cruz Avenue	Minor Arterial	West of El Camino Real	6530	6530	N
Valparaiso Avenue	Minor Arterial	West of El Camino Real	16239	16299	N

Source: AECOM Transportation, 2010.

Assumptions:

No build - both peaks = 20% of daily traffic

Project only - both peaks = 15% of daily traffic. This rate was determined based on peak hour trip and daily trip ratio of SUMC land uses.

Implementation

If it was decided to implement the remote parking lots as a mitigation measure, the SUMC Project sponsors would need to pay for the construction of new parking lots, or negotiate with the owners of existing lots to allow SUMC employees to use their lots. A total of 639 spaces would need to be provided.

The SUMC Project sponsors would also need to ensure that there is adequate shuttle bus service between the remote parking lots and the SUMC Sites. In some cases, adequate shuttle bus service would entail modifying an existing shuttle bus route. In other cases, adequate shuttle bus service would entail the establishment of a new shuttle bus route.

Finally, the SUMC Project sponsors would need to construct two transit centers near the SHC replacement hospital to receive shuttle buses in the morning and to provide a staging area for departing shuttle buses in the afternoon.