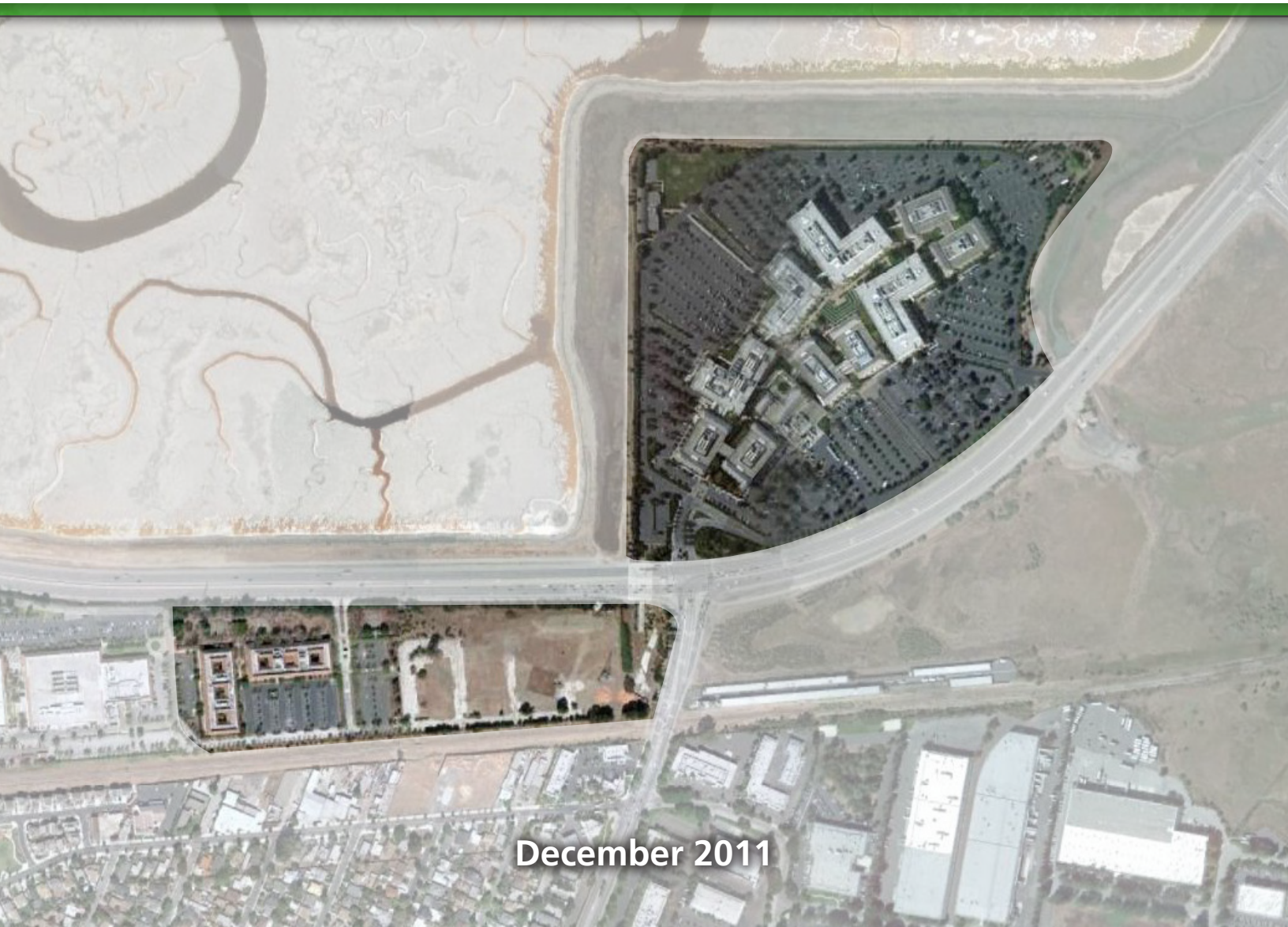
Menlo Park
Facebook Campus Project
Draft EIR



December 2011

Menlo Park
Facebook Campus Project
Draft EIR

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December 2011

Menlo Park
Facebook Campus Project Draft EIR
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Summary

S.1 PROJECT OVERVIEW AND PROJECT LOCATION

As part of the Menlo Park Facebook Campus Project (Project), Facebook (Project Sponsor) is moving its operations from its existing facilities in the City of Palo Alto to the City of Menlo Park (City). The Project Sponsor proposes to move its operations to two sites located north of US 101 near the intersection of Bayfront Expressway and Willow Road. The Project site consists of a 56.9-acre East Campus, which was formerly occupied by Oracle (formerly Sun Microsystems), and a 22-acre West Campus, which was formerly owned by General Motors (GM) and by TE Connectivity (formerly Tyco Electronics). The East Campus and the West Campus are connected by an existing undercrossing beneath Bayfront Expressway.

The Project Sponsor proposes to modify the existing Conditional Development Permit (CDP) that applies to the East Campus by converting the 3,600 employee cap included in the CDP into a vehicle trip cap for the East Campus. The trip cap (Trip Cap) proposed by the Project Sponsor includes a maximum of 2,600 trips during the AM Peak Period from 7:00 a.m. to 9:00 a.m. and the PM Peak Period from 4:00 p.m. to 6:00 p.m. and a maximum of 15,000 daily trips. The Trip Cap would allow approximately 6,600 employees to occupy the East Campus. The Project Sponsor also proposes to develop the West Campus to accommodate approximately 2,800 employees. No employee cap is proposed as part of the Project.

To accommodate the Project Sponsor's rapid employment growth, the first phase of the Project includes occupying the East Campus' nine existing buildings, which contain 1,035,840 square feet (sf). Tenant Improvements (TIs) are being undertaken to convert existing hardware-intensive laboratory spaces and individual hard-wall offices to a more open, shared workspace characteristic of the Facebook work environment, which is intended to foster innovation, teamwork, and creativity. However, the TIs are being done through ministerial building permits and are not part of the Project.[1]

The second phase of the Project includes developing the West Campus. The existing buildings at the West Campus would be demolished and developed with office buildings and amenities structures totaling approximately 440,000 sf. Although the Project Sponsor does not intend to apply for entitlements for the West Campus at this time, this second phase of development is evaluated as part of the Project in this Draft Environmental Impact Report (EIR).

[1] In addition to the TIs, the Project Sponsor proposed new construction on the East Campus resulting in an increase in gross floor area, which required approval of a use permit in the M-2 zoning district. The addition of approximately 1,400 sf to accommodate two small structures in the courtyard area and minor additions to Buildings 11 and 15 for two security control points was subject to CEQA review but determined to be categorically exempt under Class 3 (Section 15303) of the CEQA Guidelines.

S.2 AREAS OF CONTROVERSY

CEQA Guidelines Section 15123 specifies that the Draft EIR summary identify "areas of controversy" known to the Lead Agency, including issues raised by agencies and the public, and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

A Notice of Preparation (NOP) was released for the Project on April 21, 2011 for a 36-day public review period. A public scoping meeting was held before the City's Planning Commission on May 16, 2011. This summary list is compiled based on written comments received (included in Appendix 1 of this Draft EIR) and comments stated during the public scoping meeting. The topics that would result in physical impacts under CEQA are addressed in the EIR analysis. Major areas of controversy include, but are not limited to, the following:

- Land Use
  - Issues related to required permits for development on the shore of the San Francisco Bay.
  - Conflicts with the General Plan and other relevant policies.
- Aesthetics
  - Appropriateness of increased building heights at the West Campus.
- Transportation
  - Increase in traffic and potential conflicts with the City's General Plan goals and policies.
  - Impacts to the Willow Road/US 101 interchange.
  - Impacts to the Bay Trail; impacts to bicycle and pedestrian facilities near the Project site.
- Air Quality and Greenhouse Gas (GHG) Emissions
  - Air quality impacts and carbon dioxide (CO_2) emissions as a result of increased traffic.
- Noise
  - Impacts associated with traffic noise generated by the Project.
- Biology
  - Facilitation of raptor predation on special-status species occurring in the nearby salt and brackish water marshes.
  - Removal and replacement of heritage trees.
  - Disturbance to nesting migratory birds and roosting bats.
- Geology and Soils
  - Impacts associated with liquefaction.
- Hydrology/Flood Hazards
  - Impacts of sea level rise on the Project.

- Hazardous Materials
  - Impacts to air and health if soil is excavated and if any applicable local standards would be exceeded.
  - Transportation impacts from removal or remedial activities.
  - The potential for soil excavation to result in an accident involving the release of hazardous materials.
- Population and Housing
  - The potential increase in housing demand.
  - Impacts associated with population increase on community needs.
- Public Services
  - Impacts to police services.
  - Impacts to fire services.
  - Impacts to schools and recreation regarding the Bay Trail.
  - Effects on wildlife at nearby recreational facilities.
  - Shoreline access and improvements.
  - Impacts to schools.
- Utilities
  - Increases in water demand.
  - Impacts related to wastewater conveyance.
  - Impacts related to constructing underground power lines to serve the Project site.

S.3 ALTERNATIVES

Section 5 of this Draft EIR analyses a range of reasonable alternatives to the Project. Alternatives to the Project that are analyzed include:

- **No Project Alternative.** The No Project Alternative is provided in this Draft EIR to compare the impacts of the Project with what would be reasonably expected to occur in the foreseeable future if the Project were not approved and development continued to occur in accordance with existing plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2)).
- **Reduced Intensity Alternative.** The Reduced Intensity Alternative assumes a 25 percent reduction in daily trips for the East Campus and the West Campus. This could also translate to fewer employees. As discussed in Section 5, Alternatives, of this Draft EIR, the Reduced Intensity Alternative is the Environmentally Superior Alternative.

S.4 IMPACTS AND MITIGATION MEASURES

Table S-1 (for the East Campus) and Table S-2 (for the West Campus) present a summary of the impacts of the Project, proposed mitigation and improvement measures, and each impact's level of significance after mitigation. The environmental impacts are identified and classified as "Significant," "Potentially Significant," "Less Than Significant," or "No Impact." According to the CEQA Guidelines Section 15382, a significant impact is "… a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" CEQA Guidelines Section 15126.4(a)(1) also states that an EIR "… shall describe feasible mitigation measures which could minimize significant adverse impacts…" In this Draft EIR, mitigation measures are identified for all of the impacts labeled "Potentially Significant."

S.5 DRAFT EIR CONCLUSIONS

In accordance with CEQA Guidelines Section 15123(b)(3), this Summary must identify issues to be resolved including whether or how to mitigate the significant effects and the choice among alternatives. Section 3 of the Draft EIR presents mitigation measures to reduce or avoid significant impacts identified for the Project. In some instances, the Draft EIR identifies mitigation options to address specific impacts. During the CEQA environmental review process, the City will need to resolve which mitigation measures are suitable and whether they can effectively reduce impacts to a less-than-significant level. A Mitigation Monitoring and Reporting Program (MMRP) will be prepared to define the timing of implementation of the measures, parties responsible for implementation, and parties responsible for reporting and verifying implementation.

The Draft EIR identifies impacts that would remain significant and unavoidable even after implementation of the proposed mitigation measures. Consequently, the City will need to determine whether to approve the Project as proposed and, if so, provide its rationale in a Statement of Overriding Considerations.

Finally, Section 5 of this EIR presents the alternatives for the Project, as outlined above. Although the Reduced Intensity Alternative would meet some Project objectives, none of the alternatives would avoid all of the significant and unavoidable impacts of the Project. The City will need to resolve whether these options or others that have not been considered are preferable from an environmental and community perspective, compared to the Project as proposed.

Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.2 Land Use			
LU-1 **Conflicts with Adopted Land Use Plans and Policies.** Implementation of the Project, at the East Campus, would be generally consistent with the General Plan, Municipal Codes, and BCDC, ABAG, and C/CAG plans. As such, the impact would be less than significant.	LTS	None Required.	N/A
C-LU-1 **Cumulative Land Use Impacts.** The Project, in combination with other foreseeable development in the nine-county ABAG region, would have a less-than-significant cumulative impact with regard to consistency with applicable land use plans, policies, and regulations.	LTS	None Required.	N/A
3.5 Transportation			
TR-1 **Impacts to Intersections in the Near Term 2015 East Campus Only Condition.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of several of the study intersections.	PS	MITIGATION MEASURE. Mitigation Measure TR-1.1 involves intersection improvements to mitigate or reduce the impacts of the Project under the Near Term 2015 East Campus Only Condition. However, intersection impacts would still remain since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. *TR-1.1 Intersection Improvements*. The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way when travel lanes are added. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures. a. Willow Road and Bayfront Expressway The proposed partial mitigation measures for the intersection of Willow Road and Bayfront Expressway include an additional	SU

SU = Significant Unavoidable *PS = Potentially Significant* *LTS = Less-than-Significant* *N/A = Not Applicable*

Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		eastbound right turn lane with a right turn overlap phase from Willow Road to Bayfront Expressway, a new Class I bikeway between the railroad tracks and the existing Bay Trail, closing the outbound direction of the driveway at Building 10 to simplify maneuvering through the Hacker Way stop-controlled intersection (inbound access would still be provided), lengthening the existing right-turn pocket at the westbound approach to a full lane between Bayfront Expressway and Hacker Way, and ensuring the crosswalk across Hacker Way is accommodated safely. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Willow Road and Bayfront Expressway for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way and on the East Campus egress approach, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, signage and striping modifications further west on Willow Road, and the design of the eastbound direction Class I bikeway from the railroad tracks to the intersection of Willow Road and Bayfront Expressway. The plans shall be subject to review and approval of the Public Works Department prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit	

SU = Significant Unavoidable *PS = Potentially Significant* *LTS = Less-than-Significant* *N/A = Not Applicable*

Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the on-site improvements within 180 days of City approval of the plans. The Project Sponsor shall construct the off-site improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City. Construction of this improvement by the Project Sponsor shall count as a future credit toward payment of the Transportation Impact Fee (TIF) pursuant to the TIF Ordinance. In the event any portion of the intersection improvements is eligible for funding in whole or in part by C/CAG, such improvements may be deferred by the City in its sole discretion to pursue such funding and the Project Sponsor may be relieved of its responsibility to construct such portion of the intersection improvements as may be funded by C/CAG, or such responsibility may be deferred until eligibility for funding is determined. Because the proposed mitigation would not fully mitigate the impact, it remains significant and unavoidable. b. Willow Road and Middlefield Road The proposed mitigation measure for the intersection of Willow Road and Middlefield Road includes restriping an existing northbound through lane to a shared through a right-turn lane. Implementing this improvement would require traffic signal modifications, removal of the existing triangular median on the	

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		southeast corner of the intersection, along with realignment of the crosswalks on the south and east side of the intersection. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measure at the intersection of Willow Road and Middlefield Road for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director. Upon obtaining approval from the City, the Project Sponsor shall construct the improvements within 180 days of the encroachment permit approval date by the City. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. With the implementation of this mitigation measure, the impact would be reduced to a less–than-significant level. c. University Avenue and Bayfront Expressway The proposed mitigation measure for the intersection of University Avenue and Bayfront Expressway includes an additional southbound through lane and receiving lane. A revised signal timing plan would also be needed. The additional southbound	

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		through lane and southbound receiving lane are not feasible due to the right-of-way acquisition from multiple property owners, potential wetlands, relocation of the Bay Trail, and significant intersection modifications, which are under Caltrans jurisdiction. However, the installation of a Class I bikeway (portion of the Bay Trail from west of the railroad tracks to the intersection of University Avenue and Bayfront Expressway) is a feasible, partial mitigation measure for the impact. This partial mitigation measure would require paving, grading, drainage and signing and striping improvements. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed partial mitigation measure along University Avenue between Bayfront Expressway and the railroad tracks for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the improvements. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, and signage and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of Menlo Park and East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project	

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the proposed improvements within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, and transit improvements, and TDM programs throughout the City, with priority given to portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Because the proposed mitigation would not fully mitigate the impact, it remains significant and unavoidable. d. Bayfront Expressway and Chrysler Drive The proposed mitigation measures for the intersection of Bayfront Expressway and Chrysler Drive include restriping the existing eastbound right turn lane to a shared left-right-turn lane. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Bayfront Expressway and Chrysler Drive for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the	

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Table S-1
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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, and transit improvements and TDM programs, throughout the City with priority given to portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, it remains significant and unavoidable because the intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented. e. Middlefield Road and Lytton Avenue The proposed mitigation measures for the intersection of Middlefield Road and Lytton Avenue include adding an additional eastbound	

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		left-turn lane. The additional eastbound left-turn lane is not feasible due to the additional right-of-way acquisition from multiple owners, and significant intersection modifications, which are under City of Palo Alto jurisdiction. Because the improvement is under the City of Palo Alto jurisdiction and is infeasible and the City cannot guarantee it would be implemented, the impact remains significant and unavoidable.	
TR-2 **Impacts on Roadway Segments in the Near Term 2015 East Campus Only Condition.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased ADT volumes on Project area roadway segments resulting in a potentially significant impact.	PS	MITIGATION MEASURE. Mitigation Measure TR-2.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2015 East Campus Only Condition on daily roadway segment operations. However, to improve daily roadway operations a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway segments would still have impacts because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners. *TR-2.1 Roadway Segment Improvements.* Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way, which can impact local property owners. a. Marsh Road between Bay Road and the railroad tracks An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain significant and unavoidable. b. Willow Road between Durham Street and Chester Street An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however,	SU

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Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain significant and unavoidable. c. Willow Road between Nash Avenue and Blackburn Avenue An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain significant and unavoidable. d. Middlefield Road between Linfield Drive and Survey Lane An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain significant and unavoidable.	
TR-3 **Impacts to Routes of Regional Significance in the Near Term 2015 East Campus Only Condition.** Increases in traffic associated with the Project under Near Term 2015 East Campus Only Condition would potentially result in significant impacts to several Routes of Regional Significance.	PS	MITIGATION MEASURE. Mitigation Measure TR-3.1 involves roadway improvements to mitigate impacts of the Project under the Near Term 2015 East Campus Only Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are planned and funded on a regional scale and would be too costly for a single project to be expected to fund.	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		TR-3.1 Routes of Regional Significance Improvements. Routes of Regional Significance could be improved with additional travel lanes, but the routes are under the jurisdiction of Caltrans. a. SR 84 between US 101 and Willow Road Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable. b. SR 84 between Willow Road and University Avenue Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable. c. SR 84 between University Avenue and County Line Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable. d. US 101 North of Marsh Road Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable. e. US 101 between Willow Road and University Avenue Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable.	

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		f. US 101 between South of University Avenue Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is significant and unavoidable.	
TR-4 **Impacts to Local Transit Systems in the Near Term 2015 East Campus Only Condition.** The Project under Near Term 2015 East Campus Only Condition would not result in any impacts to the local transit system. This impact is less than significant.	LTS	None Required.	N/A
TR-5 **Impacts to Local Bicycle and Pedestrian Facilities in the Near Term 2015 East Campus Only Condition.** The Project under Near Term 2015 East Campus Only Condition would not result in any impacts to local bicycle and pedestrian facilities. This impact is less than significant.	LTS	None Required.	N/A
3.6 Air Quality			
AQ-1 **Conflict with or Obstruct Implementation of the Applicable Air Quality Plan.** The Project at the East Campus would not conflict with or obstruct implementation of the applicable air quality plan.	LTS	None Required.	N/A
AQ-2 **Violation of any Air Quality Standard.** The Project at the East Campus could result in the violation of air quality standards: • Operation of the Project at the East Campus would create new area and mobile sources of air pollutants that would generate emissions of reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$ (fine particulate	PS	MITIGATION MEASURES. At this time there are no feasible mitigation measures that would reduce the NO_X, ROG, and PM_{10} emissions to less than significant. Thus, this impact would be significant and unavoidable.	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
matter), but would not exceed BAAQMD's significance thresholds. However, emissions of NO_X (nitrogen oxide) from the East Campus operations would exceed BAAQMD's significance thresholds, resulting in a potentially significant impact. • Operation of the Project at the East Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} and would exceed BAAQMD's significance thresholds. Thus, this impact would be potentially significant.			
AQ-4 **Localized Carbon Monoxide Impacts from Motor Vehicle Traffic.** The addition of Project-related traffic from the East Campus would result in increased concentrations of carbon monoxide around intersections in the vicinity of the Project, but not to the extent that the ambient air quality standards for CO would be exceeded. As a result, impacts of localized CO concentrations would be less than significant.	LTS	None Required.	N/A
AQ–5 **Exposure to Toxic Air Contaminants.** The Project at the East Campus could expose sensitive receptors to substantial TACs, resulting in a potentially significant impact.	PS	MITIGATION MEASURE. Since the DPM emissions from the fleet mix contributed substantially to the exceedance of health risk thresholds; the HRA evaluated a reduction in the DPM emissions that would result in a less-than-significant impact.	LTS
AQ–6 **Exposure to Objectionable Odors.** The Project at the East Campus would not be expected to create objectionable odors that would affect a substantial number of people. This impact would be less than significant.	LTS	None Required.	N/A

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Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-AQ-1 **Consistency with Applicable Air Quality Plans.** The Project, combined with other development within the City, would not conflict with or obstruct implementation of the applicable air quality plan.	LTS	None Required.	N/A
C-AQ-2 **Violation of any Air Quality Standard.** The Project, in combination with other development within the City, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} resulting in a violation of an Air Quality Standard.	PS	MITIGATION MEASURE. Because no feasible mitigation has been identified, the impact for ROG, NO_X, and PM_{10} is therefore significant and unavoidable.	SU
C-AQ-4 **Cumulative Localized CO Concentrations.** Cumulative development in the Project vicinity would not result in CO concentrations above the ambient air quality standards. Therefore, cumulative impacts on localized CO concentrations would be less than significant.	LTS	None Required.	N/A
C-AQ–5 **Cumulative Toxic Air Contaminants Emissions.** The Project, in combination with other foreseeable development in the Project vicinity, would expose sensitive receptors to substantial TACs. Therefore, cumulative impacts from these pollutants would be potentially significant.	PS	MITIGATION MEASURE. The Project's contribution to a significant health impact is less than five percent. In this instance, the receptors identified above the significance threshold would be significant even without the Project. Many of these existing receptors are closer than the recommended 500 foot distance from a freeway or other high traffic roadway as suggested by CARB in its guidance document on air quality and land use, Air Quality and Land Use Handbook: A Community Health Perspective. The CARB guidance acknowledges the need to balance this recommendation with other State and local policies addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. The best solution would be to not have these receptors so close to a freeway, but since they already exist this is not a	SU

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Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		feasible option. There are no feasible Project-related mitigation measures that will reduce the impact to less than significant. Therefore, the cumulative health impacts remain significant and unavoidable.	
3.7 Greenhouse Gas Emissions			
CC-1 **Greenhouse Gas Emissions.** The Project at the East Campus would result in a net increase in GHG emissions. However, the increase would not exceed the BAAQMD's standards of significance, resulting in a less-than-significant impact.	LTS	None Required.	N/A
CC-2 **Conflicts with Applicable Plans and Policies.** The Project at the East Campus would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, resulting in a less-than-significant impact.	LTS	None Required.	N/A
3.8 Noise			
NO-1 **Exposure to Excessive Noise Levels.** The increase in vehicular traffic associated with implementation of the East Campus could result in an increase in the exposure of off-site noise sensitive receptors to noise levels potentially in excess of the standards established in the General Plan or Municipal Code. This impact would be potentially significant.	PS	MITIGATION MEASURES. The Project would result in a potentially significant increase in traffic noise on Marsh Road between Scott Drive and Bohannon Drive and Willow Road between O'Brien Drive and Newbridge Street. There are no feasible mitigation measures that could reduce or eliminate the impact related to traffic noise, other than reducing traffic. Typical sound mitigation consists of walls or other barriers that would attenuate noise to the sensitive receptors behind the barrier. This measure would require installation of a noise wall within private property or within a designated right-of-way, which may not be allowed by an affected property owner or by the City. The feasibility of noise walls is restricted by access requirements for driveways, presences of local cross streets, underground utilities, other noise sources in the area, and safety considerations. For example, a noise wall would be ineffective on the impacted segment of	SU

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		Marsh Road because existing residential driveways directly access Marsh Road, and Rolison Road merges with Marsh Road along this segment. Breaks in the noise wall for access would not provide any noise attenuation and would render the wall ineffective. Additionally, for safety reasons, Caltrans states that noise barriers should not exceed 14 feet in height. Due to the high existing noise level, a noise barrier of more than 14 feet would be required to reduce noise levels along these roadways segments to an acceptable noise level for residential land uses. Finally, sensitive receptors along Marsh Road and Willow Road are currently oriented toward these roadways. Construction of a noise barrier would wall off these uses from the surrounding community, which could result in adverse impacts to aesthetics and potentially public safety because the noise walls would limit the visibility of the homes from the surrounding area. Natural surveillance is one of the four principles of Crime Prevention through Environmental Design. Therefore, installation of a noise wall along these segments would not be feasible.	
NO-3 **Substantial Permanent Increase in Noise Level.** Operation of the Project at the East Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. This would be a significant impact.	PS	MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. As described under Impact NO-1, no feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level.	SU
C-NO-1 **Cumulative Exposure to Excessive Noise.** The Project, in combination with other development within the City, could result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code. The Project's contribution would be cumulatively significant**.**	PS	MITIGATION MEASURE. Implementation of the Project would result in a cumulatively considerable increase in noise levels from vehicular traffic on Marsh Road and Willow Road. As described under Impact NO-1, Mitigation Measure NO-1.1 would reduce noise levels to below the existing noise level along Willow Road. However, installation of a noise wall would not be feasible and no other feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. Therefore, the Project's cumulative impact would be significant and unavoidable.	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-NO-2 **Cumulative Exposure to Ground-borne Vibration.** Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to excessive ground-borne vibration. The Project's cumulative impact would be less than significant.	LTS	None Required.	N/A
C-NO-3 **Cumulative Permanent Increase in Noise Levels.** Operation of the Project and other cumulative developments would result in a substantial permanent ambient noise level increase in the Project vicinity. The Project's contribution would be cumulatively significant.	PS	MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. No feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level.	SU
C-NO-4 **Cumulative Temporary Increase in Noise Levels.** Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to a substantial temporary increase in ambient noise level. The Project's cumulative impact would be less than significant.	LTS	None Required.	N/A
3.11 Geology and Soils			
GS-1 **Strong Seismic Groundshaking and Seismic-Related Ground Failure.** The Project at the East Campus would have a less-than-significant potential to expose persons and structures to strong seismic groundshaking and seismic-related ground failure.	LTS	None Required.	N/A

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C-GS-1 **Cumulative Seismic Hazards.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase the risk of exposure or people or structures to seismic hazards. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A
C-GS-2 **Cumulative Soil Hazards.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil hazards. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A
C-GS-3 **Cumulative Soil Erosion.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil erosion potential. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A
3.12 Hydrology and Water Quality			
HY-4 **Sea Level Rise.** The Project at the East Campus would have a less-than-significant potential to expose people to flooding from climate change-induced sea level rise.	LTS	None Required.	N/A
HY-6 **Effects on Groundwater Supplies and Recharge.** The Project at the East Campus would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge because it would not increase groundwater demand or decrease recharge areas. This impact would be less than significant.	LTS	None Required.	N/A

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C-HY-1 **Cumulative Storm Drain Impacts.** Development of the Project and other cumulative development could increase the rate and volume of stormwater runoff, which could cause or exacerbate localized flooding or cause the City's storm drainage capacity to be exceeded in some locations. However, the Project's contribution to cumulative impacts would not be cumulative considerable.	LTS	None Required.	N/A
C-HY-2 **Cumulative Flooding and Sea Level Rise.** Development of the Project and other cumulative development could expose people and structures to risk of 100-year flooding, including sea level rise. However, the Project's contribution to cumulative impacts would not be cumulatively considerable.	LTS	None Required.	N/A
C-HY-3 **Cumulative Water Quality.** Development of the Project and other development would contribute pollutants to stormwater during construction and occupancy of the various projects, but this would not substantially degrade water quality. The Project's contribution would not be cumulatively considerable. This cumulative impact would be less than significant.	LTS	None Required.	N/A
C-HY-4 **Cumulative Groundwater Supplies and Recharge.** Development of the Project and other cumulative development within the San Mateo subbasin would not substantially degrade groundwater supplies. As a result, cumulative impacts on the subbasin would be less than significant.	LTS	None Required.	N/A

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3.13 Hazards and Hazardous Materials			
HM-2 **Soil and Groundwater Contamination.** The Project at the East Campus would have a less-than-significant potential to expose people to residual contaminants in soil and/or groundwater.	LTS	None Required.	N/A
HM-5 **Maintenance Activities.** Maintenance activities at the East Campus would have a less-than-significant potential to disturb soil containing residual contaminants.	LTS	None Required.	N/A
HM-6 **Routine Hazardous Materials Use.** Construction and operation of the Project the East Campus would involve the use of hazardous materials-containing products. However, these products would be used in moderation and would comply with federal, State, and local regulations, resulting in less-than-significant impacts.	LTS	None Required.	N/A
HM-7 **Hazardous Materials Risks from Off-Site Uses.** The Project at the East Campus could expose occupants to potential risks from off-site routine use or upset/accident conditions involving hazardous materials. However, compliance with federal, State, and local regulations would reduce the potential for off-site uses to pose a substantial hazard to the Project to less-than-significant.	LTS	None Required.	N/A
HM-8 **Impairment of Emergency Access or Emergency Plans.** The Project at the East Campus would result in a less-than-significant impact regarding the implementation of or interference to an adopted emergency response or evacuation plan.	LTS	None Required.	N/A

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C-HM-1 **Cumulative Hazardous Materials Use.** Construction and operation of the Project and other cumulative development would involve routine hazardous materials use, generation, disposal, or transport. This is a less-than-significant cumulative impact.	LTS	None Required.	N/A
C-HM-3 **Cumulative Hazardous Materials in Building Components.** Development of the Project and other cumulative development could expose people to asbestos, lead, PCBs, or other hazardous materials in existing buildings that may be demolished, renovated, or rehabilitated if measures are not implemented to control unintentional or inadvertent releases. This is a less-than-significant cumulative impact.	LTS	None Required.	N/A
C-HM-4 **Cumulative Impairment of Emergency Access or Emergency Plan Impacts.** Development of the Project and other cumulative development would not impair implementation of or interfere with an adopted emergency response or evacuation plan. The cumulative impact is less than significant.	LTS	None Required.	N/A
3.14 Population and Housing			
PH-1 **Indirect Population Growth.** Implementation of the Project would not induce substantial population growth indirectly through job growth, nor would projected growth result in adverse direct impacts to the physical environment. Therefore, this impact would be less than significant.	LTS	None Required.	N/A

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C-PH-1 **Cumulative Population Impact.** Cumulative development in the City and County would increase the resident population but would not exceed growth projections. The cumulative impact would be less-than-significant.	LTS	None Required.	N/A
C-PH-2 **Cumulative Housing Impacts.** Cumulative development in the City would increase the demand for housing in the City but would not exceed growth projections. The cumulative impact would be less than significant.	LTS	None Required.	N/A
3.15 Public Services			
PS-1 **Impacts to Police Services.** The Project at the East Campus would not result in the need for new or physically altered police service facilities. Therefore, police service impacts would be less than significant.	LTS	None Required.	N/A
PS-2 **Impacts to Fire Services.** The Project at the East Campus would not result in the need for new or physically altered fire service facilities. Fire service impacts would be less than significant.	LTS	None Required.	N/A
PS-3 **Impacts to School Facilities.** The Project at the East Campus would not result in the need for new or physically altered school facilities. Impacts related to school facilities would be less than significant impact.	LTS	None Required.	N/A
PS-4 **Impacts to Parks and Recreation Facilities.** The Project at the East Campus, would not result in the need for new or physically altered parks and recreation facilities. Park and recreation impacts would be less than significant.	LTS	None Required.	N/A

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
PS-5 **Impacts Library Facilities.** The Project at the East Campus would not result in the need for new or physically altered library facilities, resulting in a less-than-significant impact.	LTS	None Required.	N/A
C-PS-1 **Cumulative Police Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on police services.	LTS	None Required.	N/A
C-PS-2 **Cumulative Fire and Emergency Service Impacts.** The Project, in combination with other foreseeable development in the fire service area, would have a less-than-significant cumulative impact on fire and emergency services.	LTS	None Required.	N/A
C-PS-3 **Cumulative School Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on school services.	LTS	None Required.	N/A
C-PS-4 **Cumulative Parks and Recreation Impacts**. The Project, in combination with other foreseeable development in the City, would result in a less-than-significant cumulative impact on parks and recreation	LTS	None Required.	N/A
C-PS-5 **Cumulative Library Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on library services.	LTS	None Required.	N/A

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.16 Utilities			
UT-1 **Water Demand.** The Project at the East Campus would not exceed water supplies available under normal year conditions to serve the Project from existing entitlements. Therefore, implementation of the Project would have a less-than-significant impact on water supplies.	LTS	None Required.	N/A
UT-2 **Impacts to Water Treatment Facilities.** The Project at the East Campus would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, which could cause significant environmental effects. Therefore, the Project would have a less-than-significant impact on water treatment facilities.	LTS	None Required.	N/A
UT-3 **Wastewater Generation.** The Project at the East Campus would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, or result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's expected demand and existing entitlements. However, the existing sanitary sewer system serving the Project site would not have sufficient capacity to accommodate the Project. Therefore, this impact would be potentially significant.	PS	MITIGATION MEASURES. The technical study prepared by West Yost Associates determined that the existing wastewater conveyance system serving the Project site would have insufficient capacity to accommodate the Project. Mitigation Measure UT-3.1 would ensure that necessary capacity improvements are implemented so that to the WBSD sanitary sewer system has sufficient capacity to accommodate additional wastewater generated by the Project. The following measure would reduce potentially significant impacts associated with the Project to a ***less-than-significant*** level. *UT-3.1 Sanitary Sewer System Improvements*. The Project Sponsor shall upsize the existing 114 feet of 12-inch diameter pipeline that runs north along Hamilton Avenue, beginning at the Hamilton Avenue/Willow Road intersection, to a 15-inch diameter pipe. To ensure that this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 200 percent of the estimated cost of the work. In	LTS

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		addition, the Project Sponsor shall purchase a third wastewater pump to be placed into reserve in case of pump failure at HHPS. To ensure this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 120 percent of the cost of the wastewater pump.	
UT-4 **Solid Waste Generation.** The Project would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accept the Project's solid waste disposal needs. The Project at the East Campus would comply with federal, State, and local statutes and regulations related to solid waste. Therefore, impacts on solid waste facilities would be less than significant.	LTS	None Required.	N/A
UT-5 **Stormwater Generation.** Implementation of the Project at the East Campus would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, resulting in a less-than-significant impact.	LTS	None Required.	N/A
UT-6 **Energy Demand.** The Project at the East Campus would not exceed existing gas and electric supply. Therefore, this impact would be less than significant.	LTS	None Required.	N/A
C-UT-1 **Cumulative Water Demand.** The Project, in combination with other development within the City, would increase water demand, but there are sufficient water supplies available to serve the cumulative projects from existing entitlements under normal, dry and multiple dry years, and the increased demand would not require or result in the construction of new water treatment facilities or the expansion	LTS	None Required.	N/A

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
of existing facilities, which could cause significant environmental effects. This cumulative water supply impact would be less than significant.			
C-UT-2 **Cumulative Wastewater Generation.** The Project, in combination with other development within the West Bay Sanitary District service area, would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, nor result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's expected demand and existing entitlements. Therefore, this cumulative wastewater impact would be less than significant.	LTS	None Required.	N/A
C-UT-3 **Cumulative Solid Waste Generation.** The Project, combined with other development within the RethinkWaste's service area, would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accommodate future solid waste disposal needs through 2034. These cumulative projects would be expected to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, this cumulative solid waste impact would be less than significant.	LTS	None Required.	N/A
C-UT-4 **Cumulative Stormwater Generation.** The Project, in combination with cumulative development in the City, could require the construction or expansion of stormwater facilities. However, the Project's contribution to this impact would be less than significant.	LTS	None Required.	N/A

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Table S-1
Summary of Impacts and Mitigation Measures – East Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-UT-5 **Cumulative Energy Demand.** The Project, in combination with other development served by PG&E, would not exceed existing gas and electric supply capacity. Therefore, this cumulative impact would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.2 Land Use			
LU-1 **Conflicts with Adopted Land Use Plans and Policies.** Implementation of the Project at the West Campus would be generally consistent with the General Plan, Municipal Codes, and BCDC, ABAG, and C/CAG plans. As such, the impact would be less than significant.	LTS	None Required.	N/A
C-LU-1 **Cumulative Land Use Impacts.** The Project, in combination with other foreseeable development in the nine-county ABAG region, would have a less-than-significant cumulative impact with regard to consistency with applicable land use plans, policies, and regulations.	LTS	None Required.	N/A
3.3 Aesthetics			
AE-1 **Alteration of Scenic Views.** The Project at the West Campus would have a less-than-significant impact to scenic vistas in areas surrounding the Project site.	LTS	None Required.	N/A
AE-2 **Degradation of Existing Visual Character or Quality.** The Project at the West Campus could substantially alter the existing visual character. However, compliance with the City's design review and landscaping requirements would help reduce the potential aesthetic degradation of the visual character of the surroundings. Therefore, this impact would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
AE-3 **New Sources of Light and Glare.** The Project at the West Campus could create new sources of light or glare that could adversely affect day or nighttime views. Therefore, this impact would be potentially significant.	PS	MITIGATION MEASURES. Implementation of Mitigation Measure AE-3.1, AE-3.2, and AE-3.3 would reduce potential light and glare impacts at the West Campus to a less-than-significant level. *AE-3.1 Design Lighting at the West Campus to Meet Minimum Safety and Security Standards*. Concurrent with the building permit submittal, the Project Sponsor shall incorporate lighting design specifications to meet minimum safety and security standards. The comprehensive site lighting plans shall be subject to review and approval by the Planning Division prior to building permit issuance of the first building on that site. The following measures shall be included in all lighting plans: • Luminaries shall be designed with cutoff-type fixtures or features that cast low-angle illumination to minimize incidental spillover of light onto adjacent private properties. Fixtures that shine light upward or horizontally shall not spill any light onto adjacent private properties. • Luminaries shall provide accurate color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color-corrected shall not be used, except as part of an approved sign or landscape plan. • Luminary mountings shall be downcast and pole heights minimized to reduce potential for back scatter into the nighttime sky and incidental spillover light onto adjacent properties and undeveloped open space. Light poles shall be no higher than 20 feet. Luminary mountings shall be treated with non-glare finishes. *AE-3.2 Treat Reflective Surfaces at the West Campus*. The Project Sponsor shall ensure application of low-emissivity coating on exterior glass surfaces of the proposed structures. The low-emissivity coating shall reduce visible light reflection of the visible light that strikes the glass exterior and prevent interior light from being emitted brightly through the glass.	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		AE-3.3 Provide Obstruction for Glare from Vehicle Headlights in the West Campus Garage. The Project Sponsor shall ensure that the design for the parking garage provides concrete barriers and/or landscaping along the entire perimeter of all parking levels of the garage. These barriers shall be at a height so that glare from vehicle headlights is screened from off-site viewers.	
AE-4 **New Sources of Shadows.** Shadows cast by the proposed structures at the West Campus would not shade open spaces or public areas for an extended period and are, therefore, considered to be less than significant.	LTS	None Required.	N/A
C-AE-1 **Cumulative Alteration of Scenic Views.** The Project at the West Campus, in combination with other foreseeable development in the surrounding area, would not have a significant cumulative impact on scenic views.	LTS	None Required.	N/A
C-AE-2 **Cumulative Degradation of Visual Character or Quality.** The Project at the West Campus, in combination with other foreseeable development in the surrounding area, would not have a significant cumulative impact on visual character or quality.	LTS	None Required.	N/A
C-AE-3 **Cumulative Sources of Light and Glare.** Implementation of the Project at the West Campus, in combination with foreseeable development, would not create new sources of light or glare that could adversely affect day or nighttime views. Therefore, this impact would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-AE-4 **Cumulative Shadow Impacts.** Shadows cast by the proposed structures at the West Campus, in combination with other foreseeable development, would not shade open spaces or public areas for an extended period and are, therefore, considered to be less than significant.	LTS	None Required.	N/A
3.4 Wind			
WD-1 **Wind Impacts.** Implementation of the Project at the West Campus would not change the existing wind conditions at the Project site in a manner that would adversely affect the comfort of a public area, resulting in less-than-significant impacts.	LTS	None Required.	N/A
C-WD-1 **Cumulative Wind Impacts.** The Project at the West Campus in combination with other foreseeable development in the Project area, would have a less-than-significant impact on cumulative wind conditions in public areas.	LTS	None Required.	N/A
3.5 Transportation			
TR-6 **Impacts on Intersections in the Near Term 2018 East Campus and West Campus Condition.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of the several study intersections.	PS	MITIGATION MEASURES. Mitigation Measure TR-6.1 involves a West Campus Vehicle Trip Cap to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition. Mitigation Measure TR-6.2 involves intersection improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition. However, intersection impacts would still remain since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction.	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		TR-6.1 West Campus Vehicle Trip Cap. a. West Campus 1,100 vehicle trip cap for both the AM Peak Period and PM Peak Period. One This mitigation measure would reduce AM and PM peak trips, and thus reduce trips at impacted intersections, and involves the imposition of a trip cap on the West Campus comparable to the Trip Cap that is part of the Project for the East Campus. The 1,100 peak hour vehicle trip cap has been calculated in a similar fashion to the East Campus trip cap and is based on a comparative ratio between the East and West Campus employee totals in the following manner: 2,800 W. Campus Employees x (2,600 E. Campus Peak Period Trip Cap/6,600 E. Campus Employees) =1,100 W. Campus Peak Period Trip Cap The West Campus vehicle trip cap mitigation shall generally comply with Trip Cap Monitoring and Enforcement Policy, which is included in Appendix 3.5-F. A peak period trip cap of 1,100 trips for the West Campus does not, in and of itself, fully mitigate the impacts in either the AM peak or PM peak for any of the impacted intersections. Because the proposed mitigation would not fully mitigate the impact, it remains significant and unavoidable unless the impact is fully mitigated through a specific intersection improvement as outlined below. *TR-6.2 Intersection Improvements.* The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way to add travel lanes. These mitigation measures are not	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		dependent on the West Campus vehicle trip cap. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures. a. Marsh Road and Bayfront Expressway The proposed mitigation measures for the intersection of Marsh Road and Bayfront Expressway include restriping the westbound approach from a shared left-through-right lane to a shared left-through lane and a shared through-right lane. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measure at the intersection of Marsh Road and Bayfront Expressway for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City, with priority given to those portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigations would fully mitigate the impact, the impact remains significant and unavoidable because the intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented.	
		b. Marsh Road and US 101 NB Ramps The proposed mitigation measures for the intersection of Marsh Road and US 101 Northbound off-ramp include widening the northbound off-ramp on the western side of the approach and adding an additional left-turn lane along with adding a second right-turn lane by restriping one of the existing left-turn lanes. This improvement will require relocation of existing traffic signal poles, utility relocation and reconstruction of the curb ramp on the southwest corner of the intersection. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Marsh Road and US 101	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		Northbound off-ramp for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City,	

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		with priority given to those portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, the impact remains significant and unavoidable because the intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented. c. Willow Road and Bayfront Expressway The proposed mitigation measures for the intersection of Marsh Road and Middlefield Road include an additional southbound left turn lane and restriping an additional eastbound receiving lane. The improvements would require potential additional right of way, widening the edge of pavement for the southbound direction of traffic into the existing landscape buffer, signing and striping improvements, and relocation of utility poles and traffic signal poles along the west side of Middlefield Road. Prior to the Development Agreement approval, the Project Sponsor shall prepare an updated construction cost estimate for the proposed mitigation measures at the intersection of Marsh Road and Middlefield Road for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for the improvements in the amount equal to the Project's fair share contribution of the estimated construction cost for the intersection improvements plus a 30 percent contingency. The Project's fair share contribution is estimated to be 30.4 percent. Funds will be payable to the Town of Atherton upon substantial completion of construction of the intersection improvements. Funds will remain available to the Town of Atherton for a seven	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		year period from the effective date of the Development Agreement, after which funds will be returned to the Project Sponsor. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, the impact remains significant and unavoidable because the intersection is under the jurisdiction of the Town of Atherton and the City cannot guarantee the mitigation measure would be implemented. d. Willow Road and Newbridge Street The potential mitigation measure for the intersection of Willow Road and Newbridge Street includes an additional eastbound left turn lane, an additional northbound receiving lane for the eastbound left turning traffic, an additional westbound through/right turn lane, and an additional receiving lane for the westbound through traffic. The additional eastbound left turn lane and northbound receiving lane are not feasible due to the right-of-way acquisition and property impacts required along Newbridge Street and at the southwest quadrant of the intersection, which is in the City of East Palo Alto. However, the additional westbound through/right turn lane and westbound receiving lane is a feasible, partial mitigation measure for the impact. This partial mitigation measure would require traffic signal modifications, the removal of at least one heritage tree in front of 1157 Willow Road in order to accommodate the receiving lane, and the removal and relocation of a portion of the concrete masonry wall and landscaping near 1221 Willow Road. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the feasible mitigation measure at the intersection of Willow Road and Newbridge Street for review and approval of the Public Works Director. Within 90	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a performance bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the Development Agreement effective date, the Project Sponsor shall submit complete plans to construct a westbound through/right turn lane approximately 300 feet in length, and a westbound through receiving lane, from the Willow Road and Newbridge Street intersection to the beginning of the northbound US 101 on-ramp, based on impacts to the intersections of Willow Road and Newbridge Street. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including, but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of Menlo Park and East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City, with priority given to those portions of the City east of US 101. The partial mitigation improvements are not eligible for a Transportation Impact Fee (TIF) credit. Because the proposed mitigation would not fully mitigate the impact, it remains significant and unavoidable. e. Willow Road and Middlefield Road See Near Term 2015 East Campus Only TR-1.1b. f. University Avenue and Bayfront Expressway See Near Term 2015 East Campus Only TR-1.1c. g. Bayfront Expressway and Chrysler Drive See Near Term 2015 East Campus Only TR-1.1d. h. Middlefield Road and Lytton Avenue See Near Term 2015 East Campus Only TR-1.1e.	
TR-7 **Impacts to Roadway Segments in the Near Term 2018 East Campus and West Campus Condition.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased volumes on Project area roadway segments resulting in a potentially significant impact.	PS	MITIGATION MEASURE. Mitigation Measure TR-7.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition on daily roadway segment operations. However, to improve daily roadway operations, a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway impacts would still remain because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners.	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		TR-7.1 Roadway Segment Improvements. Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way, which can impact local property owners. a. Marsh Road between Bay Road and the railroad tracks See Near Term 2015 East Campus Only TR-2.1a. b. Willow Road between Durham Street and Chester Street See Near Term 2015 East Campus Only TR-2.1b. c. Willow Road between Nash Avenue and Blackburn Avenue See Near Term 2015 East Campus Only TR-2.1c.	
TR-8 **Impacts to Routes of Regional Significance. in the Near Term 2018 East Campus and West Campus Condition.** Increases in traffic associated with the Project under Near Term 2018 East Campus and West Campus Condition would result in significant impacts to several Routes of Regional Significance.	PS	MITIGATION MEASURE. Mitigation Measure TR-8.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are, planned and funded on a regional scale and would be too costly for a single project to be expected to fund. *TR-8.1 Routes of Regional Significance Improvements*. Routes of Regional Significance could be improved with additional travel lanes, but the freeways are under the jurisdiction of Caltrans. a. SR 84 between US 101 and Willow Road See Near Term 2015 East Campus Only TR-3.1a. b. SR 84 between University Avenue and County Line See Near Term 2015 East Campus Only TR-3.1c.	SU

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		c. US 101 North of Marsh Road See Near Term 2015 East Campus Only TR-3.1d. d. US 101 between Willow Road and University Avenue See Near Term 2015 East Campus Only TR-3.1e. e. US 101 between South of University Avenue See Near Term 2015 East Campus Only TR-3.1f.	
TR-9 **Impacts to Local Transit System in the Near Term 2018 East Campus and West Campus Condition.** The Project under the Near Term 2018 East Campus and West Campus Condition would not result in any impacts to the local transit system. This impact is less than significant.	LTS	None Required.	N/A
TR-10 **Impacts to Local Bicycle or Pedestrian Facilities in the Near Term 2018 East Campus and West Campus Condition.** The Project under the Near Term 2018 East Campus and West Campus Condition would not result in any impacts to local bicycle or pedestrian facilities. This impact is less than significant.	LTS	None Required.	N/A
TR-11 **Impacts to Intersections in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of the several study intersections.	PS	MITIGATION MEASURE. Mitigation Measure TR-11.1 involves intersection improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition. However, intersection impacts would still remain since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. *TR-11.1 Intersection Improvements.* The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional	SU

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		right-of-way when travel lanes are added. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures. a. Marsh Road and Bayfront Expressway See Near Term 2018 East and West Campus TR-6.2a. b. Marsh Road and US 101 NB Ramps See Near Term 2018 East and West Campus TR-6.2b. c. Willow Road and Bayfront Expressway See Near Term 2015 East Campus Only TR-1c. d. Willow Road and Newbridge Street See Near Term 2018 East and West Campus TR-6.2d. e. Willow Road and Middlefield Road See Near Term 2015 East Campus Only TR-1.1b. f. University Avenue and Bayfront Expressway See Near Term 2015 East Campus Only TR-1.1c. g. Bayfront Expressway and Chrysler Drive See Near Term 2015 East Campus Only TR-1.1d. h. Middlefield Road and Lytton Avenue See Near Term 2015 East Campus Only TR-1.1e. MITIGATION MEASURE. Mitigation Measure TR-11.2 involves a West Campus Vehicle Trip Cap to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus and West Campus Condition. Mitigation Measure TR-11.3 involves intersection improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus and West Campus Condition. However, intersection impacts would still remain since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction.	

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		TR-11.2 West Campus Vehicle Trip Cap. a. See Near Term 2018 East and West Campus TR-6.1. *TR-11.3 Intersection Improvements*. The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way to add travel lanes. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures. a. Marsh Road and Bayfront Expressway See Near Term 2018 East and West Campus TR-6.2a. b. Marsh Road and US 101 NB Ramps See Near Term 2018 East and West Campus TR-6.2b. c. Marsh Road and Middlefield Road See Near Term 2018 and West Campus TR-1.1b. d. Willow Road and Bayfront Expressway See Near Term 2015 East Campus Only TR-1.1a. e. Willow Road and Newbridge Street See Near Term 2018 East and West Campus TR-6.2d. f. Willow Road and Middlefield Road See Near Term 2015 East Campus Only TR-1.1b. g. University Avenue and Bayfront Expressway See Near Term 2015 East Campus Only TR-1.1c. h. University Avenue and Donohoe Street The proposed mitigation measures for the intersection of University Avenue and Donohoe Street include restriping the	

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		westbound approach of the intersection to add a right turn lane and modify the traffic signal to add a right turn overlap phase. Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the feasible mitigation measure at the intersection of University Avenue and Donohoe Street for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a performance bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the Development Agreement effective date, the Project Sponsor shall submit complete plans to construct the improvement. Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including, but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans. If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released. Because the improvement is under Caltrans jurisdiction and the City cannot guarantee it would be implemented the impact remains significant and unavoidable. i. Bayfront Expressway and Chrysler Drive See Near Term 2015 East Campus Only TR-1d. j. Middlefield Road and Lytton Avenue See Near Term 2015 East Campus Only TR-1.1e.	
TR-12 **Impacts to Roadway Segments in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition .** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition result in increased volumes on Project area roadway segments resulting in a potentially significant impact.	PS	MITIGATION MEASURE. Mitigation Measure TR-12.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition and under the Cumulative 2025 East Campus and West Campus Only Condition on daily roadway segment operations. However, to improve daily roadway operations, a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway impacts would still remain because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners. *TR-12.1 Roadway Segment Improvements*. Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. a. Marsh Road between Bay Road and the railroad tracks See Near Term 2015 East Campus Only TR-2.1a. b. Willow Road between Durham Street and Chester Street See Near Term 2015 East Campus Only TR-2.1b.	SU

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		c. Willow Road between Nash Avenue and Blackburn Avenue See Near Term 2015 East Campus Only TR-2.1c. d. Middlefield Road between Linfield Drive and Survey Lane See Near Term 2015 East Campus Only TR-2.1d.	
TR-13 **Impacts on Routes of Regional Significance in the Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition.** Increases in traffic associated with the Project under Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition would result in significant impacts to several Routes of Regional Significance.	PS	MITIGATION MEASURE. Mitigation Measure TR-13.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition and under the Cumulative 2025 East Campus and West Campus Only Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are, planned and funded on a regional scale and would be too costly for a single project to be expected to fund. *TR-13.1 Routes of Regional Significance Improvements*. Routes of Regional Significance could be improved with additional travel lanes, but the freeways are under the jurisdiction of Caltrans. a. SR 84 between US 101 and Willow Road See Near Term 2015 East Campus Only TR-3.1a. b. SR 84 between Willow Road and University Avenue c. See Near Term 2015 East Campus Only TR-3.1b. SR 84 between University Avenue and County Line See Near Term 2015 East Campus Only TR-3.1c. d. US 101 North of Marsh Road See Near Term 2015 East Campus Only TR-3.1d. e. US 101 between Willow Road and University Avenue See Near Term 2015 East Campus Only TR-3.1e.	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		f. US 101 between South of University Avenue See Near Term 2015 East Campus Only TR-3.1f.	
TR-14 **Impacts to Local Transit System in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.** The Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would not result in any impacts to the local transit system. This impact is less than significant.	LTS	None Required.	N/A
TR-15 **Impacts to Local Bicycle or Pedestrian Facilities in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.** The Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would not result in any impacts to local bicycle or pedestrian facilities. This impact is less than significant.	LTS	None Required.	N/A
3.6 Air Quality			
AQ-1 **Conflict with or Obstruct Implementation of the Applicable Air Quality Plan.** The Project at the West Campus would not conflict with or obstruct implementation of the applicable air quality plan.	LTS	None Required.	N/A
AQ-2 **Violation of any Air Quality Standard.** The Project at the West Campus could result in the violation of air quality standards: • Operation of the Project at the West Campus would create new area and mobile sources of air pollutants	PS	MITIGATION MEASURES. At this time there are no feasible mitigation measures that would reduce the NOx, ROG, and PM_{10} emissions to less than significant. Thus, this impact would be significant and unavoidable. However, the silt loading used to estimate fugitive dust emissions of PM_{10} is likely an overestimate of the actual silt loading on the roads on which the	SU

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
that would generate emissions of ROG, PM_{10} and $PM_{2.5}$, but would not exceed BAAQMD's significance thresholds. However, emissions of NO_X from the West Campus operations would exceed BAAQMD's significance thresholds, resulting in a potentially significant impact. • Operation of the Project at the West Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} and would exceed BAAQMD's significance thresholds. Thus, this impact would be potentially significant.		Project trips would occur based on the range of silt loadings explained in EPA's AP-42. Therefore, the actual PM_{10} emissions would likely be less than shown. Nonetheless, since site-specific silt loadings are not available at this time, and the actual reduction in emissions is speculative, the emissions are significant and unavoidable.	
AQ-3 **Construction Criteria Air Pollutant Emissions.** Construction activities at the West Campus would not generate emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ that would exceed BAAQMD's significance thresholds.	LTS	MITIGATION MEASURES. Mitigation Measure AQ-3.1 includes all appropriate dust control measures recommended by BAAQMD. Inclusion of these measures in the construction contracts for future development of the West Campus would ensure that construction-related air quality impacts remain at a less-than-significant level. *AQ-3.1 Implement Recommended Dust Control Measures*. BAAQMD does not have mass emission thresholds for fugitive PM, but rather requires implementation of Best Management Practices (BMPs) as mitigation measures for all proposed projects. In order to ensure that these are implemented to minimize possible fugitive PM emissions, the BMPs are designated as mitigation measures. a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.	LTS

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d. All vehicle speeds on unpaved roads shall be limited to 15 mph. e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator. h. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District‘s phone number shall also be visible to ensure compliance with applicable regulations.	
AQ-4 **Localized Carbon Monoxide Impacts from Motor Vehicle Traffic.** The addition of Project-related traffic from the West Campus would result in increased concentrations of carbon monoxide around intersections in the vicinity of the Project, but not to the extent that the ambient air quality standards for CO would be exceeded. As a result, impacts of localized CO concentrations would be less than significant with implementation of the Project at the West Campus.	LTS	None Required.	N/A

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
AQ–5 **Exposure to Toxic Air Contaminants.** The Project at the West Campus could expose sensitive receptors to substantial TACs, resulting in a potentially significant impact.	PS	MITIGATION MEASURE. Since the DPM emissions from the fleet mix contributed substantially to the exceedance of health risk thresholds; the HRA evaluated a reduction in the DPM emissions that would result in a less-than-significant impact. Mitigation Measure AQ-5.1 includes a plan to reduce Project fleet-wide average DPM emissions associated with off-road equipment by 35 percent from current fleet average DPM emissions levels. Inclusion of this measure in the construction contracts for future development in the Project area would reduce construction-related air quality impacts to a less-than-significant level. Therefore, implementation of Mitigation Measures AQ-5.1 would reduce construction-related mass emissions, resulting in a less-than-significant impact relative to exposure to TACs. *AQ-5.1 Reduce Fleet-Wide Average DPM Emissions.* The Project shall develop a plan that is approved by the City prior to issuance of building permits demonstrating that the off-road equipment (more than 50 horsepower) to be used for the West Campus construction (i.e., owned, leased, and subcontractor vehicles) would achieve a Project wide fleet-average 35 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.	LTS
AQ–6 **Exposure to Objectionable Odors.** The Project at the West Campus would not be expected to create objectionable odors that would affect a substantial number of people. This impact would be less than significant.	LTS	None Required.	N/A
C-AQ-1 **Consistency with Applicable Air Quality Plans.** The Project, combined with other development within the City, would not conflict with or obstruct implementation of the applicable air quality plan.	LTS	None Required.	N/A

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-AQ-2 **Violation of any Air Quality Standard.** The Project, in combination with other development within the City, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10}, resulting in a violation of an Air Quality Standard.	PS	MITIGATION MEASURE. Because no feasible mitigation has been identified, the impact for ROG, NO_X, and PM_{10} is therefore significant and unavoidable.	SU
C-AQ-3 **Cumulative Construction Criteria Air Pollutant Emissions.** Construction activities associated with the West Campus, in combination with other construction activities in the City, could generate dust or diesel emissions, thus exposing people to particulate matter. This is considered a potentially significant impact.	PS	MITIGATION MEASURE. Mitigation Measure AQ-3.1, identified for the Project, includes all appropriate dust control measures recommended by BAAQMD; therefore, construction-related air quality impacts associated with the West Campus would be reduced to a less-than-significant level. This measure would reduce the Project's contribution to cumulative construction emissions to less than cumulatively considerable. In addition, these same measures would apply to other construction projects (i.e. Menlo Gateway) that might occur in the vicinity of the Project area. As a result, the cumulative impact would be considered to be less than significant.	LTS
C-AQ-4 **Cumulative Localized CO Concentrations.** Cumulative development in the Project vicinity would not result in CO concentrations above the ambient air quality standards. Therefore, cumulative impacts on localized CO concentrations would be less than significant.	LTS	None Required.	N/A
C-AQ–5 **Cumulative Toxic Air Contaminants Emissions.** The Project, in combination with other foreseeable development in the Project vicinity, would expose sensitive receptors to substantial TACs. Therefore, cumulative impacts from these pollutants would be potentially significant.	PS	MITIGATION MEASURE. The Project's contribution to the significant health impact is less than five percent. In this instance, the receptors identified above the significance threshold would be significant even without the Project. Many of these existing receptors are closer than the recommended 500 foot distance from a freeway or other high traffic roadway as suggested by CARB in its guidance document on air quality and land use, *Air Quality and Land Use Handbook: A Community Health Perspective*. The CARB guidance acknowledges the need to balance this recommendation with other State and local policies addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		other quality of life issues. The best solution would be to not have these receptors so close to a freeway, but since they already exist this is not a feasible option. There are no feasible Project related mitigation measures that will reduce the impact to less than significant. Therefore, the cumulative health impacts remain significant and unavoidable.	
3.7 Greenhouse Gas Emissions			
CC-1 **Greenhouse Gas Emissions.** The Project at the West Campus would result in a net increase in GHG emissions. However, the increase would not exceed the BAAQMD's standards of significance, resulting in a less-than-significant impact.	LTS	None Required.	N/A
CC-2 **Conflicts with Applicable Plans and Policies.** The Project at the West Campus would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, resulting in a less-than-significant impact.	LTS	None Required.	N/A
3.8 Noise			
NO-1 **Exposure to Excessive Noise Levels.** The increase in vehicular traffic associated with implementation of the East Campus and West Campus, combined, could result in an increase in the exposure of off-site noise sensitive receptors to noise levels potentially in excess of the standards established in the General Plan or Municipal Code. This impact would be potentially significant.	PS	MITIGATION MEASURES. The Project would result in a potentially significant increase in traffic noise on Marsh Road between Scott Drive and Bohannon Drive and Willow Road between O'Brien Drive and Newbridge Street. There are no feasible mitigation measures that could reduce or eliminate the impact related to traffic noise, other than reducing traffic. Typical sound mitigation consists of walls or other barriers that would attenuate noise to the sensitive receptors behind the barrier. This measure would require installation of a noise wall within private property or within a designated right-of-way, which may not be allowed by an affected property owner or by the City. The feasibility of noise walls is restricted by access requirements for driveways, presences of local cross streets, underground	SU

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		utilities, other noise sources in the area, and safety considerations. For example, a noise wall would be ineffective on the impacted segment of Marsh Road because existing residential driveways directly access Marsh Road, and Rolison Road merges with Marsh Road along this segment. Breaks in the noise wall for access would not provide any noise attenuation and would render the wall ineffective. Additionally, for safety reasons, Caltrans states that noise barriers should not exceed 14 feet in height. Due to the high existing noise level, a noise barrier of more than 14 feet would be required to reduce noise levels along these roadways segments to an acceptable noise level for residential land uses. Finally, sensitive receptors along Marsh Road and Willow Road are currently oriented toward these roadways. Construction of a noise barrier would wall off these uses from the surrounding community, which could result in adverse impacts to aesthetics and potentially public safety because the noise walls would limit the visibility of the homes from the surrounding area. Natural surveillance is one of the four principles of Crime Prevention through Environmental Design. Therefore, installation of a noise wall along these segments would not be feasible. As mentioned above, there are no other feasible mitigation measures that could reduce or eliminate the impact related to traffic noise, other than reducing traffic. As noted in Section 2, Project Description, the Project includes a TDM program that sets forth a variety of measures designed to reduce the number of daily trips. However, the TDM program may not reduce trips enough to reduce the Project's contribution to traffic noise to a less-than-significant level. Therefore, the increase in noise level on Marsh Road and Willow Road as a result of Project-generated traffic is considered to be significant and unavoidable.	

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
The West Campus could increase the exposure of people to noise in excess of the standards established in the General Plan or Municipal Code. This impact would be potentially significant.	PS	MITIGATION MEASURES. Operation of the West Campus would involve new emergency generator testing that would have the potential to exceed the Noise Ordinance noise level limit for residential land uses. Mitigation Measure NO-1.1 would require emergency generators to be shielded in order to reduce the sound level from emergency generator testing to less than 60 dBA at the nearest noise sensitive land uses. Mitigation Measure NO-1.2 would limit generator testing to daytime hours only. Implementation of these mitigation measures would reduce this impact to a less-than-significant level. *NO-1.1 Install Sound Enclosures Around Emergency Generators on the West Campus*. The Project Sponsor shall reduce the sound level from the operating generators to a maximum sound level of 88 dBA at 23 feet (7 meters) from the enclosure. Measures that could accomplish this standard include, but are not limited to, installing sound enclosures around all emergency generators, or purchasing equipment that meets this standard. *NO-1.2 Limit Generator Testing to Daytime Hours on the West Campus*. The Project sponsor shall limit generator testing to between the hours of 8:00 a.m. and 6:00 p.m.	LTS
NO-2 **Temporary Increases in Ambient Noise Level.** The Project at the West Campus could result in levels of vibration that would disrupt operations at nearby vibration-sensitive land uses. This impact is potentially significant.	PS	MITIGATION MEASURES. Construction of the West Campus would have the potential to result in significant ground-borne vibration that would disturb vibration-sensitive land uses. Mitigation Measure NO-2.1 would require the notification of nearby businesses of potential impacts to vibration-sensitive equipment, in order to identify any vibration-sensitive equipment in the Project vicinity, and implement best management practices, as described in Mitigation Measure NO-2.2, to help reduce impacts to buildings with vibration-sensitive equipment. However, even though implementation of these measures would reduce ground-borne vibration impacts from construction, vibration-sensitive equipment at the TE Connectivity site, the Menlo Science and Technology Park (AMB's Park along Willow Road), and other commercial facilities (if	SU

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		identified), could still be exposed to excessive construction-generated vibration levels. Therefore, this impact is considered to be significant and unavoidable. *NO-2.1 Notify Nearby Businesses of Construction Activities on the West Campus that Could Affect Vibration-Sensitive Equipment*. The Project sponsor shall provide notification to property owners and occupants of vibration-sensitive buildings within 225 feet of general construction activities and 900 feet of pile-driving activities, prior to the start of construction at the West Campus, informing them of the estimated start date and duration of vibration-generating construction activities, such as would occur during site preparation, grading, and pile driving. This notification shall include information warning about potential for impacts related to vibration-sensitive equipment. The Project sponsor shall provide a phone number for the property owners and occupants to call if they have vibration-sensitive equipment on their sites. A copy of the notification and any responses shall be provided to the Planning Division prior to building permit issuance. *NO-2.2 Implement Construction Best Management Practices to Reduce Construction Vibration on the West Campus*. If vibration-sensitive equipment is identified within 225 feet of general construction activities, including internal road construction or 900 feet of pile-driving activities on the West Campus, the Project sponsor shall implement the following measures during construction: • To the extent feasible, construction activities that could generate high vibration levels at identified vibration-sensitive locations shall be scheduled during times that would have the least impact on nearby land uses. This could include restricting construction activities in the areas of potential impact to the early and late hours of the work day, such as from 8:00 am to 10:00 a.m. or 4:00 p.m. to 6:00 p.m. Monday to Friday.	

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		• Stationary sources, such as construction staging areas and temporary generators, shall be located as far from nearby vibration-sensitive receptors as possible. • Trucks shall be prohibited from idling along streets serving the construction site where vibration-sensitive equipment is located.	
NO-3 **Substantial Permanent Increase in Noise Level.** Operation of the Project at the West Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. This would be a significant impact.	PS	MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. As described under Impact NO-1, no feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. This impact would be significant and unavoidable.	SU
NO-4 **Substantial Temporary Increase in Noise Level.** The Project at the West Campus could result in construction noise levels that would exceed the City's Noise Ordinance and substantially increase ambient noise levels. This impact is potentially significant.	PS	MITIGATION MEASURE. Construction of the West Campus would have the potential to result in noise levels that would exceed the City's Noise Ordinance standards for construction equipment. Implementation of the following measure would reduce construction noise associated with the Project to a less-than-significant level. *NO-4.1 Implement a Construction Noise Plan to Reduce Construction Noise on the West Campus.* The Project Sponsor shall submit a Construction Noise Plan for review and approval by the Planning and Building Divisions prior to the issuance of the demolition permit. The Project Sponsor shall implement the following measures during demolition and construction of the Project: • To the extent feasible, the noisiest construction activities shall be scheduled during times that would have the least impact on nearby residential land uses. This would include restricting typical demolition and exterior construction activities to the hours of 8:00 a.m. to 6:00 p.m. Monday to Friday. • Equipment and trucks used for Project construction shall use the best available noise control techniques (e.g., improved mufflers,	LTS

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		equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for Project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible. • Prior to any pile-driving activities, notification shall be sent to all surrounding property owners and occupants within 300 feet of the Project site informing them of the estimated start date and duration. • Construction contractors, to the maximum extent feasible, shall be required to use "quiet" gasoline-powered compressors or other electric-powered compressors, and use electric rather than gasoline or diesel powered forklifts for small lifting. • Stationary noise sources, such as temporary generators, shall be located as far from nearby receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible. • Install temporary plywood noise barriers eight feet in height around the construction site to minimize construction noise to 90 dBA as measured at the applicable property lines of the adjacent	

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		uses, unless an acoustical engineer submits documentation that confirms that the barriers are not necessary to achieve the attenuation levels. • Trucks shall be prohibited from idling along streets serving the construction site. • Implement "quiet" pile driving technology (e.g., vibratory pile driving or pre-drilled pile holes), where feasible, in consideration of geotechnical and structural requirements and conditions. • Monitor the effectiveness of noise attenuation measures by taking noise measurements during pile driving activities.	
C-NO-1 **Cumulative Exposure to Excessive Noise.** The Project, in combination with other development within the City, could result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code. The Project's contribution would be cumulatively significant**.**	PS	MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. No feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level.	SU
C-NO-2 **Cumulative Exposure to Ground-borne Vibration.** Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to excessive ground-borne vibration. The Project's cumulative impact would be less than significant.	LTS	None Required.	N/A
C-NO-3 **Cumulative Permanent Increase in Noise Levels.** Operation of the Project, in combination with other development in the City, would result in a substantial permanent ambient noise level increase in the Project vicinity. The Project's contribution would be cumulatively significant.	PS	MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. No feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level.	SU

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-NO-4 **Cumulative Temporary Increase in Noise Levels.** Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to a substantial temporary increase in ambient noise level. The Project's cumulative impact would be less than significant.	LTS	None Required.	N/A
3.9 Cultural Resources			
CR-1 **Impacts to Historic Resources.** The Project at the West Campus would not cause a substantial adverse change in the significance of a historical resource.	LTS	None required.	N/A
CR-2 **Impacts to Archaeological Resources.** The Project at the West Campus has the potential to encounter and damage or destroy previously unknown subsurface archaeological resources during construction. This impact would be potentially significant.	PS	MITIGATION MEASURE. Mitigation Measure CR-2.1, below, would reduce potentially significant impacts on archaeological resources at the West Campus to a less-than-significant level. *CR-2.1 Perform Construction Monitoring, Evaluate Uncovered Archaeological Features, and Mitigate Potential Disturbance for Identified Significant Resources at the West Campus.* Prior to demolition, excavation, grading, or other construction-related activities on the West Campus, the applicant shall hire a qualified professional archaeologist (i.e., one who meets the Secretary of the Interior's professional qualifications for archaeology or one under the supervision of such a professional) to monitor, to the extent determined necessary by the archaeologist, Project-related earth-disturbing activities (e.g. grading, excavation, trenching). In the event that any prehistoric or historic-period subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian, and/or mortar are discovered during demolition/ construction-related earth-moving activities, all ground-disturbing activity within 100 feet of the discovery shall be halted immediately, and the Planning and Building Divisions shall be	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		notified within 24 hours. City staff shall consult with the Project archeologist to assess the significance of the find. Impacts on any significant resources shall be mitigated to a less-than-significant level through data recovery or other methods determined adequate by the City and that are consistent with the Secretary of the Interior's Standards for Archaeological Documentation. If Native American archaeological, ethnographic, or spiritual resources are discovered, all identification and treatment of the resources shall be conducted by a qualified archaeologist and Native American representatives who are approved by the local Native American community as scholars of the cultural traditions. In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. When historic archaeological sites or historic architectural features are involved, all identification and treatment is to be carried out by historical archaeologists or architectural historians who meet the Secretary of the Interior's professional qualifications for archaeology and/or architectural history.	
CR-3 **Impacts to Paleontological Resources.** The Project at the West Campus has the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. This impact would be potentially significant.	PS	MITIGATION MEASURE. Mitigation Measure CR-3.1, below, would reduce potentially significant impacts on paleontological resources to a less-than-significant level for the West Campus. *CR-3.1 Conduct Protocol and Procedures for Encountering Paleontological Resources at the* West *Campus*. Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology (SVP), who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and will follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who will evaluate its significance. If a fossil is determined to be significant and avoidance is not feasible, the paleontologist will develop and implement an excavation and salvage plan in accordance with SVP standards. Construction work in these areas shall be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report shall be prepared that outlines the results of the mitigation program. The City shall be responsible for ensuring that monitor's recommendations regarding treatment and reporting are implemented.	
CR-4 **Impacts to Human Remains.** The Project at the West Campus has the potential to encounter or discover human remains during excavation or construction in the Project area. This impact would be potentially significant.	PS	MITIGATION MEASURE. Mitigation Measure CR-4.1, below, would reduce potentially significant impacts associated with the disturbance of human remains to a less-than-significant level. *CR-4.1 Comply with State Regulations Regarding the Discovery of Human Remains at the West Campus*. If human remains are discovered during any construction activities, all ground-disturbing activity within 50 feet of the remains shall be halted immediately, and the County Coroner shall be notified immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. Additionally, the Building Division shall be notified. If the remains are determined by the County Coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. The Project Sponsor shall also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		Likely Descendant, if any, identified by the NAHC. As necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains. The Planning Division shall be responsible for approval of recommended mitigation as it deems appropriate, taking account of the provisions of state law, as set forth in CEQA Guidelines Section 15064.5(e) and Public Resources Code Section 5097.98. The applicant shall implement approved mitigation, to be verified by the Planning Division, before the resumption of ground-disturbing activities within 50 feet of where the remains were discovered.	
C-CR-1 **Cumulative Impacts on Historical Resources.** Construction activities on the West Campus and other cumulative development would not result in a significant cumulative impact to historical resources.	LTS	None Required.	N/A
C-CR-2 **Cumulative Impacts on Archaeological, Paleontological Resources, and Human Remains.** Construction activities on the West Campus and other cumulative development could result in impacts to archaeological resources. This cumulative impact is potentially significant.	PS	MITIGATION MEASURE. Mitigation Measures CR-2.1, CR-3.1, and CR-4.1 prescribe discovery procedures for any previously unknown archaeological, paleontological resources, or human remains encountered during Project construction. The discovery procedures are consistent with professional standards and, as they pertain to discovered human remains, are compliant with State law. Compliance with these mitigation measures would reduce the Project's contribution to the cumulative impact to less than cumulatively considerable, and reduce the potentially significant cumulative impacts associated with the loss of archeological, paleontological resources, and the disturbance of human remains to a less-than-significant level.	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.10 Biological Resources			
BR-1 **Impacts on Special-Status Species at the Project Site**. The Project at the West Campus could have a potentially significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	PS	MITIGATION MEASURE. The following measures would reduce the potentially significant impacts to roosting and breeding bats at the West Campus to less than significant. *BR-1.1 Identify and protect roosting and breeding bats on the West Campuses*. The Project Sponsor shall implement the following measures to protect roosting and breeding bats found in a tree or structure to be removed with implementation of the Project: 1. Prior to tree removal activities on each site, the Project Sponsor shall retain a qualified biologist to conduct a focused survey for bats and potential roosting sites within buildings to be demolished or trees to be removed. The surveys can be conducted by visual identification and can assume presence of hoary bats or the bats can be identified to a species-level with the use of a bat echolocation detector such as an "Anabat" unit. If no roosting sites or bats are found, a letter report confirming absence shall be sent to the California Department of Fish and Game and no further mitigation is required. If roosting sites or hoary bats are found, then the following monitoring and exclusion measures shall be conducted. The letter or surveys and supplemental documents shall be provided to the City prior to demolition permit issuance. a. If bats are found roosting outside of nursery season (May 1st through October 1st), then they shall be evicted as described under (b) below. If bats are found roosting during the nursery season, then they shall be monitored to determine if the roost site is a maternal roost. This could occur by either visual inspection of the roost bat pups, if possible, or monitoring the roost after the adults leave for the night to listen for bat pups. If the roost is determined	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		to not be a maternal roost, then the bats shall be evicted as described under (b). Because bat pups cannot leave the roost until they are mature enough, eviction of a maternal roost cannot occur during the nursery season. A 250-foot (or as determined in consultation with the Department of Fish and Game) buffer zone shall be established around the roosting site within which no construction or tree removal shall occur. b. Eviction of bats shall be conducted using bat exclusion techniques, developed by Bat Conservation International (BCI) and in consultation with the Department of Fish and Game that allow the bats to exit the roosting site but prevent re-entry to the site. This would include, but not be limited to, the installation of one way exclusion devices. The devices shall remain in place for seven days and then the exclusion points and any other potential entrances shall be sealed. This work shall be completed by a BCI recommended exclusion professional. The exclusion of bats shall be timed and carried concurrently with any scheduled bird exclusion activities.	
BR-2 **Indirect Impacts on Special-Status Species Inhabiting the Adjacent Water Marshes.** The Project at the West Campus would result in potentially significant indirect effects on special-status bird and mammal species inhabiting the adjacent salt and brackish water marshes due to increased raptor predation.	PS	MITIGATION MEASURE. The following measure would reduce the potentially significant impacts due to increased raptor predation at the West Campus to less than significant. *BR-2.1 Installation of Bird Perching Deterrents on all New Buildings and Other Elevated Structures on the West Campus*. The Project Sponsor shall implement the following measures to reduce impacts to special-status marsh species: 1. For all new buildings to be constructed on the West Campus, the Project Sponsor shall install bird deterrents along suitable perching sites that would allow raptors or other predatory birds a vantage	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		point from which to prey on western snowy plover, salt marsh harvest mouse or other special-status species inhabiting the adjacent salt marshes. Such deterrents may include one or more of the following deterrent devices as appropriate for the individual situation: bird spikes, bird netting, electric shock track, sound deterrents, or other devices approved by CDFG and/or USFWS. 2. Trees used for replacement landscaping shall consist of species that generally do not reach heights of greater than 30 feet in order to limit the distance perching birds could see into the adjacent salt marshes to the north. These trees may include native or non-invasive ornamental species. Species with broad canopies would be preferred, as tall narrow canopies (e.g., palms or conifers) generally provide better hunting perches for raptors.	
BR-3 **Loss of Riparian and Other Habitats, Including Wetlands as Defined by Section 404 of the Clean Water Act.** The Project at the West Campus would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or as defined by Section 404 of the Clean Water Act.	LTS	None Required.	N/A
BR-4 **Impacts to Wildlife Corridors or Nursery Sites.** The removal of trees, shrubs, or woody vegetation with implementation of the Project at the West Campus would have a potentially significant impact on the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	PS	MITIGATION MEASURE. The following measure would reduce the potentially significant impacts to nesting migratory birds at the West Campus to less than significant. *BR-4.1 Identify and Protect Nesting Migratory Birds at the West Campus.* The Project Sponsor shall implement the following measures to reduce impacts to nesting migratory birds: a. To facilitate compliance with State and federal law (Fish and Game Code and the MBTA) and prevent impacts to nesting birds, the	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		Project Sponsor shall avoid the removal of trees, shrubs, or weedy vegetation February 1 through August 31 during the bird nesting period. If no vegetation or tree removal is proposed during the nesting period, no surveys are required. If it is not feasible to avoid the nesting period, a survey for nesting birds shall be conducted by a qualified wildlife biologist no earlier than seven days prior to the removal of trees, shrubs, weedy vegetation, buildings, or other construction activity. b. Survey results shall be valid for the tree removals for 21 days following the survey. If the trees are not removed within the 21-day period, then a new survey shall be conducted. The area surveyed shall include all construction areas as well as areas within 150 feet outside the boundaries of the areas to be cleared or as otherwise determined by the biologist. In the event that an active nest for a protected species of bird is discovered in the areas to be cleared, or in other habitats within 150 feet of construction boundaries, clearing and construction shall be postponed for at least two weeks or until the biologist has determined that the young have fledged (left the nest), the nest is vacated, and there is no evidence of second nesting attempts.	
BR-5 **Conflicts with any Local Policies or Ordinances Protecting Biological Resources.** The Project at the West Campus would not result in conflicts with Chapter 13.24 of the Municipal Code (Heritage Tree Ordinance).	LTS	None Required.	N/A
C-BR-1 **Cumulative Impacts on Roosting Bats**. Removal of buildings, trees, shrubs, or other woody vegetation associated with construction of the Project and other cumulative development would result in impacts to roosting bats. This cumulative impact is less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-BR-2 **Cumulative Indirect Impacts on Special-Status Species Inhabiting the Adjacent Water Marshes.** Construction of new multi-story buildings associated with the West Campus and other cumulative development would result in indirect effects on special-status bird and mammal species inhabiting the adjacent salt and brackish water marshes due to increased raptor predation. This cumulative impact is less than significant.	LTS	None Required.	N/A
C-BR-3 **Cumulative Loss of Riparian and Other Habitats, Including Wetlands as Defined by Section 404 of the Clean Water Act.** The Project at the West Campus, in combination with other cumulative development, would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or as defined by Section 404 of the Clean Water Act.	LTS	None Required.	N/A
C-BR-4 **Cumulative Impact on Wildlife Corridors or Nursery Sites.** Removal of buildings, trees, shrubs, or other woody vegetation associated with construction of the Project and other cumulative development would result in impacts to nesting birds. This cumulative impact is less than significant.	LTS	None Required.	N/A
C-BR-5 **Cumulative Conflicts with any Local Policies or Ordinances Protecting Biological Resources.** The Project, in combination with other reasonably foreseeable projects, would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.11 Geology and Soils			
GS-1 **Strong Seismic Groundshaking and Seismic-Related Ground Failure.** The Project, at the West Campus, would have a less-than-significant potential to expose persons and structures to strong seismic groundshaking and seismic-related ground failure.	LTS	None Required.	N/A
GS-2 **Soil Hazards.** The Project at the West Campus would result in less-than-significant soil hazards.	LTS	None Required.	N/A
GS-3 **Soil Erosion.** The Project at the West Campus would have a less-than-significant impact to soil erosion.	LTS	None Required.	N/A
C-GS-1 **Cumulative Seismic Hazards.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase the risk of exposure or people or structures to seismic hazards. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A
C-GS-2 **Cumulative Soil Hazards.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil hazards. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A
C-GS-3 **Cumulative Soil Erosion.** The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil erosion potential. As such, the cumulative impact would be less than significant.	LTS	None Required.	N/A

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.12 Hydrology and Water Quality			
HY-1 **Changes in Stormwater Runoff.** The Project at the West Campus would result in less-than-significant impacts with regard to stormwater runoff.	LTS	None Required.	N/A
HY-2 **100-Year Floodplain.** The Project at the West Campus would place structures in a Special Flood Hazard Area (SFHA). This is considered a potentially significant impact.	PS	MITIGATION MEASURE. Implementation of Mitigation Measure HY-2.1 would reduce the potentially significant flood risk impacts at the West campus to less than significant. *HY-2.1 Prepare and Obtain a Conditional Letter of Map Revision – Fill (CLOMR-F) from FEMA Prior to Issuance of a Grading or Building Permit.* Concurrent with the first building permit submittal for the West Campus, the Project Sponsor shall submit a FEMA CLOMR-F application to the Public Works Department for review and approval. In accordance with the National Flood Insurance Program (NFIP) (Code of Federal Regulations (CFR) 44 Part 65), Section 65.6 (Revision of base flood elevation determinations), the Project Sponsor shall prepare supporting data, including relevant hydraulic and hydrologic analyses, delineation of floodplain boundaries and all other information required by FEMA to review and evaluate the request for a CLOMR-F. The analyses shall clearly show revised and new floodplain boundaries, for the Project area and adjacent areas not affected by the revision. Upon receiving City approval, the Project Sponsor shall submit the CLOMR-F application to FEMA. Prior to issuance of any grading or building permit on each site, the applicant shall obtain a CLOMR-F from FEMA. The applicant shall submit an elevation certificate prior to final signoff of the foundation inspection for each structure.	LTS

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
HY-3 **Impeding or Redirecting Flood Flows.** The Project at the West Campus would place fill and structures in a 100-year floodplain. However, this would not impede or redirect flood flows.	LTS	None Required.	N/A
HY-4 **Sea Level Rise.** The Project at the West Campus could expose people to flooding from climate change-induced sea level rise, resulting in a potentially significant impact.	PS	MITIGATION MEASURES. Implementation of Mitigation Measures HY-4.2, and HY-4.3 would reduce the potentially significant sea level rise impacts at the West Campus to less than significant. *HY-4.1 Floodproofing of West Campus Underground Infrastructure*. Prior to, or at a minimum concurrent with, the issuance of the first construction activity permit at the West Campus and in connection with applicable FEMA requirements, the City shall ensure that the Project incorporates design features to flood-proof below-ground infrastructure, including storm drains, sewers, equipment facilities, to withstand hydrostatic forces and buoyancy from sea level rise changes in groundwater levels. *HY-4.2 Provide Adequate Storm Flow Conveyance Capacity For Sea Level Rise Conditions at the West Campus*. Prior to, or at a minimum concurrent with, the issuance of the first construction activity permit at the West Campus, the City shall ensure that the Project incorporates design features to ensure that the storm drain system conveyance capacity is not constricted by sea level rise at the outlets, including the Caltrans pump station.	LTS
HY-5 **Construction and Operational Stormwater Pollutants.** Stormwater runoff from the Project at the West Campus would contain urban pollutants. Compliance with applicable federal, State, and local regulations would ensure the Project would not violate water quality standards or permits, contribute additional sources of polluted runoff, or otherwise cause water quality degradation. As a result, this impact would be less than significant.	LTS	None Required.	N/A

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
HY-6 **Effects on Groundwater Supplies and Recharge.** The Project at the West Campus would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge because it would not increase groundwater demand or decrease recharge areas. This impact would be less than significant.	LTS	None Required.	N/A
C-HY-1 **Cumulative Storm Drain Impacts.** Development of the Project and other cumulative development could increase the rate and volume of stormwater runoff, which could cause or exacerbate localized flooding or cause the City's storm drainage capacity to be exceeded in some locations. However, the Project's contribution to cumulative impacts would not be cumulative considerable.	LTS	None Required.	N/A
C-HY-2 **Cumulative Flooding and Sea Level Rise.** Development of the Project and other cumulative development could expose people and structures to risk of 100-year flooding, including sea level rise. However, the Project's contribution to cumulative impacts would not be cumulatively considerable.	LTS	None Required.	N/A
C-HY-3 **Cumulative Water Quality.** Development of the Project and other development would contribute pollutants to stormwater during construction and occupancy of the various projects, but this would not substantially degrade water quality. The Project's contribution would not be cumulatively considerable. This cumulative impact would be less than significant.	LTS	None Required.	N/A

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Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-HY-4 **Cumulative Groundwater Supplies and Recharge.** Development of the Project and other cumulative development within the San Mateo subbasin would not substantially degrade groundwater supplies. As a result, cumulative impacts on the subbasin would be less than significant.	LTS	None Required.	N/A
3.13 Hazards and Hazardous Materials			
HM-1 **Asbestos, Lead, or Other Hazardous Materials in Building Components.** Project-related demolition or excavation at the West Campus could disturb hazardous materials in existing building components, but compliance with existing regulations would prevent adverse health or safety effects. This would be a less-than-significant impact.	LTS	None Required.	N/A
HM-2 **Soil and Groundwater Contamination.** The Project at the West Campus could expose people to residual contaminants in soil and/or groundwater, resulting in potentially significant impact.	PS	MITIGATION MEASURE. The following measures would reduce the potentially significant soil and groundwater contamination impact at the West Campus to ***less than significant***. *HM-2.1 Update Operation, Maintenance, and Monitoring Plan (OMMP) for the West Campus*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to update the OMMP to incorporate site development considerations for the West Campus to ensure continued implementation of Article IV, Section 4.2 (Soil Management) of the Land Use Covenant (LUC). The updated OMMP shall include, at a minimum, requirements for soil sampling and laboratory analysis, action levels triggering the need for special handling, as well as stormwater runoff controls (Mitigation Measure HM-2.7), on-site soil movement associated with excavation and fill placement, off-site soil transport (if necessary), and contingency measures in the event activities encounter soil that is odorous, stained, visibly discolored, or is questionable. The Project Sponsor shall submit the updated	LTS

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		OMMP to the California Department of Toxic Substance Control (DTSC) as required under Article IV Section 4.2 of the LUC, and in accordance with the applicable terms of the Voluntary Cleanup Agreement (VCA). The updated OMMP shall ensure that any human health risk evaluation or assessment used to support approval of soil or groundwater disturbance evaluates the proposed duration and extent of the Project activities, considers the potential for groundwater dermal exposure, and is based on the most current applicable risk evaluation methodologies. The updated OMMP shall also identify how deep foundation design and installation will be managed to reduce the potential for downward migration of contaminants in soil or groundwater. The City shall not authorize any activity on the West Campus that has the potential to disturb soil until approved by DTSC and all necessary permits and/or approvals have been obtained, including but not limited to any permits for wells and/or borings from San Mateo County and BAAQMD. *HM-2.2 Health and Safety Plan for the West Campus*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare an updated Health and Safety Plan to implement Article IV, Section 4.2 (Soil Management) of the LUC. The Project Sponsor shall submit the Health and Safety Plan to DTSC as required under Article IV Section 4.2 of the LUC, and in accordance with the applicable terms of the VCA. The City shall not authorize any activity on the West Campus that has the potential to disturb soil until DTSC has approved the updated Health and Safety Plan and all necessary permits have been obtained. *HM-2.3 West Campus Construction Activity Dust Control Plan (DCP) and Asbestos Dust Management Plan (ADMP)*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare a DCP/ADMP. The DCP shall incorporate the applicable BAAQMD pertaining to fugitive dust control. The ADMP shall	

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Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		be submitted to and approved by the BAAQMD prior to the beginning of construction, and the Project Sponsor must ensure the implementation of all specified dust control measures throughout the construction of the Project. The ADMP shall require compliance with specific control measures to the extent deemed necessary by the BAAQMD to meet its standard. *HM-2.4 West Campus Construction Activity Groundwater Management Plan*. Prior to site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare a Groundwater Management Plan that describes how any groundwater extracted to accommodate site preparation will be tested and disposed of in accordance with existing regulations. The City shall not authorize any activity on the West Campus that would involve dewatering until DTSC has approved the Groundwater Management Plan and all necessary permits or approvals have been obtained, particularly if groundwater requires additional treatment and/or disposal at a permitted facility. *HM-2.5 Soil Vapor Intrusion Barrier at the West Campus*. Prior to the issuance of the first building permit for the first occupied structure at the West Campus, the Project Sponsor shall retain a qualified professional to design a vapor intrusion barrier system consistent with the recommendations set forth in "Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California" dated November 19, 2010 prepared by Cornerstone Earth Group. The City shall not issue a building permit until the vapor intrusion barrier design has been reviewed and approved by DTSC and the City Engineer has reviewed the final design plans to ensure the necessary features have been incorporated into the Project. Such measures could include, but would not be limited to, gas-impermeable membranes. Appropriate measures shall also be incorporated into Project design to reduce vapor and groundwater migration through trench backfill and utility conduits. Such measures could include placement of low-permeability backfill plugs.	

SU = Significant Unavoidable *PS = Potentially Significant* *LTS = Less-than-Significant* *N/A = Not Applicable*

Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
		HM-2.6 Corrosion-Resistant Utility Pipeline Design for the West Campus. Prior to, or at a minimum concurrent with the issuance of utility improvement plan permits, the Project Sponsor shall retain a qualified licensed professional engineer to determine protective measures for utilities. The City shall not issue any permit for utility construction until the City Engineer has reviewed the final design plans to ensure the necessary corrosion-resistant features have been incorporated into the Project. *HM-2.7 Stormwater Quality BMPs*. The Project Sponsor shall ensure on-site detention/retention basins are lined to prevent groundwater interaction with stormwater and to prevent downward migration of stormwater into groundwater. *HM-2.8 Construction Stormwater Pollution Prevention Plan for the West Campus*. The City shall not issue any permit for grading until a stormwater pollution prevention plan (SWPPP) has been completed to the satisfaction of the City and necessary construction BMPs have been incorporated into the Project. *HM-2.9 Landscaping Restrictions on the Engineered Cap for the West Campus*. In accordance with the existing LUC, the Project Sponsor shall not plant trees on the engineered cap. Non-tree landscaping is permissible.	
HM-3 **Effects on Ecological Systems.** Soil movement during construction of the Project at the West Campus could expose ecological receptors to residual contaminants in soil and/or groundwater if measures are not implemented to control contaminants.	PS	With implementation of Mitigation Measure HM-2.1, potential construction impacts to ecosystems related to handling of soil with residual contaminants and groundwater would be reduced to less-than-significant Levels.	LTS
HM-4 **Interference with Groundwater Monitoring System.** Site preparation activities and structures at the West Campus could interfere with the groundwater monitoring system.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
HM-5 **Maintenance Activities.** Maintenance activities at the West Campus could have a potentially significant potential to disturb soil containing residual contaminants.	PS	MITIGATION MEASURE. While the updated OMMP (Mitigation Measure HM-2.1) provides for unexpected conditions, as an added safety measure, documentation ensuring that as-built conditions are fully described (e.g., locations where soils were further remediated or not remediated) and any additional restrictions are recorded is made available to future maintenance and repair workers. The following measure would reduce the potentially significant impact at the West Campus to less than significant. HM-5.1 *Record Additional Restrictions*. The Project Sponsor shall ensure that the updated OMMP (Mitigation Measure HM-2.1) includes provisions for disclosing information in DTSC-approved remediation reports along with any other requirements pertaining to post-construction, long-term operation and maintenance of subsurface utilities or maintenance or repair of foundations. Any such documentation shall be recorded in the Office of the County Recorder and a copy shall be provided to the City.	LTS
HM-6 **Routine Hazardous Materials Use.** Construction and operation of the Project at both the West Campus would involve the use of hazardous materials-containing products. However, these products would be used in moderation and would comply with federal, State, and local regulations, resulting in less-than-significant impacts.	LTS	None Required.	N/A
HM-7 **Hazardous Materials Risks from Off-Site Uses.** The Project at the West Campus could expose occupants to potential risks from off-site routine use or upset/accident conditions involving hazardous materials. However, compliance with federal, State, and local regulations would reduce the potential for off-site uses to pose a substantial hazard to the Project to less-than-significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
HM-8 **Impairment of Emergency Access or Emergency Plans.** The Project at the West Campus would result in a less-than-significant impact regarding the implementation of or interference to an adopted emergency response or evacuation plan.	LTS	None Required.	N/A
C-HM-1 **Cumulative Hazardous Materials Use.** Construction and operation of the Project and other cumulative development would involve routine hazardous materials use, generation, disposal, or transport. This is a less-than-significant cumulative impact.	LTS	None Required.	N/A
C-HM-2 **Cumulative Soil and Groundwater Contamination.** Development of the West Campus and other cumulative development could expose people or the environment to residual contaminants in soil and/or groundwater if measures are not implemented to control unintentional or inadvertent releases. This is a less-than-significant cumulative impact.	LTS	None Required.	N/A
C-HM-3 **Cumulative Hazardous Materials in Building Components.** Development of the Project and other cumulative development could expose people to asbestos, lead, PCBs, or other hazardous materials in existing buildings that may be demolished, renovated, or rehabilitated if measures are not implemented to control unintentional or inadvertent releases. This is a less-than-significant cumulative impact.	LTS	None Required.	N/A
C-HM-4 **Cumulative Impairment of Emergency Access or Emergency Plan Impacts.** Development of the Project and other cumulative development would not impair implementation of or interfere with an adopted emergency response or evacuation plan. The cumulative impact is less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
3.14 Population and Housing			
PH-1 **Indirect Population Growth.** Implementation of the Project would not induce substantial population growth indirectly through job growth, nor would projected growth result in adverse direct impacts to the physical environment. Therefore, this impact would be less than significant.	LTS	None Required.	N/A
C-PH-1 **Cumulative Population Impact.** Cumulative development in the City and County would increase the resident population but would not exceed growth projections. The cumulative impact would be less-than-significant.	LTS	None Required.	N/A
C-PH-2 **Cumulative Housing Impacts.** Cumulative development in the City would increase the demand for housing in the City but would not exceed growth projections. The cumulative impact would be less than significant.	LTS	None Required.	N/A
3.15 Public Services			
PS-1 **Impacts to Police Services.** The Project at the West Campus would not result in the need for new or physically altered police service facilities. Therefore, police service impacts would be less than significant.	LTS	None Required.	N/A
PS-2 **Impacts to Fire Services.** The Project at the West Campus would not result in the need for new or physically altered fire service facilities. Fire service impacts would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
PS-3 **Impacts to School Facilities.** The Project at the West Campus would not result in the need for new or physically altered school facilities. Impacts related to school facilities would be less than significant impact.	LTS	None Required.	N/A
PS-4 **Impacts to Parks and Recreation Facilities.** The Project at the West Campus would not result in the need for new or physically altered parks and recreation facilities. Park and recreation impacts would be less than significant.	LTS	None Required.	N/A
PS-5 **Impacts Library Facilities.** The Project at the West Campus would not result in the need for new or physically altered library facilities, resulting in a less-than-significant impact.	LTS	None Required.	N/A
C-PS-1 **Cumulative Police Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on police services.	LTS	None Required.	N/A
C-PS-2 **Cumulative Fire and Emergency Service Impacts.** The Project, in combination with other foreseeable development in the fire service area, would have a less-than-significant cumulative impact on fire and emergency services.	LTS	None Required.	N/A
C-PS-3 **Cumulative School Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on school services.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-PS-4 **Cumulative Parks and Recreation Impacts**. The Project, in combination with other foreseeable development in the City, would result in a less-than-significant cumulative impact on parks and recreation	LTS	None Required.	N/A
C-PS-5 **Cumulative Library Service Impacts.** The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on library services.	LTS	None Required.	N/A
3.16 Utilities			
UT-1 **Water Demand.** The Project at the West Campus would not exceed water supplies available under normal year conditions to serve the Project from existing entitlements. Therefore, implementation of the Project would have a **less-than-significant** impact on water supplies.	LTS	None Required.	N/A
UT-2 **Impacts to Water Treatment Facilities.** The Project at the West Campus would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, which could cause significant environmental effects. Therefore, the Project would have a **less-than-significant** impact on water treatment facilities.	LTS	None Required.	N/A
UT-3 **Wastewater Generation.** The Project at the West Campus would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, or result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's	PS	MITIGATION MEASURES. The technical study prepared by West Yost Associates determined that the existing wastewater conveyance system serving the Project site would have insufficient capacity to accommodate the Project. Mitigation Measure UT-3.1 would ensure that necessary capacity improvements are implemented so that to the WBSD sanitary sewer system has sufficient capacity to accommodate additional wastewater generated by the Project. The following measure would reduce potentially	LTS

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
expected demand and existing entitlements. However, the existing sanitary sewer system serving the Project site would not have sufficient capacity to accommodate the Project. Therefore, this impact would potentially significant.		significant impacts associated with the Project to a less-than-significant level. *UT-3.1 Sanitary Sewer System Improvements*. The Project Sponsor shall upsize the existing 114 feet of 12-inch diameter pipeline that runs north along Hamilton Avenue, beginning at the Hamilton Avenue/Willow Road intersection, to a 15-inch diameter pipe. To ensure that this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 200 percent of the estimated cost of the work. In addition, the Project Sponsor shall purchase a third wastewater pump to be placed into reserve in case of pump failure at HHPS. To ensure this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 120 percent of the cost of the wastewater pump.	
UT-4 **Solid Waste Generation.** The Project would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accept the Project's solid waste disposal needs. The Project, at the West Campus, would comply with federal, State, and local statutes and regulations related to solid waste. Therefore, impacts on solid waste facilities would be less than significant.	LTS	None Required.	N/A
UT-5 **Stormwater Generation.** The Project at the West Campus would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, resulting in a less-than-significant impact.	LTS	None Required.	N/A
UT-6 **Energy Demand.** The Project at the West Campus would not exceed existing gas and electric supply. Therefore, this impact would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-UT-1 **Cumulative Water Demand.** The Project, in combination with other development within the City, would increase water demand, but there are sufficient water supplies available to serve the cumulative projects from existing entitlements under normal, dry and multiple dry years, and the increased demand would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, which could cause significant environmental effects. This cumulative water supply impact would be less than significant.	LTS	None Required.	N/A
C-UT-2 **Cumulative Wastewater Generation.** The Project, in combination with other development within the West Bay Sanitary District service area, would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, nor result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's expected demand and existing entitlements. Therefore, this cumulative wastewater impact would be less than significant.	LTS	None Required.	N/A
C-UT-3 **Cumulative Solid Waste Generation.** The Project, combined with other development within the RethinkWaste's service area, would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accommodate future solid waste disposal needs through 2034. These cumulative projects would be expected to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, this cumulative solid waste impact would be less than significant.	LTS	None Required.	N/A

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Table S-2
Summary of Impacts and Mitigation Measures – West Campus

Impacts	Impact Significance Without Mitigation	Mitigation Measures	Impact Significance With Mitigation
C-UT-4 **Cumulative Stormwater Generation.** The Project, in combination with cumulative development in the City, could require the construction or expansion of stormwater facilities. However, the Project's contribution to this impact would be less than significant.	LTS	None Required.	N/A
C-UT-5 **Cumulative Energy Demand.** The Project, in combination with other development served by PG&E, would not exceed existing gas and electric supply capacity. Therefore, this cumulative impact would be less than significant.	LTS	None Required.	N/A

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Section 1
Introduction

1.1 PURPOSE OF ENVIRONMENTAL IMPACT REPORT

This Draft Environmental Impact Report (EIR) for the Menlo Park Facebook Campus Project (Project) has been prepared by the City of Menlo Park (City), which is the lead agency for the Project, in conformance with the provisions of the California Environmental Quality Act (CEQA) Guidelines, as amended.[1] The lead agency is the public agency that has the principal responsibility for carrying out or approving a project.

This Draft EIR assesses potentially significant impacts that could result from the Project. As defined in the CEQA Guidelines Section 15382, a "significant effect on the environment" is:

> . . . a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

As stated in the CEQA Guidelines, an EIR is an "informational document" intended to inform public agency decision-makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The City Council will consider this Draft EIR in reviewing the Project and making the final decision to certify the Final EIR (responses to comments) and to approve or deny the Project.

The City must consider the information in the Draft and Final EIR and, particularly, each significant impact resulting from the Project. The City will use the EIR, along with other information in the public record, to determine whether to approve, modify, or disapprove the Project, and to specify any applicable environmental conditions or mitigation measures as part of the Project approvals. The purpose of this Draft EIR is to provide the City, responsible and trustee agencies, other public agencies, and the public with detailed information about the environmental effects of implementing the Project, to examine and institute methods of mitigating any adverse environmental impacts should the Project be approved, and to consider feasible alternatives to the Project.

1.2 PROJECT INTRODUCTION

Facebook, Inc. (Project Sponsor) is moving its operations from its existing facilities in the City of Palo Alto to the City of Menlo Park. The Project site consists of a 56.9-acre site (East Campus), which was

[1] *CEQA, California Environmental Quality Act, Statutes and Guidelines*, Guidelines as amended January 1, 2011, published by the Governor's Office of Planning Research.

previously occupied by Oracle (formerly Sun Microsystems), and a 22-acre site (West Campus), which was formerly owned by General Motors (GM) and occupied by TE Connectivity (formerly Tyco Electronics) (Project Site). The Project proposes that Facebook occupy the East Campus as part of the first phase and then expand to the West Campus in the second phase. In total, the Project would employ approximately 9,400 employees at both campuses.

The East Campus is currently developed with nine buildings, totaling more than one million square feet (sf). To accommodate Facebook's rapid employment growth, the Project Sponsor submitted an application to the City to modify the Conditional Development Permit (CDP) that applies to the East Campus. The Project Sponsor proposes to convert the 3,600-employee cap included in the CDP into a vehicle trip cap for the AM and PM peak periods and daily trips. According to the Project Sponsor, this approach is designed to minimize traffic, air quality, and greenhouse gas emission impacts, while still allowing approximately 6,600 workers to occupy the East Campus. It is estimated that the East Campus would reach full capacity by 2014 or 2015. Tenant Improvements (TIs) are also being undertaken to convert existing hardware-intensive laboratory spaces and individual hard-wall offices to a more open, shared workspace characteristic of the Facebook work environment. However, the TIs are being done through ministerial building permits and are not part of the Project.[2]

Approximately half of the West Campus is currently developed with two office buildings totaling 127,246 sf, an asphalt parking area, a guard house, and landscape features, but the entire site is currently unoccupied. The West Campus is zoned M-2 and designated General Industrial in the City's General Plan. The existing buildings at the West Campus would be demolished and developed with office buildings and amenities structures, totaling approximately 440,000 sf. Although the Project Sponsor does not intend to apply for entitlements for the West Campus at this time, this subsequent phase of development is evaluated as part of the Project in this Draft EIR. Facebook estimates that the West Campus would be operational by mid-2014 and would reach maximum occupancy of approximately 2,800 employees within two to three years thereafter.

1.3 NOTICE OF PREPARATION AND EIR SCOPE

Notice of Preparation

The Notice of Preparation (NOP) was released for the Project on April 21, 2011 for a 36-day public review period. A public scoping meeting was held on May 16, 2011 before the Planning Commission. The NOP noted that the Project may have a significant effect on the environment and that an EIR would be prepared for the Project. A copy of the NOP is provided in Appendix 1 of this Draft EIR.

The NOP was sent to individuals, local interest groups, adjacent property owners, and responsible and trustee State and local agencies having jurisdiction or interest over environmental resources and/or

[2] In addition to the TIs, the Project Sponsor proposed new construction on the East Campus resulting in an increase in gross floor area, which required approval of a use permit in the M-2 zoning district. The addition of approximately 1,400 sf to accommodate two small structures in the courtyard area and minor additions to Buildings 11 and 15 for two security control points was subject to CEQA review but determined to be categorically exempt under Class 3 (Section 15303) of the CEQA Guidelines.

conditions in the vicinity of the Project Site. The purpose of the NOP was to allow various private and public entities to transmit their concerns and comments on the scope and content of the Draft EIR, focusing on specific information related to each individual's or group's interest or agency's statutory responsibility early in the environmental review process.

In response to the NOP, letters were received from the following agencies:

- California Department of Transportation
- California Native Plant Society, Santa Clara Valley Chapter
- Citizens Committee to Complete the Refuge
- City of East Palo Alto
- Department of Toxic Substances Control
- East Palo Alto Bicycle Club
- Envision, Transform, Build EPA Coalition
- San Francisco Bay Conservation and Development Commission
- San Francisco Bay Trail Project
- Silicon Valley Bicycle Coalition
- West Bay Sanitary District

In addition, five letters were received from individuals and four members of the public made oral comments at the Planning Commission hearing. Copies of these NOP comment letters and comments recorded at the Planning Commission hearing are included in Appendix 1 of this Draft EIR.

The NOP concluded that the following environmental topics would be addressed as separate sections in this Draft EIR:

- Land Use
- Aesthetics
- Wind
- Transportation
- Air Quality
- Greenhouse Gas Emissions
- Noise
- Cultural Resources
- Biological Resources
- Geology and Soils
- Hydrology/Flood Hazards
- Hazardous Materials
- Population and Housing
- Public Services
- Utilities and Service Systems

The Project would not result in significant environmental impacts to agricultural, forestry, or mineral resources since none of these resources exist at the Project site. A detailed analysis of these topics is therefore not included in the Draft EIR; however, these topics are briefly discussed in Section 3.1, Introduction to the Environmental Analysis.

Draft EIR and Public Review

This Draft EIR provides an analysis of physical impacts anticipated to result from the Project. Where significant impacts are identified, the Draft EIR recommends feasible mitigation measures to reduce or eliminate the significant impacts and identifies which significant impacts are unavoidable. Alternatives to the Project are also presented (Section 5). This environmental document is considered a draft under CEQA since it must be reviewed and commented upon by public agencies, organizations, and individuals before being finalized.

This Draft EIR is being distributed for a minimum of a 45-day public review and comment period. Readers are invited to submit written comments on the document (e.g., does this Draft EIR identify and analyze the possible environmental impacts and recommend appropriate mitigation measures? Does it consider and evaluate a reasonable range of alternatives?). Comments are most helpful when they suggest specific alternatives or measures that would better mitigate significant environmental effects. Written comments should be submitted to:

Rachel Grossman, Associate Planner
City of Menlo Park
Community Development Department, Planning Division
701 Laurel Street
Menlo Park, CA 94025
Email: rmgrossman@menlopark.org

A public hearing to take oral comments on the Draft EIR will be held before the Planning Commission on January 9, 2012. Hearing notices will be mailed to responsible agencies and interested individuals.

Final EIR and Project Approval

Following the close of the public review period, the City will prepare responses to all substantive comments that relate to potential physical changes to the environment. The Draft EIR, along with the responses to the substantive comments received during the review period, will comprise the Final EIR and will be considered by the City Council in making the decision to certify the Final EIR and to approve or deny the Project.

Certification of the Final EIR by the City Council as complete and adequate in conformance with CEQA does not grant any land use approvals or entitlements for the Project. The merits of the Project will be considered by the City Council in tandem with review of the Final EIR. The CEQA Guidelines require that, for one or more significant unavoidable impacts that cannot be substantially mitigated, the Lead Agency (City of Menlo Park), must prepare a Statement of Overriding Considerations in which the Lead Agency balances the social, economic, technological, and legal benefits of approving a project against the significant and unavoidable environmental impacts which would result from project

implementation. This Statement of Overriding Considerations must be approved by the City Council in order for the Project to be approved.

1.4 EFFECT ON THE ENVIRONMENT

The environmental effects from implementing the Project are considered in this Draft EIR. Current environmental conditions (the environmental setting or baseline) under which the Project would be implemented are considered in determining impact significance. If it is determined that a potential impact is too speculative for evaluation, this condition is noted and further discussion of the impact is not necessary.

In accordance with Section 15143 of the CEQA Guidelines, this Draft EIR focuses on the significant effects on the environment resulting from construction and operation of the Project. Each major topic (e.g., Aesthetics, Biological Resources, Transportation, etc.) provides criteria or standards of significance for evaluating whether an environmental impact is significant or less than significant. The criteria presented in this Draft EIR are based on information contained in the CEQA Guidelines Appendix G, *Environmental Checklist Form,* which establishes thresholds of impact significance. In addition, this document uses City-adopted significance criteria for traffic impacts. As explained in Section 15002(g) of the CEQA Guidelines, a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the Project.

Determining the significance, or severity, of an impact rests with understanding the criteria for determining a significant impact. If the criterion for determining a significant impact is not met, the impact is considered less than significant. If the criterion is exceeded, a significant impact would occur and feasible mitigation measures are proposed. The mitigation measures are intended to modify the Project such that the impact is avoided or reduced to below the significance criteria. If the mitigation measures would not reduce the impact to a less-than-significant level, the impact is considered significant and unavoidable. Cumulative impacts are discussed at the end of each technical section of this Draft EIR. A cumulative impact refers to two or more individual effects that, when considered together, compound or increase the environmental impact under consideration or other related environmental impacts.

1.5 ECONOMIC AND SOCIAL EFFECTS

Section 15131 of the CEQA Guidelines specifies that the economic or social effects of a project shall not be treated as significant effects on the environment. However, “an EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.” Accordingly, this Draft EIR focuses on physical changes that could be caused due to implementation of the Project. Nevertheless, a housing needs analysis for the Project was prepared by Keyser Marston

Associates (KMA) and is included as Appendix 3.14 of this Draft EIR for informational purposes. Although the Project would not include the construction of new housing (a direct physical impact), the Project would trigger the demand for new housing in the area to accommodate the increase in employees (an indirect impact).

1.6 REPORT ORGANIZATION

This Draft EIR is organized into the following sections:

- *Summary:* Provides a summary of the Project and of the impacts that would result from its implementation, and describes mitigation measures recommended to reduce or avoid significant impacts. A discussion of alternatives to the Project is also provided.
- *Section 1 – Introduction:* Discusses the overall Draft EIR purpose, provides a summary of the Project and the Draft EIR scope, and summarizes the organization of the Draft EIR.
- *Section 2 – Project Description:* Provides a description of the Project site, site development, Project objectives, required approval process, and details of the Project itself.
- *Section 3 – Environmental Analysis:* Describes the existing conditions (setting), environmental impact assessment, and mitigation measures for each environmental technical topic.
- *Section 4 – Other CEQA Considerations:* Provides additional specifically-required analyses of the Project's effects, significant irreversible changes, cumulative impacts, and effects not found to be significant.
- *Section 5 – Alternatives:* Provides an evaluation of one alternative to the Project in addition to the No Project alternative.

Chapter 2
Project Description

2.1 INTRODUCTION

As part of the Menlo Park Facebook Campus Project (Project), Facebook (Project Sponsor) is moving its operations from its existing facilities in the City of Palo Alto to the City of Menlo Park (City). The Project Sponsor proposes to move its operations to two sites located north of US 101 near the intersection of Bayfront Expressway and Willow Road. The Project site consists of a 56.9-acre East Campus, which was formerly occupied by Oracle (formerly Sun Microsystems), and a 22-acre West Campus, which was formerly owned by General Motors (GM) and by TE Connectivity (formerly Tyco Electronics) (Project site). The East Campus and the West Campus are connected by an existing undercrossing beneath Bayfront Expressway.

The Project Sponsor proposes to modify the existing Conditional Development Permit (CDP) that applies to the East Campus by converting the 3,600 employee cap included in the CDP into a vehicle trip cap for the East Campus. The trip cap (Trip Cap) proposed by the Project Sponsor includes a maximum of 2,600 trips during the AM Peak Period from 7:00 a.m. to 9:00 a.m. and the PM Peak Period from 4:00 p.m. to 6:00 p.m. and a maximum of 15,000 daily trips. The Trip Cap would allow approximately 6,600 employees to occupy the East Campus. The Project Sponsor also proposes to develop the West Campus to accommodate approximately 2,800 employees. No employee cap is proposed as part of the Project.

To accommodate the Project Sponsor's rapid employment growth, the first phase of the Project includes occupying the East Campus' nine existing buildings, which contain 1,035,840 square feet (sf). Tenant Improvements (TIs) are being undertaken to convert existing hardware-intensive laboratory spaces and individual hard-wall offices to a more open, shared workspace characteristic of the Facebook work environment, which is intended to foster innovation, teamwork, and creativity. However, the TIs are being done through ministerial building permits and are not part of the Project.[1]

The second phase of the Project includes developing the West Campus. The existing buildings at the West Campus would be demolished and developed with office buildings and amenities structures totaling approximately 440,000 sf. Although the Project Sponsor does not intend to apply for entitlements for the West Campus at this time, this second phase of development is evaluated as part of the Project in this Draft Environmental Impact Report (EIR).

[1] In addition to the TIs, the Project Sponsor proposed new construction on the East Campus resulting in an increase in gross floor area, which required approval of a use permit in the M-2 zoning district. The addition of approximately 1,400 sf to accommodate two small structures in the courtyard area and minor additions to Buildings 11 and 15 for two security control points was subject to CEQA review but determined to be categorically exempt under Class 3 (Section 15303) of the CEQA Guidelines.

2.2 PROJECT LOCATION AND SETTING

The Project site, which includes the East Campus and the West Campus, is located in Menlo Park, north of US 101. The East Campus and the West Campus are separated by Bayfront Expressway/State Route (SR) 84, which runs in an east-west direction between the two campuses. The two campuses are connected by an existing undercrossing beneath Bayfront Expressway. Figure 2-1 depicts the location of the Project.

East Campus

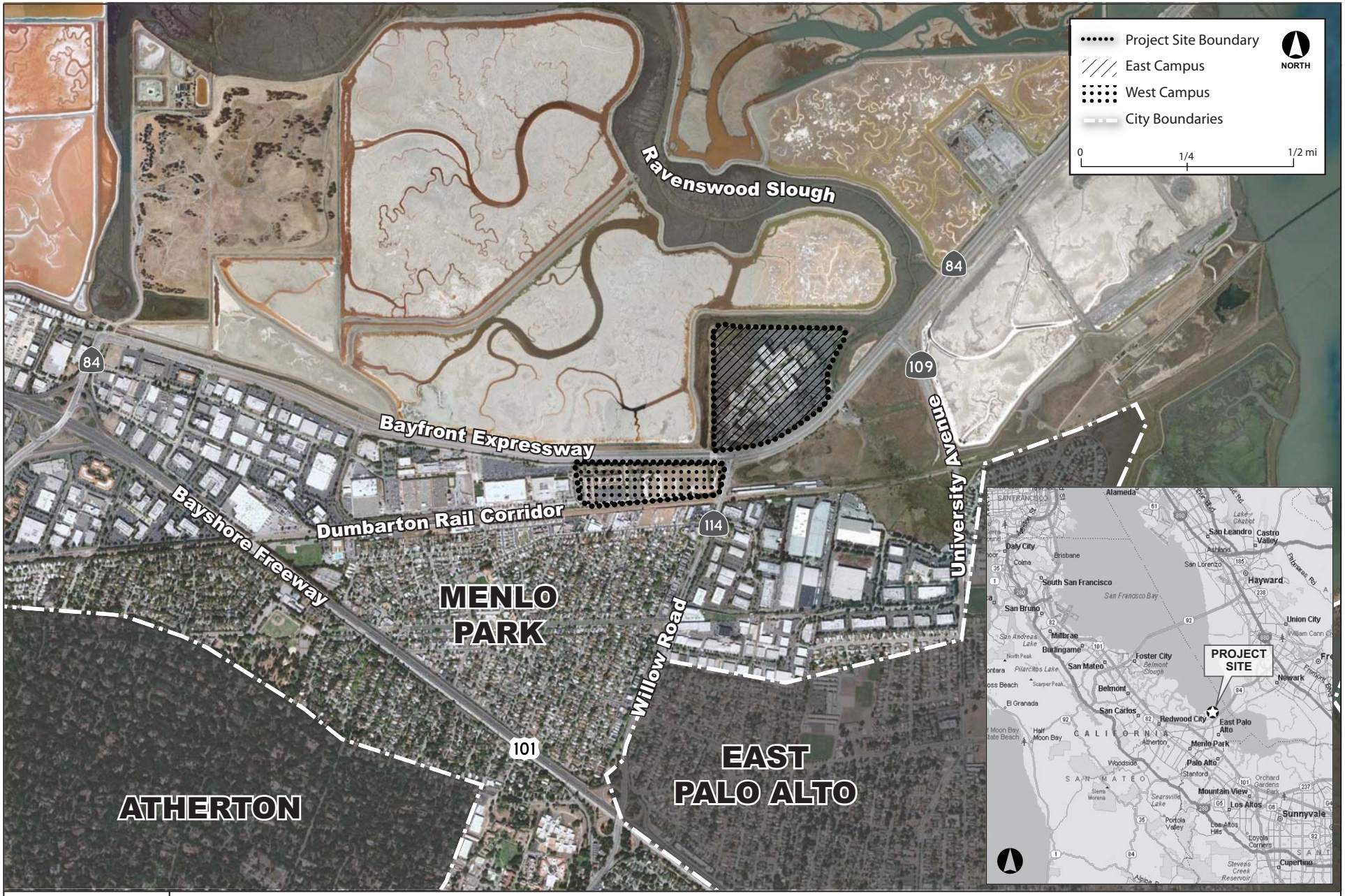
The 56.9-acre (2,478,907-sf) East Campus is bound by the tidal mudflats and marshes of the San Francisco Bay (Bay) and Ravenswood Slough to the north, east, and west, and Bayfront Expressway to the east and south. The East Campus is relatively flat and lies at an elevation of approximately five to nine feet above mean sea level (msl). The East Campus consists of one parcel, which was recently merged and has not yet been assigned an Assessor's Parcel Number (APN) by San Mateo County (County). The site is accessible via the main egress/ingress point at 1601 Willow Road, which is adjacent to the intersection of Bayfront Expressway and Willow Road. A second access point, which is right-in/right-out only, exists for vehicles coming from the East Bay and is located off of Bayfront Expressway in the eastern portion of the site.

As shown in Table 2-1 and Figure 2-2, there are nine existing buildings on the East Campus, totaling more than one million sf. These buildings mainly include office uses, except for Buildings 11, 18, and 19, which include cafés and a fitness center, respectively. The buildings range in height from 31.5 feet to 47 feet to the top of the parapet. In addition to these buildings, the site also includes existing surface parking striped for up to 3,165 vehicles (including 36 motorcycle parking spaces), 10 parking spaces for the Bay Conservation and Development Commission (BCDC) Trail (which is not included in the East Campus parking count), a central courtyard, landscape features, and a sports field and lighted basketball courts adjacent to the fitness center.

Table 2-1
Existing Conditions at the East Campus

Building Number	Building Use	Total Floor Area (sf)	Number of Floors
Building 10	Office	114,145	2
Building 11	Office/Café	46,911	2
Building 12	Office	139,149	3
Building 14	Office	139,149	3
Building 15	Office	122,204	2
Building 16	Office	174,128	3
Building 17	Office	174,128	3
Building 18	Office/ Café	114,227	2
Building 19	Amenity/Fitness Center	11,799	1
Total	--	*1,035,840*	--

Source: Gensler, 2011.



Source: Google Earth; Atkins, 2011.

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FIGURE 2-1
Project Location

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Menlo Park Facebook Campus Project

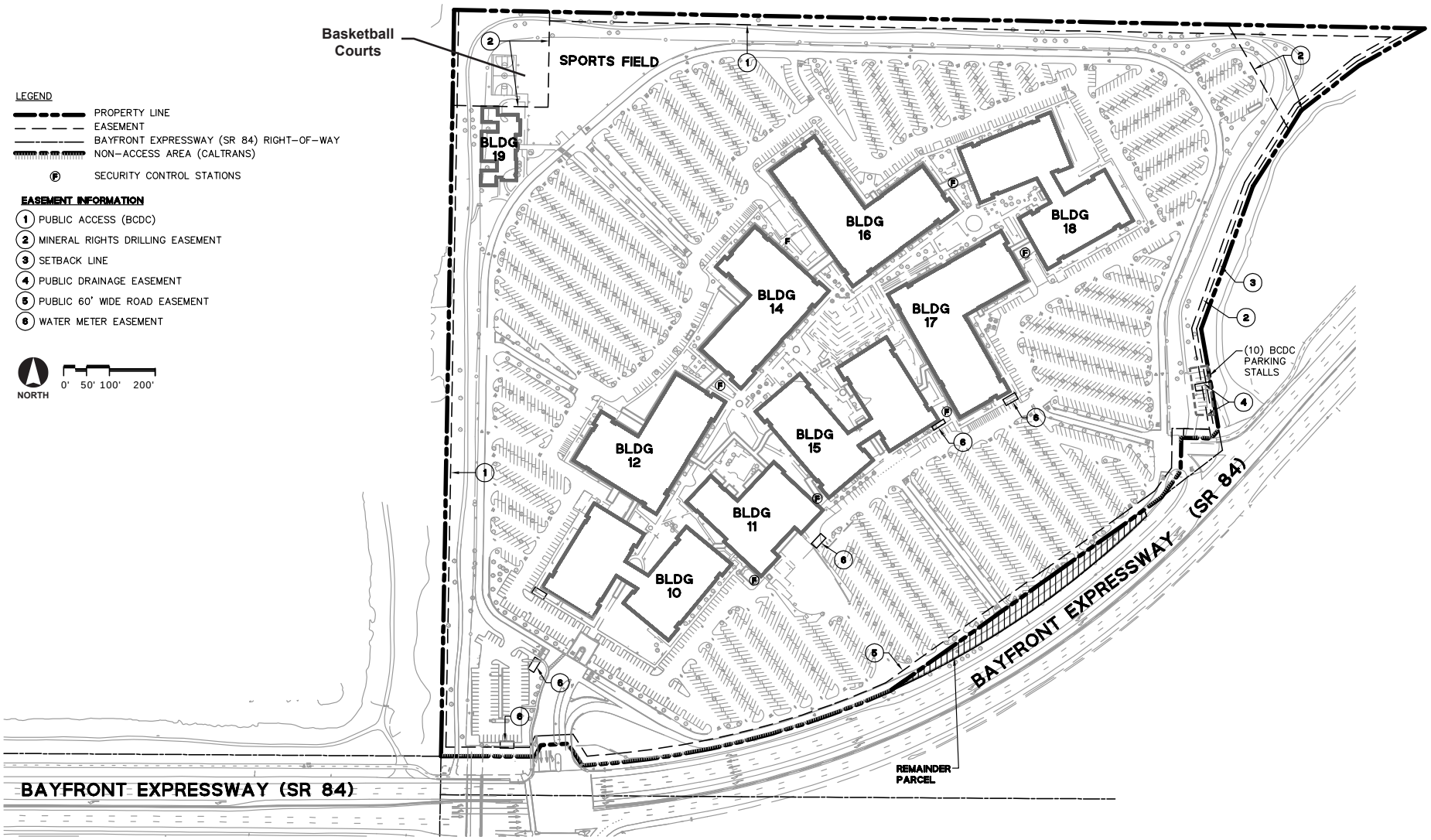

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FIGURE 2-2
Existing Site Plan - East Campus

Source: Gensler 2011.

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Menlo Park Facebook Campus Project

The East Campus is currently zoned M-2-X (General Industrial, Conditional Development) and is located within the City's Limited Industry land use designation in the General Plan. Wilson Menlo Park Campus, LLC is the existing property owner of the East Campus and the Project Sponsor is leasing the property with an option to acquire at a later time.

West Campus

The 22-acre (963,684-sf) West Campus is bound by Bayfront Expressway to the north, Willow Road to the east, the Dumbarton Rail Corridor to the south, and the TE Connectivity site to the west. The residential Belle Haven neighborhood is located across the Dumbarton Rail Corridor, further to the south. The West Campus is relatively flat and lies at an elevation of approximately five to nine feet above msl. Approximately half of the West Campus is developed and the entire site is currently unoccupied. The West Campus is currently accessible by an unsignalized entrance on Bayfront Expressway. The driveway includes left- and right-turn in access, and right-turn out only access. Secondary and emergency vehicle access is provided via Constitution Drive, along the site's southern edge.

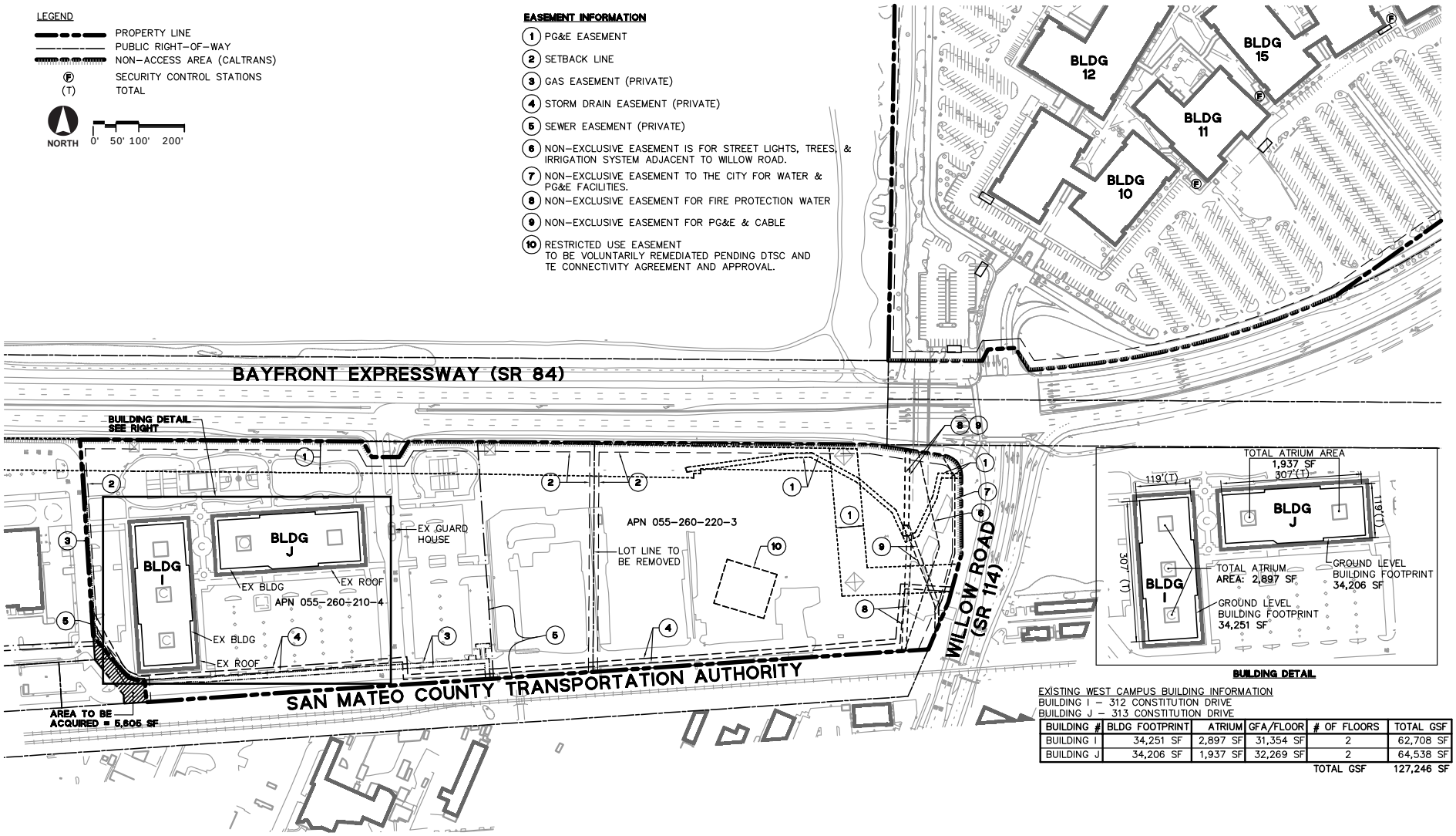
As shown in Figure 2-3, the West Campus currently consists of two parcels: APN 055-260-210 to the west and APN 055-260-220 to the east. These parcels will be merged as part of the West Campus entitlements. The developed, western portion of the site consists of approximately 13.5 acres (587,930 sf) with 12 percent of the parcel occupied by development. Existing development at this site includes two office buildings totaling 127,246 sf, with a maximum height of 35.4 feet, a surface parking lot with 347 parking stalls, landscape features, a basketball court, and a guard house. The vacant, eastern portion of the site is approximately 8.5 acres (370,149 sf) and consists of previously developed land with minimal vegetation. There is also fencing around an engineered cap on the eastern area of the West Campus to control the existing area of contaminated soil, as discussed in more detail later in this section. The West Campus is zoned M-2 (General Industrial), with a land use designation of Limited Industry, and is currently owned by Giant Properties, LLC, a single member LLC of which the sole member is the Project Sponsor.

Also included in the proposed West Campus is a 0.13-acre (5,605-sf) plot of land in the northwestern corner. This area includes APN 055-260-200 and is currently part of the adjacent TE Connectivity site, but would become part of the West Campus by way of a lot line adjustment.

2.3 PROJECT OBJECTIVES

This Draft EIR addresses the physical impacts of the Project as required by the California Environmental Quality Act (CEQA). The Project Sponsor has identified the following Project objectives that are relevant to the physical impacts considered in this document:

- Establish Facebook's permanent headquarters in the City.
- Develop an integrated, multi-phased campus that is sized to accommodate Facebook's long-term growth potential.



EXISTING WEST CAMPUS BUILDING INFORMATION
BUILDING I – 312 CONSTITUTION DRIVE
BUILDING J – 313 CONSTITUTION DRIVE

BUILDING #	BLDG FOOTPRINT	ATRIUM	GFA/FLOOR	# OF FLOORS	TOTAL GSF
BUILDING I	34,251 SF	2,897 SF	31,354 SF	2	62,708 SF
BUILDING J	34,206 SF	1,937 SF	32,269 SF	2	64,538 SF
				TOTAL GSF	127,246 SF

Source: Gensler, 2011.

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FIGURE 2-3
Existing Site Plan - West Campus

- Maximize the opportunity for its employees and vendors to interact and meet, both formally and informally.
- Provide multiple transportation options to employees to minimize traffic and greenhouse gas emissions.
- Create a pedestrian-friendly, bicycle- and transit-enabled campus, which encourages reduction in private vehicle trips and use of transit solutions.
- Increase connectivity of neighborhood paths and bikeways, and promote access to the Bay Trail from the Belle Haven neighborhood.
- Minimize traffic flow to and from Bayfront Expressway and Willow Road.
- Redevelop idle, "brownfield" property at the West Campus to accommodate flexible work space for expansion of operations.
- Rejuvenate the industrial district along the Willow Road corridor near the Bayfront Expressway.
- Respect the campus surroundings and residential neighbors through appropriate building height, siting, and massing.
- Increase occupancy of outdated, underutilized buildings on the East Campus with employees who rely on robust transportation alternatives consistent with the Project's sustainability goals, which seek to avoid sprawl.
- Use "green" design practices and methods that promote energy efficiency and resource conservation.
- Create a pedestrian-friendly environment that enhances connectivity between the north side and south side of Bayfront Expressway, including use of existing tunnel.
- Provide new and diverse employment opportunities for the City's residents.
- Generate revenue for the City and other public entities.

2.4 PROJECT CHARACTERISTICS

East Campus

The Project would accommodate Facebook's current employees and future growth by moving from Facebook's existing facilities in the City of Palo Alto to the City of Menlo Park. The East Campus would ultimately house approximately 6,600 employees, which is approximately 3,000 employees more than the maximum number of 3,600 on-site employees allowed in the CDP. As outlined in Table 2-1, above, the East Campus is currently developed with nine buildings, totaling more than one million sf. The Project Sponsor will repurpose the existing buildings with modifications that will make the facilities functional for Facebook, while improving its sustainability with energy and water-conserving features. Figure 2-2, above, depicts the existing site layout of the East Campus, which would not change with implementation of the Project.

Entitlements

As noted above, the East Campus is currently zoned M-2-X and designated Limited Industry in the City's General Plan. Under the current land use designation and CDP, the East Campus could be occupied by a maximum of 3,600 employees. A CDP amendment would be required to allow for additional employees and to change the employee cap to a vehicle trip cap, as explained in more detail below. The TIs that the Project Sponsor is undertaking at the East Campus are considered ministerial actions and do not require CEQA review as part of this Project. Nonetheless, a description of the TIs is included below for informational purposes only.[2]

Conditional Development Permit Amendment and TDM Program

The Project Sponsor can occupy the East Campus in compliance with the existing CDP, zoning, and General Plan land use designations. However, the Project Sponsor proposes to amend the existing CDP and replace the 3,600-employee cap with the Trip Cap or a maximum of 2,600 vehicle trips in the AM and PM peak periods and a maximum of 15,000 total daily vehicle trips to and from the East Campus. The Trip Cap is intended to accommodate the proposed increase in employees at the site from 3,600 to approximately 6,600 employees through the successful implementation of the Project Sponsor's proposed Transportation Demand Management (TDM) program (as discussed in more detail below), which would reduce the impacts associated with the increase of approximately 3,000 employees. This requested CDP amendment requires discretionary approval by the City and thereby triggers the need for environmental review under CEQA.

The TDM program that would be implemented as part of the Project would reduce the number of vehicle trips to and from the East Campus. The TDM program is designed to provide alternatives to single-occupancy automobile travel to, from, and between the East Campus and West Campus. The City would impose a monitoring and reporting program and impose penalties for violations to ensure that the Trip Cap is being met.[3] The proposed TDM program would include, but would not be limited to, the following:

- TDM program coordinator;
- Commute assistance center;
- New-hire transportation orientation packet;
- On-site amenities to prevent the need for mid-day trips (as described in more detail below);
- Shuttle service (both long-distance and to/from Caltrain stations);
- Vanpool program;

[2] In addition to the TIs, the Project Sponsor proposed new construction on the East Campus resulting in an increase in gross floor area, which required approval of a use permit in the M-2 zoning district. The addition of approximately 1,400 sf to accommodate two small structures in the courtyard area and minor additions to Buildings 11 and 15 for two security control points was subject to CEQA review but determined to be categorically exempt under Class 3 (Section 15303) of the CEQA Guidelines.

[3] This Trip Cap Monitoring and Enforcement Policy has been prepared by the City in consultation with the Project Sponsor. This policy is included as Appendix 3.5-F of this document.

- Carpool matching assistance through ZimRide, an online carpooling and ridesharing service that focuses on college communities and corporate campuses;
- Preferential carpool and vanpool parking;
- Guaranteed ride home program;
- Subsidized public transit passes;
- Subsidies for employees who walk or bike to work;
- Bicycle parking (both short-term racks and long-term lockers or storage facilities);
- Bicycle-share program;
- Showers and changing rooms; and
- Alternative and flexible work schedules.

Tenant Improvements

The Project Sponsor is in the process of implementing TIs to convert the existing buildings from the hardware-intensive laboratory and individual hard-wall office environment to a more open, shared workspace characteristic of the Facebook work environment. The TIs include, but are not limited to:

- Demolition of existing interior construction;
- Interior improvements to accommodate Facebook's open, shared workspaces;
- Rewiring of the facilities;
- Façade modifications within the interior courtyard at approximately 12 locations to create storefront type entrances;
- Painting of the walls facing the courtyard areas;
- Rooftop mechanical units as needed for food service areas and to supplement existing equipment;
- Courtyard improvements, including new paving, landscaping, lighting, furnishings, and food service huts;
- Addition of three security control kiosks;
- Modification to the existing monument signs with new graphics; and
- Incorporation of sustainability features.

As noted above, except for the use permit for the slight increase in square footage, the Project will not require any discretionary approvals from the City. Therefore, these TIs are not part of the Project and are considered ministerial actions, which do not require CEQA review.[4]

Sustainability Features

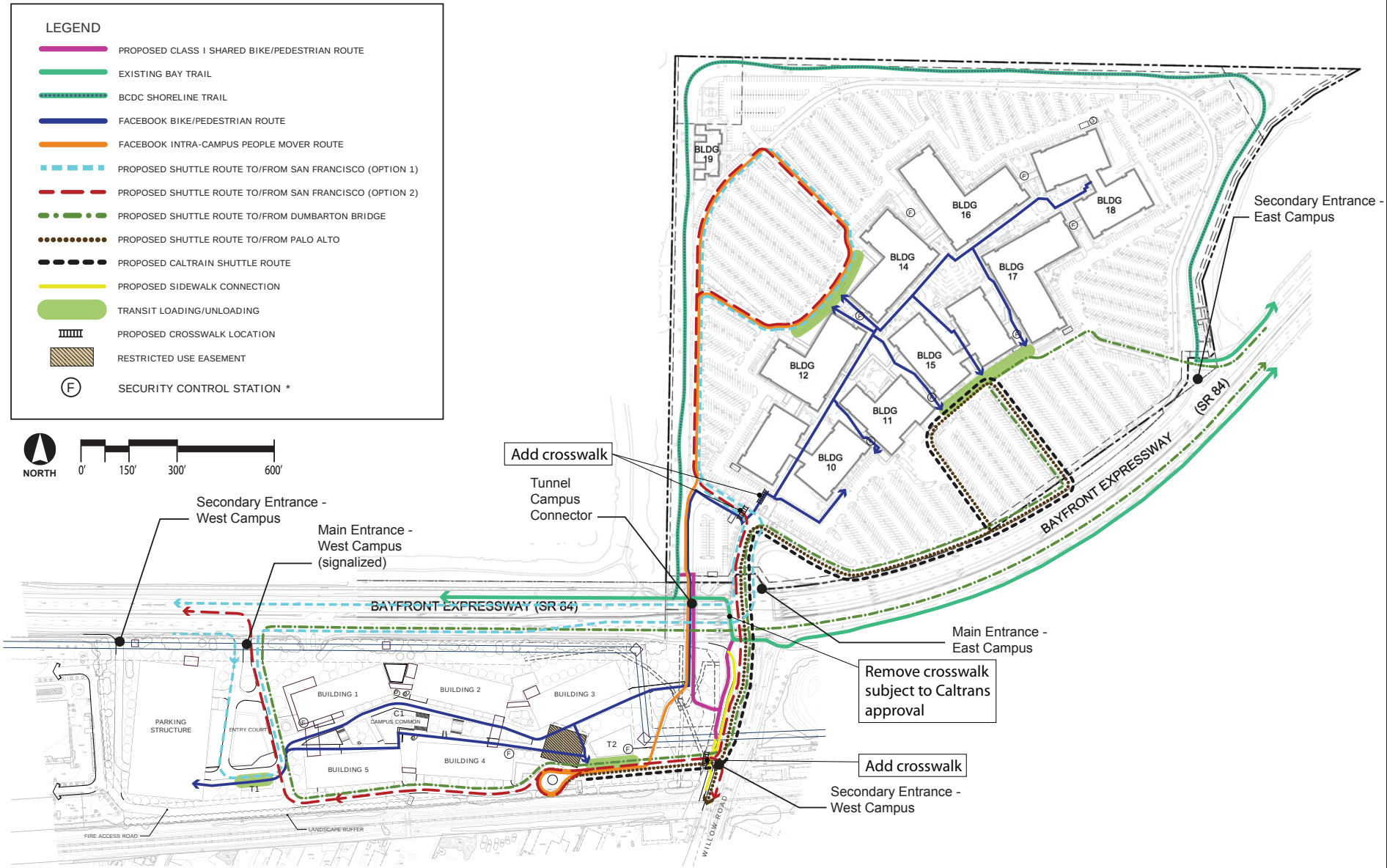
The TIs, as discussed above, will improve the energy performance and sustainability of the East Campus. The Project Sponsor will pursue Leadership in Energy and Environmental Design (LEED) Commercial Interiors 2009 Gold ratings for all nine buildings at the East Campus. This LEED program includes strategies that optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. The sustainability measures include, but are not limited to, the following:

- The TDM program, as outlined above;
- Energy-efficient upgrades to building lighting to reduce lighting power requirements by 25 percent from California energy code standards;
- Heating, Ventilation, and Air Conditioning (HVAC) system and building controls retro-commissioning and optimization;
- Daylighting controls and occupancy sensors;
- Water-efficient plumbing fixtures to reduce water use by at least 30 percent (from baseline design as described by LEED);
- Water-efficient landscaping and irrigation to reduce water use by at least 50 percent from baseline design as described by LEED;
- Construction waste management plan to recycle at least 75 percent of construction debris; and
- Indoor environmental quality measures, such as a selection of low-emitting interior finish materials, paints, and coatings; improved thermal comfort and controllability; and construction indoor air quality plan during construction and prior to occupancy.

Site Access, Circulation, and Parking

Vehicular Access and Circulation. The Project would not reconfigure any existing roadways within the East Campus or include the construction of any new roadways or access points. The site would continue to be accessible via the main egress/ingress point at 1601 Willow Road, which is the north leg of the intersection of Bayfront Expressway and Willow Road. In addition, shuttles and personal vehicles coming from the East Bay on the Dumbarton Bridge would be able to access the East Campus at a driveway on the eastern portion of the site. Figure 2-4 depicts the existing East Campus site circulation and proposed connections to the West Campus.

[4] CEQA Guidelines Section 15300.1 exempts from CEQA those projects over which public agencies exercise only ministerial authority.



Source: Gensler, 2011.

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FIGURE 2-4
Site Circulation at the East Campus and West Campus

Shuttles would need to access the site from many locations around the Bay Area. Shuttles to/from San Francisco and Palo Alto would access the site from the main entrance at 1601 Willow Road and shuttles from the East Bay would use the entrance at the eastern portion of the site. The shuttles would pick up and drop off employees at designated transit loading areas in front of Buildings 12/14 and Building 15.

Bicycle/Pedestrian Circulation. Bicyclists and pedestrians traveling between the East Campus and the West Campus would use the undercrossing of Bayfront Expressway (as described in more detail below). East Campus buildings would generally be accessed via the main entry at Building 10 or between Buildings 10 and 11 where the secured bicycle storage is located. Shared-use paths are proposed to facilitate pedestrian and bicycle travel. In addition, the Bay Trail would continue to provide recreational opportunities along Bayfront Expressway (with an improved connection via the undercrossing). The BCDC Shoreline Trail along the northern, eastern, and western perimeter of the East Campus would also continue to serve bicyclists and pedestrians. The Project does not include any changes to the BCDC Shoreline Trail.

There are existing bicycle facilities on several major routes that access the East Campus. There are several gaps in the citywide network, including Willow Road at the US 101 interchange, and the Willow Road approach to the Bayfront Expressway/Willow Road intersection. With occupancy of the East Campus, it is expected that bicycle demand on the roadways and paths leading to the campus will increase as employees choose to bicycle commute to the campus. The Project Sponsor has proposed to incorporate bicycle improvements as part of the Project, to encourage employee ridership to the campus, and to improve the citywide bicycle network. These improvements, which are consistent with the City's Comprehensive Bicycle Development Plan, are described below.

The existing undercrossing of Bayfront Expressway at Willow Road would be improved to provide a connection from Menlo Park to the Bay Trail as part of the Project. This connection would provide bicyclists and pedestrians a grade-separated route to cross Bayfront Expressway. The undercrossing would be opened during initial occupancy of the East Campus with minimal improvements, and then would be improved in conjunction with the construction and development of the West Campus. These improvements would provide pedestrian and bicycle access, as well as a people-mover system, to transport employees and visitors between the East Campus and West Campus (as discussed in more detail under the West Campus description, below).

Additionally, pathways would be constructed to connect from the Willow Road frontage (from the existing sidewalk that ends between Hamilton Avenue and the railroad crossing) to the undercrossing and from the undercrossing to the BCDC Shoreline Trail, to link to the Bay Trail. These improvements are both identified as long-term needs in the City's Bike Plan. When constructed, they will reduce bicycle and pedestrian exposure when crossing the existing at-grade signalized intersection at Willow Road and provide improved access and connectivity to the Bay Trail. Although not part of the Project, the Project Sponsor is also working with the City and Caltrans to restripe the existing bicycle lanes on Willow Road between US 101 and Bayfront Expressway to immediately improve bicycle access to the East Campus.

Parking. The number of parking spaces at the East Campus would remain at 3,165 parking stalls, which includes 36 motorcycle stalls (which equate to 18 vehicle stalls). However, in addition to the existing parking stalls, there is a landscape reserve that could include 181 stalls, other reserves for shuttle stops and loading zones that could include 45 stalls, and other proposed parking areas that could include up to 59 parking spaces. As such, in total, the East Campus could include up to 3,450 parking spaces. In addition, ten parking stalls would continue to be provided in the eastern portion of the site for recreationists using the BCDC Shoreline trail (which is not included in the East Campus parking count).

Activity/Employment

The Project Sponsor estimates that occupancy of the East Campus would exceed the existing 3,600 employee cap by mid-2012. Full capacity of approximately 6,600 employees would be reached by 2014 to 2015.

Utilities

On-site utility usage includes energy, domestic water, wastewater, and stormwater. All on-site utilities are already in place. Increased energy and water demand, and wastewater and stormwater generation, resulting from the increase in employees at the East Campus, is discussed and analyzed in Section 3.16, Utilities.

Energy Use. Pacific Gas and Electric Company (PG&E) provides gas and electrical power for the existing facilities and will continue to serve the Project.

Water Use. On-site water lines connect to the City's Municipal Water Department (MPMWD). The East Campus is currently served by a 10-inch domestic water main that connects to the City's distribution system adjacent to Willow Road on the south side of Bayfront Expressway.

Wastewater Use. The sanitary sewer system in this area of the City is owned and operated by the West Bay Sanitary District (WBSD). The East Campus currently discharges to a WBSD main in Willow Road, south of the Bayfront Expressway. This manhole connects to the 12-inch sanitary sewer main in Hamilton Avenue via an eight-inch main in Willow Road. The Hamilton Avenue sanitary sewer line connects to the Hamilton/Henderson Pump Station and is ultimately discharged to the South Bayside Systems Authority (SBSA) pump station at Marsh Road.

Storm Drain. The East Campus has existing storm drain lines throughout the site that range in size from 12-inches to 24-inches. The highest elevation on the campus is in the courtyard area between Buildings 10 through 18. The site slopes gently from the courtyard towards the perimeter of the campus. Storm drain lines throughout the East Campus collect storm water from the parking lots, courtyard, and existing buildings. Storm water is then conveyed to a 24-inch storm drain line and discharged to the south of the site. There are currently no plans to alter the existing utility storm drain system on the East Campus.[5]

[5] BKF Engineers, "Facebook @Menlo Park East Campus Storm Drain Report," June 1, 2011.

West Campus

The Project at the West Campus would include the demolition of the existing buildings and paved features and the new construction of the proposed structures. The West Campus would be developed as the second phase of the Project and would accommodate approximately 2,800 employees. In order to develop the West Campus to the desired occupancy, the site would require rezoning to the X Conditional Development Overlay District with a corresponding CDP in order to increase the maximum allowable height. Table 2-2, below, summarizes the existing development at the West Campus, the allowed development under current M-2 zoning, and proposed Project development.

Table 2-2
Existing, Allowed, and Proposed West Campus Development

	Existing Development	Allowed Development (M-2 Zoning)	Proposed Development
Floor Area Ratio (FAR)	0.23	0.45	0.45
Total Square Feet (sf)	127,246	449,346[a]	439,850
Site Coverage	12%	50%	28%[b]
Building Heights	35.4 feet	35 feet	75 feet[c]
Parking	242 stalls	1,302 stalls	1,554 stalls

Sources: City of Menlo Park, 2011; Gensler, 2011.

Notes:

a. Per the Zoning Code, and based on the size of the West Campus and Facebook's needs, up to 363,058 sf can be dedicated to office uses and up to 86,288 sf can be dedicated to amenities.

b. Buildings would occupy 28 percent of the site. In addition, open space would constitute 49 percent of the site and paving would make up 24 percent of the site. (Totals exceed 100 percent due to rounding)

c. Exceeds existing height permitted under M-2 Zoning.

Entitlements

The West Campus is currently zoned M-2 (General Industrial District) and designated Limited Industry in the City's General Plan. Under the current land use designation, the West Campus could be built out to approximately 449,346 sf, with 0.45 Floor Area Ratio (FAR)[6] for office uses and 0.55 FAR for related office uses (such as amenities) identified in the City's zoning ordinance.[7] The proposed buildings would range from two to four stories in height, with the Project Sponsor proposing an overall height limit of 75 feet for the entire West Campus. This increase to the height limit from 35 feet to 75 feet would require rezoning the site to M-2-X. In addition, a CDP would be required to modify existing M-2-X development regulations in order to establish a new height limit.

[6] FAR is a measure of building intensity based on the ratio between the total floor area to be built on a site and the size of that site.

[7] City of Menlo Park, Menlo Park Municipal Code, Section 16.46.030(7), December 14, 2010.

Proposed Site Plan[8]

The West Campus includes two existing buildings that total approximately 127,246 sf, a guard house, minimal landscape features, and asphalt parking areas. The Project includes the demolition of the existing buildings at the West Campus and the construction of five office buildings, ancillary buildings, a parking structure, landscaping, and on-site linkages, as explained in more detail below.

The Project Sponsor's conceptual site plan for the West Campus, as shown in Figure 2-5, proposes five separate main buildings arranged with the long axis of each building along an east-west orientation. Each of the office buildings would have a footprint ranging from 30,000 sf to 36,650 sf. In addition, a transit shelter/public amenities building would be located in the southeast portion of the site with a footprint of approximately 9,000 sf and an amenities building with a footprint of 2,050 sf would be located in the central courtyard. In total, the five main buildings and the transit/amenities buildings would consist of approximately 440,000 sf. The office buildings would be organized around a central courtyard consisting of open spaces, landscaped areas, ancillary buildings/meeting rooms, and pedestrian linkages. This central courtyard would provide the primary social space for the West Campus. A summary of each building is discussed in more detail below and included in Table 2-3.

Table 2-3
Proposed Development at the West Campus

Building	Building Use	Total Floor Area (sf)	Number of Floors
Building 1	Office	115,300	4
Building 2	Office	89,100	3
Building 3	Office/Café	89,100	3
Building 4	Office	64,550[a]	2
Building 5	Office	64,550[a]	2
Courtyard Amenity Building	Amenity	2,050	1
Building T2	Transit Shelter/ Community Amenity/ Fitness Center	15,200[b]	2
Total[c]	--	*439,850*	--

Source: Gensler, 2011.

Notes:

a. Total sf for Buildings 4 and 5 includes 5,000 sf for each building dedicated to undercroft vehicle/bicycle parking and bicycle-related amenities.

b. Building T2 is divided into 9,000 sf for a transit shelter and 6,200 sf for the fitness center.

c. The total excludes 5,700 sf of unenclosed bridges that would connect the buildings and excludes 2,400 sf for the unenclosed T1 transit shelter building.

[8] Unless otherwise stated, all information from this section is from: Gensler, "Facebook @ Menlo Park," October 20, 2011.

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FIGURE 2-5
Proposed Site Plan - West Campus

Source: Gensler, 2011.

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Menlo Park Facebook Campus Project

Building 1. Building 1 would be located east of the main entrance to the West Campus and in the northern portion of the site. The building would be four stories tall (approximately 74 feet to the top of the screened mechanical area[9]) and would contain approximately 115,300 sf of total floor area. Approximately 109,050 sf would be dedicated to office uses and 6,250 sf would be dedicated to non-office uses, such as amenities, meeting rooms, and hallways. Figure 2-6 depicts the site sections and elevations of Building 1.

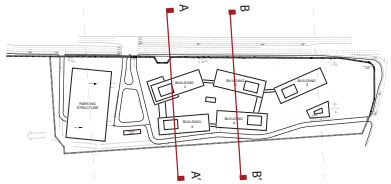
Building 2. Building 2 would be located to the east of Building 1 and in the northern portion of the site. The building would be three stories tall (approximately 61 feet to the top of the screened mechanical area) and would contain approximately 89,100 sf of total floor area. Approximately 84,100 sf would be dedicated to office uses and 5,000 sf would be dedicated to non-office uses. Figure 2-6 depicts the site sections and elevations of Building 2.

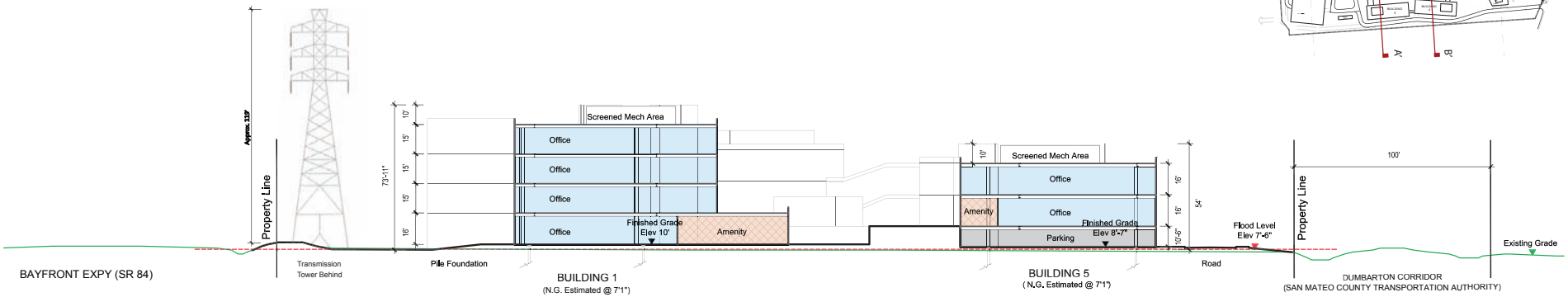
Building 3. Building 3 would be located to the east of Building 2 and in the northern portion of the site. The building would be three stories tall (approximately 66 feet from existing grade to the top of the screened mechanical area) and would contain approximately 89,100 sf of total floor area. Office uses would be dedicated to approximately 59,100 sf, while non-office uses, such as cafeteria and a conference center, would comprise approximately 30,000 sf of the total building area. Figure 2-7 shows the site sections and elevations of Building 3.

Buildings 4 and 5. Buildings 4 and 5 would be similar in size, scale, and use. Building 4 would be located to the south of Building 2 and to the east of Building 5, while Building 5 would be to the south of Building 1 and to the west of Building 4. Both buildings would consist of an undercroft area for parking, plus two additional stories, for a combined total height of approximately 53 feet at grade to the top of the screened mechanical area. Buildings 4 and 5 would each contain approximately 64,550 sf of total floor area, with 54,800 sf dedicated to office uses and 9,750 sf dedicated to non-office uses, such as amenities, meeting rooms, and hallways. Figure 2-6 depicts the site sections and elevations for both Buildings 4 and 5.

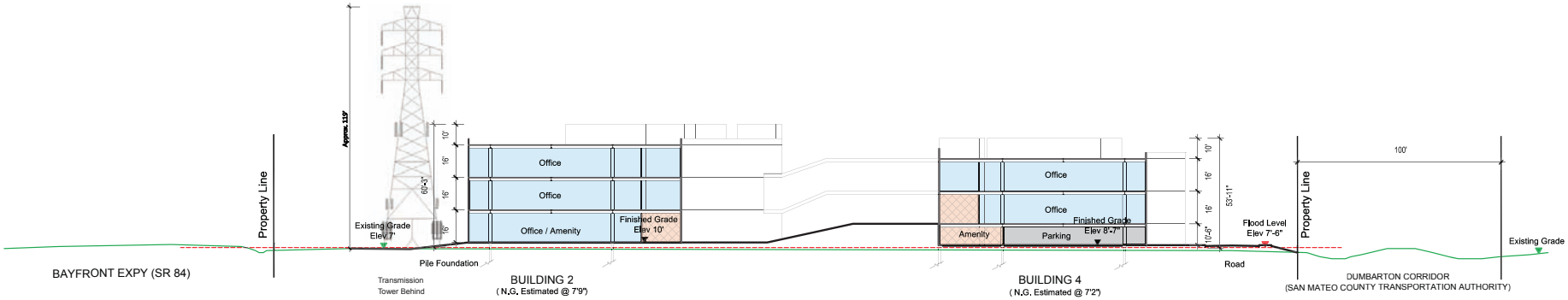
The undercroft area of both buildings would include 5,000 sf of amenity space. This area would be accessible to vehicles and bicycles via a road that traverses the southern portion of the site and would be used as preferential parking for fuel efficient and low emissions vehicles. Building 4 would include 52 parking spaces and 7,650 sf for bicycle parking/storage and Building 5 would include 62 parking spaces and bicycle-related amenities. Due to the site grading, this area would appear to be underground in the courtyard, to the north, and at grade in the southern portion of the site.

[9] According to Section 16.04.330 of the Municipal Code, height of a structure is defined as "the vertical distance from the average level of the highest and lowest points of the natural grade… to the topmost point of the structure, excluding elevator equipment rooms, ventilating and air conditioning equipment and chimneys." As such, the screened mechanical areas are excluded from the height calculations.





AA'



BB'

Note:
1. N.G = Average Natural Grade
2. Office Use Buildings should be set back a minimum of 20' from the base of the transmission towers.
3. Elevations shown are based on Geodetic Vertical Datum of 1929 (NGVD 29).

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FIGURE 2-6
West Campus Site Sections and Elevations - Buildings 1, 2, 4 and 5

***Source*:** Gensler, 2011.

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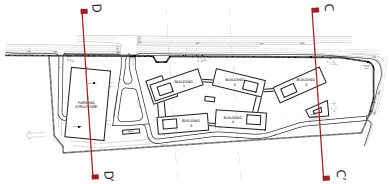
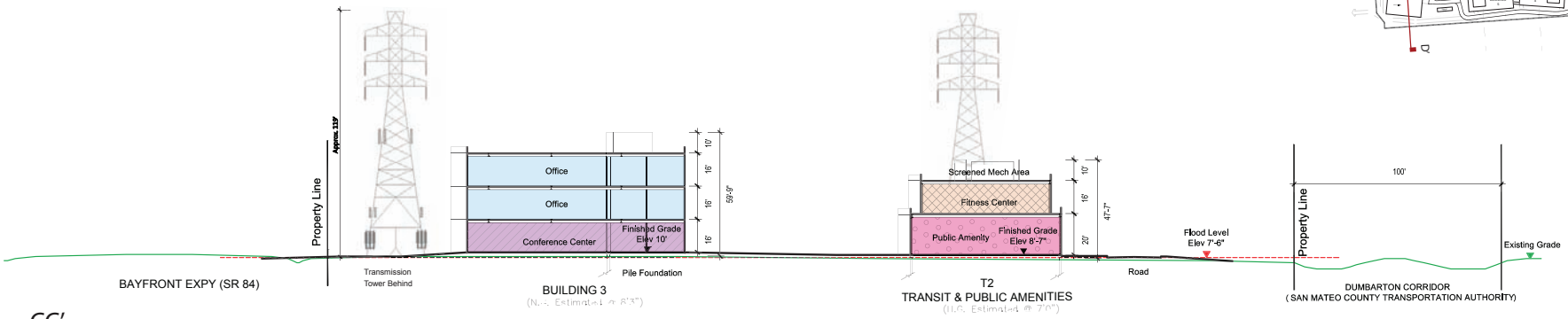
Menlo Park Facebook Campus Project





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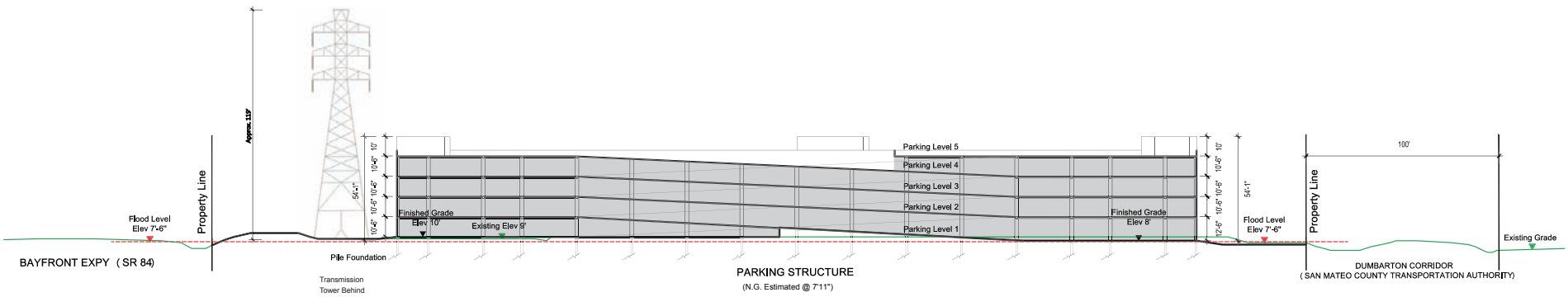

DD'

Note:
1. N.G = Average Natural Grade
2. Office Use Buildings should be set back a minimum of 20' from the base of the transmission towers.
3. Elevations shown are based on Geodetic Vertical Datum of 1929 (NGVD 29).

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FIGURE 2-7
West Campus Site Sections and Elevations - Buildings 3 and T2 and Parking Structure

***Source*:** Gensler, 2011.

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Courtyard Amenities Building. One campus amenity structure would be developed within the courtyard to provide a variety of uses and on-campus amenities. This building could include conference and meeting rooms, on-campus amenity programs (such as small cafeterias and coffee shops), pop-up retail (such as bicycle shops in partnership with local businesses), and service amenities (such as mail rooms, help desks, and other programs intended to support the day-to-day functions of the campus). The courtyard amenities building would be located in the area between Buildings 1, 2, 4, and 5. The amenities building would be one story with 2,050 sf of space for cafés, meeting rooms, and other amenities to serve the campus.

Building T2. Building T2, another campus amenity structure, would be located to the south of Building 3 in the southeast portion of the West Campus. The building would be two stories tall (approximately 47 feet to the top of the screened mechanical area) and would include 15,200 sf total on the first and second floors, including 9,000 sf for a transit shelter and 6,200 sf for the fitness center on the second floor. Figure 2-7 shows the site sections and elevations for Building T2.

The five main buildings, as discussed above, would be connected by elevated exterior passageways. These bridges would connect the second and third floors (where applicable) of the buildings. The passageways would not be enclosed; therefore, the approximately 5,700 sf of bridges are not included in the total FAR calculations for the West Campus. In addition, Building T1 would include an open-air transit center and, therefore, is also not included in the square foot calculations.

The other structure at the West Campus, a five-level parking garage with capacity for approximately 1,430 vehicles, would be located in the western portion of the West Campus. This parking garage would be approximately 56 feet in height and is also excluded from the FAR calculations because it, too, is an open-air structure. Figure 2-7 depicts the site sections and elevations for the parking structure.

Sustainability Features

The Project Sponsor intends to pursue LEED Building Design and Construction (BD+C) Gold certification for the West Campus. This LEED program would include strategies that would optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. Sustainable goals and strategies would include, but would not be limited to:

- Re-use existing industrial land;
- TDM program;
- Bike parking and shower facilities;
- No increase in impervious area and use of best management practices for on-site stormwater management;
- On-site amenities to reduce off-site transportation demand during the day, such as food service, coffee bar, fitness center, convenience services (including, but not limited to, an ATM, pharmacy/convenience supplies, post office, hair salon), physical therapy and chiropractic services, and bike repair;

- Energy-efficient site lighting and design to meet the Illuminating Engineering Society of North America (IESNA) lighting density and control standards for minimizing light pollution;
- Heat island effect mitigation by shading more than 50 percent of parking and other hard surfaces with shade trees and using highly reflective and grid paving techniques;
- Building orientation on an east-west axis to capitalize on climate-responsive design benefits of south-facing façades;
- Floor plates that are conducive to daylighting strategies;
- Natural ventilation strategies;
- Building systems designed to avoid the use of heating, refrigeration, and fire suppression systems that include chlorofluorocarbons or halon compounds;
- Building energy modeling to improve energy performance beyond California Title 24 Energy Code Standards to a minimum of 25 percent better than code;
- Energy efficient building envelope design, including high performance glazing, cool roof, and optimized insulation levels;
- Energy efficient lighting and HVAC equipment;
- Extensive building commissioning practices to fine-tune energy using system performance;
- Building energy management controls system to optimize energy performance on an ongoing basis;
- Consideration of renewable energy potential at the office buildings or parking structure, including, where feasible, the roof and façades of the parking structure treated with photovoltaic panels to support on-site energy efficiencies;
- Provision for electric vehicle recharging;
- Water-efficient plumbing fixtures to reduce water consumption by at least 40 percent of California Green Building Standards Code baseline;
- Water-efficient landscape and irrigation design to reduce potable water consumption by at least 50 percent of standard design baseline;
- Construction waste management plan to recycle at least 75 percent;
- Crush a percentage of existing paving and concrete buildings to be re-used as base material;
- Building materials selection to prioritize resource conserving materials, such as materials that contain recycled content, are rapidly renewable, and are sourced from within a 500 mile radius; and
- Indoor environmental quality measures, including selection of low-emitting interior finish materials, paints, and coatings; improved thermal comfort and controllability; construction indoor air quality plan, during construction and prior to occupancy; and CO_2 and humidity sensors and controls in building interiors to improve indoor air quality.

Site Access, Circulation, and Parking

Vehicular Access and Circulation. As with the East Campus, a TDM program would be implemented to reduce the number of vehicle trips to the West Campus. The TDM program would be designed to provide alternatives to private automobile travel to, from, and between both campuses in order to reduce vehicle trips and the resulting traffic and greenhouse gases impacts to the surrounding community. The TDM program for the West Campus would be designed to help mitigate impacts on traffic, air quality, and climate change and would include, but not be limited to, the TDM measures described above for the East Campus.

As shown in Figure 2-4, access to the West Campus and circulation between the two campuses would be provided in several different ways and at many access points. Vehicular circulation would include entrances for private vehicles and commuter shuttles, and emergency access. Access for the intra-campus people-movers would also be provided on campus. Security control kiosks would be provided at the West Campus in order to control access to the interior courtyard, to prevent cut-through vehicular trips from Willow Road, and to ensure unimpeded emergency vehicle access.

Vehicular and Shuttle Entrances. Main access to the West Campus would be along Bayfront Expressway. The Project includes signalizing the main entry and moving the existing curb cut approximately 250 feet to the west. The relocation and dedication of the new driveway would improve spacing between the West Campus driveway and the Willow Road intersection by increasing the distance to 1,600 feet. The new signal would be interconnected to and coordinated with the Bayfront Expressway/Willow Road intersection. Installation of the proposed signal would require coordination with Caltrans and its approval of an encroachment permit.[10]

In addition to the main entrance to the West Campus, two secondary access points are proposed. One would be a right-turn-in only driveway located on Bayfront Expressway, west of the main entrance. This new dedicated driveway would allow direct inbound access for employees to the proposed parking garage. This access point is expected to relieve the demand at the main entry and help avoid the potential for on-site queuing that could back onto Bayfront Expressway. Installation of this driveway would require coordination with Caltrans to allow a new access point along Bayfront Expressway.[11]

Another secondary entrance is proposed on Willow Road, south of the Bayfront Expressway intersection and north of the Dumbarton Rail corridor rail crossing. This access point is proposed to be right-turn-in/right-turn-out only and primarily would serve Facebook commuter shuttles, as well as emergency vehicle access. In addition, this driveway would provide egress for a portion of vehicles, including the low emission and electric vehicles parked in Building 4 and 5. Allowing this personal vehicle egress would reduce egress demand at the main entrance and delay at the Bayfront

[10] Fehr & Peers, "Facebook at Menlo Park – West Campus Driveway Access on Bayfront Expressway," Draft Memorandum to Caltrans from Fehr & Peers, May 26, 2011.

[11] Fehr & Peers, "Facebook at Menlo Park – West Campus Driveway Access on Bayfront Expressway," Draft Memorandum to Caltrans from Fehr & Peers, May 26, 2011.

Expressway/Willow Road intersection and would provide convenient access to US 101 from Willow Road.[12]

Transit stops for the Facebook commuter shuttle and the people-mover, as described in more detail below, are proposed near the Willow Road entryway and the southern portion of main entrance off Bayfront Expressway. Transit vehicles would be able to access the West Campus from both entry points.

Emergency Vehicle Access. Emergency vehicle access would be provided along the outside perimeter of the office buildings with access to the courtyard from the eastern end of the campus. Each building would be accessible to emergency vehicles via the perimeter roadway. Along Bayfront Expressway, the emergency vehicles would be able to access the site from the main entry at the proposed signalized intersection and at the secondary entry to the west of the parking structure. Along Willow Road, the emergency vehicles would be able to access the site from the secondary entrance, which would be facilitated by a median cut-through on Willow Road to allow for left turns, subject to Caltrans approval. In addition, emergency vehicles would also access the West Campus via two fire lanes from the adjacent TE Connectivity property, to the west of the proposed parking structure. Staging and turn-out areas for emergency vehicles would be located throughout the site and the design of the roundabout island to the southeast of Building 4 would meet the requirements established by the Fire Code, based on the size of the fire department's apparatus.

People-Mover Connection. In addition to the improvements discussed above under the East Campus, site improvements are planned as part of the Project to improve connectivity between the East Campus and West Campus and to provide a permanent grade-separated crossing of Bayfront Expressway for public access. With construction of the West Campus, the undercrossing would be enhanced to provide lighting and security improvements, final grading of the approaches for ADA-compliant access, removal of the narrow elevated walkway, and signing/striping improvements. In addition, a pump would be installed to protect the undercrossing from seasonal flooding. Figure 2-8 depicts the people-mover route and intra-campus connectivity.

To create an option for Facebook employees to reduce the time needed to travel between campuses, the Project Sponsor is considering alternative circulation options to run through a portion of the tunnel, with a focus on people-mover systems. Utilization of a people-mover system through the tunnel would allow for the efficient movement of people between campuses without adding traffic to Bayfront Expressway or Willow Road, and would operate within the height limitations of the existing tunnel (10.5 feet). The people-mover system would be implemented with the opening of the West Campus.

The people-movers are anticipated to serve intra-campus travel between the Transit Center on the West Campus and the shuttle stops on the north side of the East Campus. The people-movers would operate through the Bayfront Expressway undercrossing. The existing undercrossing is 32-feet wide, allowing

[12] Fehr & Peers, "Facebook at Menlo Park – West Campus Driveway Access on Bayfront Expressway," Draft Memorandum to Caltrans from Fehr & Peers, May 26, 2011.

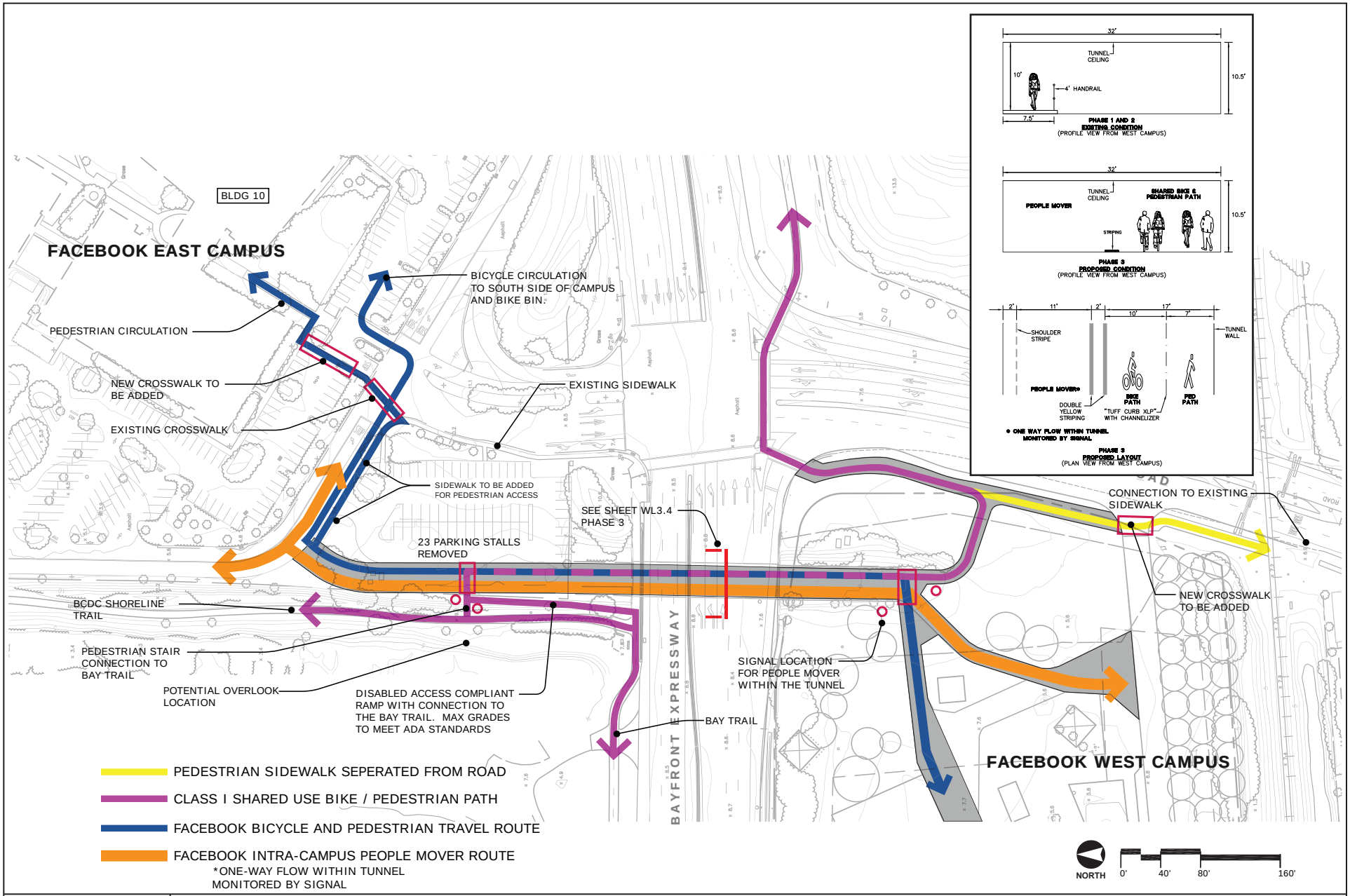

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FIGURE 2-8
East Campus and West Campus Tunnel Connectivity

Source: Gensler, 2011.

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sufficient right-of-way for a bicycle and pedestrian shared-use (Class I) path (as discussed in more detail below),[13] as well as width for one-direction of travel for the people-mover system. A signal control system is proposed on either end of the tunnel to prevent a vehicle from entering when another approaching vehicle is already inside the tunnel.

The people-movers are anticipated to operate at maximum speeds of 25 miles per hour (mph) on the Facebook campuses, with highest speeds reached on the on-site private ring road on the East Campus, where the people-movers would share the roadway with personal vehicles and shuttle buses. Through the rest of the campus, the people-movers are expected to operate at 20 mph or less; within the undercrossing, maximum speeds of 15 mph are expected, to maximize the safety of bicyclists and pedestrians within close proximity to the people-movers.

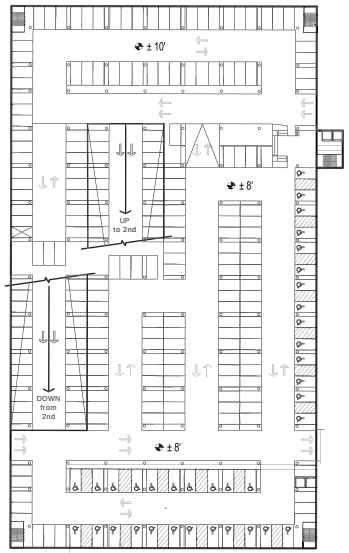
Bicycle/Pedestrian Circulation. Bicycle/pedestrian travel on-site and between campuses would be encouraged through the central courtyard, which would be designed to facilitate pedestrian and bicycle movement and would establish bicycle and pedestrian connections to the East Campus, the Belle Haven neighborhood, and the Bay Trail.

Two pedestrian crossings of the people-mover lane are proposed. The number of crossings that public Bay Trail users would need to make would be minimized by placing the pedestrian path on the eastern side of the tunnel. As pedestrians approach from Willow Road, pedestrians would travel through the tunnel unimpeded; on the north side of the tunnel near the East Campus, a single crossing point to access the Bay Trail would be provided. The crossing would be enhanced with advanced yield lines and high visibility crosswalk striping to maximize visibility. Facebook employees would be required to cross the people-mover lane in a single crossing point near the West Campus. The crossing would also be enhanced with similar treatments of advanced yield lines and high visibility crosswalk striping.

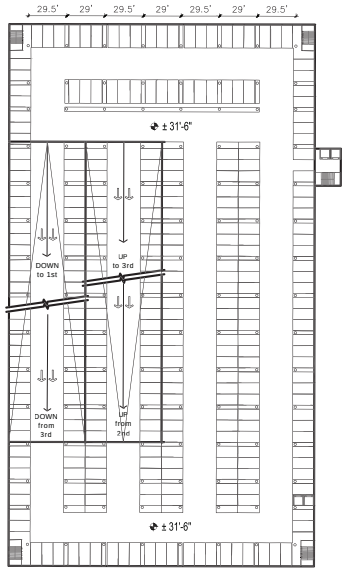
Parking. As discussed above and shown in Table 2-4 and Figure 2-9, parking on the West Campus would be provided in the undercroft of Buildings 4 and 5 and in the five-level parking structure. In total, approximately 1,544 parking stalls would be provided at the West Campus. Building 4 would contain 52 parking stalls and Building 5 would include 62 parking stalls, which would be reserved as priority parking for fuel efficient and low emission vehicles. The five-level parking structure with capacity for approximately 1,430 vehicles would be located in the western portion of the West Campus site. The parking structure would be accessible via the main entry and entry courtyard to the east (inbound and outbound) and the secondary entry and driveway to the west (inbound only). According to the Project Sponsor, the location on the western edge of the West Campus would facilitate close proximity to Buildings 1 through 5, which would encourage pedestrian activity within the site and would minimize mid-day vehicle trips.

[13] A Class I shared-use path, according to Caltrans' Highway Design Manual standards, should be at least 12 feet wide including shoulder width when at least one side of the path is adjacent to a vertical barrier, such as the tunnel wall.

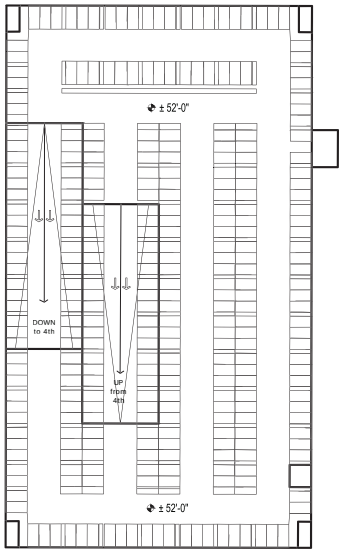
PARKING STRUCTURE



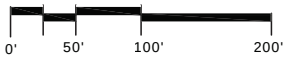
FIRST FLOOR



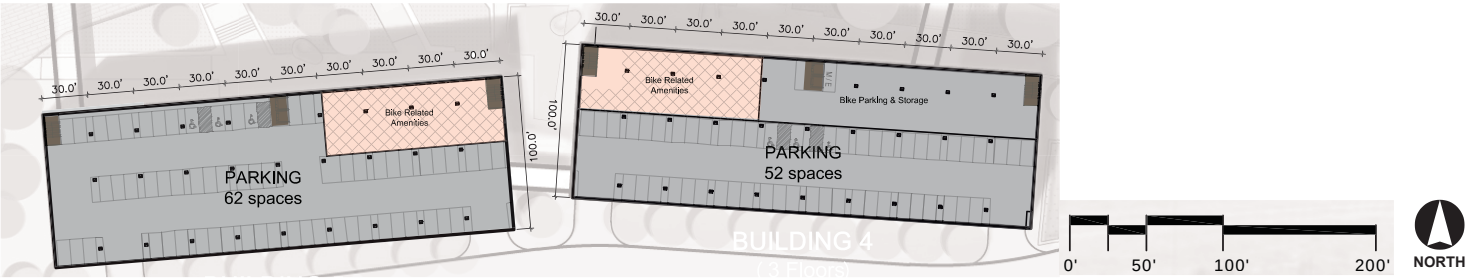
TYPICAL SECOND FLOOR



ROOF PLAN



BUILDINGS 4 AND 5



BUILDING 4

BUILDING 5

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FIGURE 2-9
Parking Plan - West Campus

***Source*:** Gensler, 2011.

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Table 2-4 Parking at the West Campus	
Location	**Number of Stalls**
Building 4	52[a]
Building 5	62[a]
Parking Structure	1,430
Total Parking	***1,544***[b]

Source: Gensler, 2011.

Notes:

a. The parking in the undercroft of Buildings 4 and 5 would be dedicated as priority parking for fuel efficient and low emission vehicles.

b. Of the total parking, 35 parking spaces would be allocated for ADA compliant stalls.

Landscaping

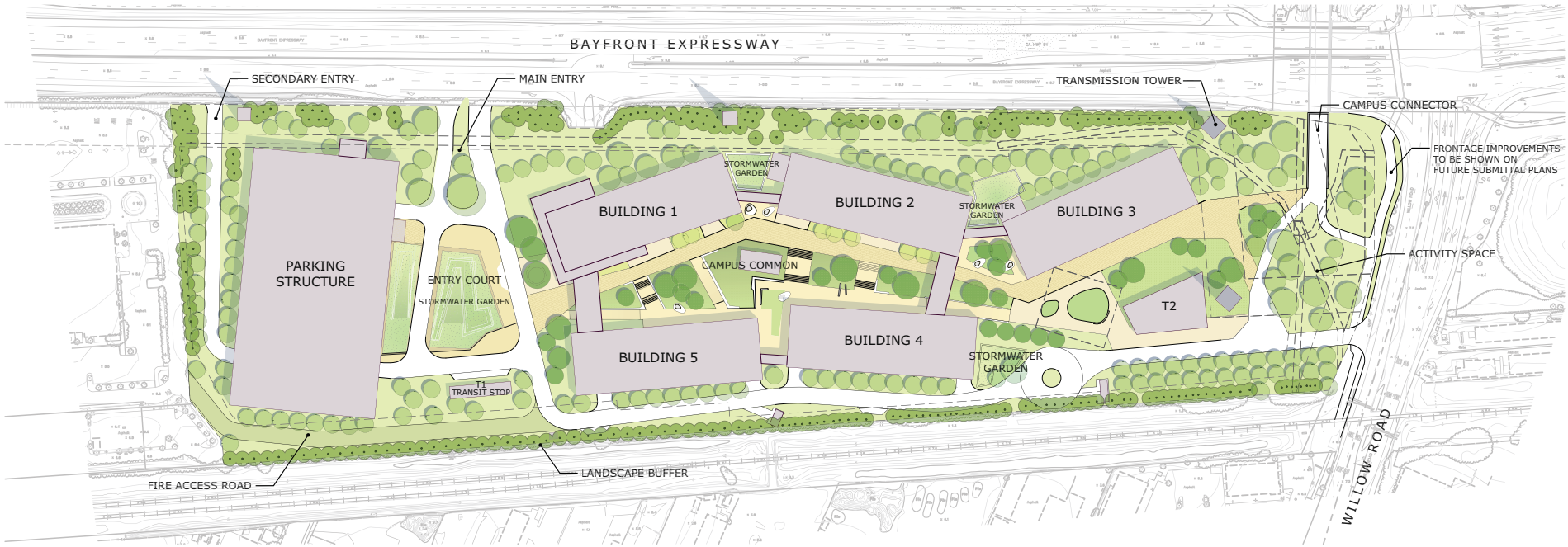
Landscaping would be provided throughout the West Campus in a manner that supports sustainability goals, encourages active use of the outdoors, and reflects the various adjacent native environments. The new landscaping would be developed pursuant to the City's Water-Efficient Landscape Ordinance. The preliminary landscape plan for the West Campus is shown in Figure 2-10.

Currently, there are 624 total trees at the West Campus. Of these trees, 233 are considered to be "Heritage Trees," per Section 13.24 of the City's Municipal Code.[14] Under the existing site plans, 89 Heritage Trees and 286 non-Heritage Trees would be removed, for a total of 375 trees to be removed. However, per the guidance of the Municipal Code, 147 trees would be planted to offset the Heritage Tree removal, which would result in 76 new trees in excess of the required heritage tree replacement.

Other landscape features would include hardscape paving, landscape groundcover, and landscape buffers along the perimeter of the West Campus. In addition, as shown in Figure 2-5, four stormwater gardens would be located adjacent to the proposed buildings. These stormwater retention and treatment areas would serve as landscape elements to reduce drainage impacts and function as soil and plant-based filtration devices to remove pollutants through a variety of physical, biological, and chemical treatment processes.[15]

[14] SBCA Tree Consulting, "Tree Survey – Facebook West Campus," May 18, 2011, Survey Addendum, July 19, 2011.

[15] San Mateo County, San Mateo Countywide Water Pollution Prevention Program, Chapter 6.1, page 68.



LEGEND

SYM.	QTY.	DESCRIPTION
	249	EXISTING TREES
	219	NEW TREE PLANTING (76 NET NEW TREES)
	229,266 SQ.FT.	HARDSCAPE PAVING
	431,538 SQ.FT.	LANDSCAPE GROUNDCOVER
	37,469 SQ.FT.	STORMWATER GARDENS
	265,470 SQ.FT.	PROPOSED BUILDING

Landscape water usage will conform to the City's Water Efficient Landscape Ordinance and the Water Demand Summary.

PRELIMINARY PLANTING LIST

BOTANICAL NAME	COMMON NAME
TREES	
PINUS CANARIENSIS	CANARY ISLAND PINE
QUERCUS AGRIFOLIA	COAST LIVE OAK
QUERCUS SUBER	CORK OAK
LOPHOSTEMON CONFERTUS	BRISBANE BOX
ACER RUBRUM	RED MAPLE
GINKGO BILOBA	MAIDENHAIR TREE
PLATANUS X ACERIFOLIA	LONDON PLANE
QUERCUS DOUGLASII	BLUE OAK
QUERCUS LOBATA	VALLEY OAK
QUERCUS RUBRA	RED OAK
QUERCUS SHUMARDII	SHUMARD OAK

BOTANICAL NAME	COMMON NAME
SHRUBS	
AGAPANTHUS ORIENTALIS	LILLY OF THE NILE
CALLISTEMON 'LITTLE JOHN'	DWARF BOTTLEBRUSH
CLIVIA MINATA	KAFFIR LILY
DODONAEA VISCOSA	HOPSEED BUSH
KNIPHOFIA UVARIA	RED-HOT POKER
LUPINUS ARBOREOUS	BUSH LUPINE
MYRICA CALIFORNICA	PACIFIC WAX MYRTLE
PHORMIUM CALIFORNICA	NEW ZEALAND FLAX
RHAMNUS CALIFORNICA	COFFEEBERRY
RHAPHIOLEPIS INDICA	INDIA HAWTHORN
RHUS OVATA	SUGAR BUSH
ROSA FLOWER CARPET	FLOWER CARPET ROSE
SOLIDAGO CALIFORNICA	CALIFORNIA GOLDENROD

BOTANICAL NAME	COMMON NAME
GROUNDCOVER / STORMWATER GARDENS	
AJUGA REPTANS	CARPET BUGLE
APTENIA CORDIFOLIA	APTENIA
CEANOTHUS 'YANKEE POINT'	CEANOTHUS
LIRIOPE 'SILVERY SUNPROOF'	TURF LILY
OPHIOPOGON JAPONICUS	MONDO GRASS
VINCA MINOR	DWARF PERIWINKLE
JUNCUS PATENS	CALIFORNIA GRAY RUSH
LEYMUS CONDENSATUS	GIANT WILD RYE
MIMULUS AURANTIACUS	MONKEY FLOWER
CAREX PANZA	CA MEADOW SEDGE

NORTH

0' 75' 150' 300'

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FIGURE 2-10
Preliminary Landscape Plan - West Campus

Source: Gensler, 2011.

Building Exteriors, Signage, and Lighting

The final design, including lighting, will be determined as part of the City's Architectural Control Review process at the time when the Project Sponsor seeks entitlements for the West Campus, which will include input from the public. However, the intention of the building placement and massing is to provide a comprehensive approach to the West Campus that would enable the Project Sponsor to develop a work place that is oriented around a courtyard for use as a collaborative "hub" for the campus community. It is anticipated that the architecture of the West Campus will reflect the culture of Facebook through the uniformity of a unique campus design. With regard to lighting, the performance standards set by LEED will be followed and light pollution will be considered and minimized.

Activity/Employment

The site would be developed with a new campus that would accommodate approximately 2,800 employees. The Project Sponsor proposes that the West Campus be operational by late 2014 and would reach maximum occupancy within two to three years thereafter at the anticipated employment growth rate.

Utilities

On-site utility usage would include energy, domestic water, wastewater, and storm drainage. All on-site utilities would be designed in accordance with applicable codes and current engineering practices.

Energy Use. PG&E would provide gas and electrical power for the proposed facilities. However, the Project may also generate some electricity with solar panels on the roof of the parking structure, if feasible. Existing electricity and gas lines in the vicinity of the site would continue to serve the Project.

Water Use. On-site water lines would connect to the MPMWD. The West Campus will connect to a 12-inch domestic water main that connects to the City's distribution system along the west side of Willow Road. A potential supplemental domestic water connection has been identified for the Project within the Willow Road right-of-way.

Wastewater Use. The sanitary sewer at the West Campus is currently connected to the TE Connectivity campus' sanitary sewer system that discharges to WBSD facilities near Chilco Road. The Project Sponsor would disconnect the existing connection and provide a new sanitary sewer system that drains from the west end of the site to Willow Road. The existing WBSD manhole in Willow Road is approximately three-feet-deep and a lift station would be required for the site to discharge to the Willow Road sanitary sewer system. This manhole also collects wastewater from the East Campus and the storage facility on the east side of Willow Road and discharges to Hamilton/Henderson Pump Station via the Hamilton Avenue sanitary sewer line. The West Campus eventually discharges to the SBSA pump station.

Storm Drain. The stormwater collected at the West Campus would discharge to an existing 78-inch storm drain line in Willow Road. Portions of the storm drain system on the adjacent TE Connectivity site currently discharge through the West Campus. In addition, an existing swale south of the West

Campus near the railroad discharges onto the site before entering the 78-inch storm drain line. Runoff from the West Campus is conveyed through the City storm drain system in Willow Road to the Caltrans pump station located adjacent to the Bayfront Expressway. Local drainage facilities in the area are adequately sized for the surrounding development.

Hazardous Substances

Prior operations at the West Campus and the adjacent TE Connectivity property to the west resulted in significant releases of hazardous substances, including polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and semi-VOCs at a number of on-site locations. The California Department of Toxic Substances Control (DTSC) has overseen a comprehensive "corrective action" program of investigation and remediation of these releases. These remediation activities have included: significant soil removal actions where concentrations of hazardous substances exceeded levels appropriate for commercial/industrial use; installation of a five-foot thick engineered cap over an 11,437-sf discrete area of deep PCB-contaminated soils on the eastern portion of the site; and a comprehensive, long-term groundwater monitoring program consisting of 45 groundwater monitoring wells on the West Campus and the adjacent TE Connectivity property, combined.

As the result of a decision-making process that included the issuance of a Negative Declaration under CEQA, DTSC determined in November 2006 that the West Campus had been remediated to a level that is acceptable for commercial and industrial use. Because hazardous materials remain in the soil and ground water, DTSC determined that the recordation of a land use covenant to restrict property uses was necessary for the protection of human health and the environment. A Land Use Covenant restricting the use of the TE Connectivity property was executed between TE Connectivity and DTSC in January 2007 and is binding upon all owners of the land, their heirs, successors, and assignees. The covenant prohibits residential and similar sensitive uses and requires activities that will disturb soil, such as excavation, grading, removal, trenching, filling, or earth movement to be performed pursuant to a Soil Management Plan and a Health and Safety Plan approved by DTSC.

Although the Project Sponsor could proceed with the proposed development of the West Campus without additional remediation, within the existing DTSC-approved restrictions, the Project Sponsor is pursuing additional remedial activities that would allow for more flexibility for development on-site and will be working with DTSC on any additional remediation. The Project Sponsor has entered into a Voluntary Cleanup Agreement with DTSC to provide for DTSC oversight of activities related to the residual hazardous substances, engineered cap, and groundwater monitoring wells at the West Campus. In conjunction with DTSC, the Project Sponsor is considering the following options:

- *On-site consolidation of impacted soil*. This option would reduce the potential for exposure to the residual contamination on-site by consolidating the impacted soil above the unrestricted use[16] cleanup goal in one location and capping it; institutional controls would reduce the potential for exposure through the breaching of the cap.

[16] Unrestricted use refers to a level of clean-up at the site that would allow for residential uses.

- *Excavation and off-site disposal of impacted soil (excluding the area under engineered cap).* Impacted soil above the cleanup goal would be excavated and disposed at an appropriately permitted off-site facility. The area would be backfilled with "clean" soil to the West Campus to grade.
- *Excavation and off-site disposal of impacted soil (including impacted soil under engineered cap).* The impacted soil currently underneath the engineered cap would be excavated and disposed at an appropriately permitted off-site facility. This option could involve excavation of all the soil over the unrestricted use cleanup goal, or all such soil down to a highly-protective depth, such as 25 feet. The area would be backfilled to grade with "clean" soil.
- *Placement of clean soil cover over the site.* All of the residual contamination would remain in place, but at least two-feet of clean soil would be placed over the existing site to specifications approved by DTSC. The Operations, Monitoring, and Maintenance Plan (OMMP) would be revised to provide for a soil management plan setting forth protocols and procedures for disturbance of the soil cover.

It is important to note that, even if the Project Sponsor implemented a clean-up plan, this would be done through DTSC and it is not included as a component of the Project. As such, for the purposes of this Draft EIR, no cleanup of hazardous materials in the soil and groundwater will be analyzed. A separate CEQA analysis for the cleanup would be prepared.

2.5 PROJECT CONSTRUCTION[17]

Construction Schedule and Phasing

The Project would consist of two phases. The East Campus would be implemented as Phase 1, which includes amending the CDP to reflect the Trip Cap. The West Campus would be constructed as Phase 2, which would include full site development, including demolition of existing buildings and construction of the proposed structures.

Phase 1

Phase 1 does not include any construction subject to review in this Draft EIR. It is anticipated that if the Project Sponsor's application for an amendment to the CDP for the East Campus is approved, Phase 1 would reach full capacity by 2014 to 2015. However, the existing permitted employee level (3,600 employees) will remain in-place at the East Campus until approval of the CDP amendment.

Phase 2

Phase 2 would include the demolition of the existing features at the West Campus and the construction of the proposed buildings. It is anticipated that Phase 2 would start in late-2012 with demolition of the

[17] SC Builders, Inc., "Construction Details," July 2011.

existing buildings and would continue over approximately 18 months, with full build-out by mid-2014. Maximum occupancy would occur within two to three years thereafter.

The initial construction phases and demolition would commence in late-2012 with the grading and foundation piles starting in early-2013. The West Campus construction would require the demolition of the existing buildings, surface parking lots, and removal of trees and other landscaping. The building construction phase would start in approximately May 2013 for the concrete foundations on the parking garage and buildings. The construction of the buildings would be phased so that each building is constructed in sequence based on necessity, with each approximately six to eight weeks apart. The construction of all the buildings would conclude in July 2014 with Facebook phasing the occupancy of the buildings over a four-month period. The parking garage construction would be scheduled to ensure completion prior to occupancy of the first building.

Construction Equipment and Staging

Typical equipment that would be used during construction at the West Campus would include, but not be limited to, concrete crushers, cranes, tractors, excavators, pile drivers, forklifts, off-highway tractors and trucks, material handling equipment, pavers, pumpers, rollers, bulldozers, surfacing and grading equipment, backhoes, and trenchers. The number of truck deliveries would range from two to 210 trips per day, with the most trips occurring during the grading stage where soil would be imported to the site. It is anticipated that construction vehicles would access the site via Willow Road and Bayfront Expressway.

All construction equipment, employee vehicles, and import material would be staged at the construction site on the West Campus.

Construction Employment

The number of construction workers per day would range between eight and 250 workers. The maximum construction workers at the West Campus would occur when all five buildings and the parking garage are under some phase of construction (structural steel/exterior skin/interiors) in the winter months of 2014. Construction staff would likely be obtained from Bay Area sources. Off-site storage and parking for the construction worker vehicles and building materials may be required.

Construction Spoils, Debris, and Materials

Phase 1

As discussed, no construction would occur at the East Campus that is subject to CEQA review in this Draft EIR.

Phase 2

Demolition. Construction during Phase 2 would require the demolition and removal of the two existing buildings, the paved parking lot, other impervious surfaces, and vegetation at the West Campus. However, per the sustainability goals for the West Campus, a percent of existing paving and concrete

buildings would be crushed and reused as base materials, which would serve to divert some of the waste away from landfills.

The demolition work would generate approximately 14,000 tons of concrete debris and 3,600 tons demolition debris. The concrete debris would likely be shredded on-site prior to off-haul in order to re-use the debris as a base material for the new construction. It is anticipated that at least 25 percent of on-site material would be reused. The amount of reuse could be higher; it is currently unknown as to the total quantity of clean recycled base available and amount needed for construction.

For any portion of material that could not be crushed and reused on-site, the remainder of the crushed material would be hauled to a local recycling site. Alternately, if on-site crushing could not be accomplished, the material would be taken to a recycling facility to be processed, likely to the facility at the Port of Redwood City. The construction and demolition debris would be off-hauled (approximately 200 loads total) to the SRDC Recycling center in Redwood City with an average of 25 loads per day over a two- to three-week off-haul period.

Grading/Excavation. Due to proximity to the Bay, the West Campus is located within the floodplain and would be need to be raised above the base flood elevation. The site grading plan may require the import of 85,000 cubic yards of material to the site. The soil import will involve approximately 210 truck loads per day for approximately six weeks. A deep foundation system consisting of driven piles or auger cast piles would be required due to the existing soil conditions. Specialty equipment, such as a pile driver, would be used during this phase of construction.

General excavation at the West Campus would occur at a depth varying from five to 10 feet; however, excavation at the capped/restricted area would occur at approximately 30 feet if the Project Sponsor chooses to excavate impacted soil. Approximately 2,000 to 4,000 cubic yards of clean cover would be stockpiled on the site and reused while approximately 5,000 to 10,000 cubic yards of impacted soil would either be consolidated on-site or disposed at a permitted facility. For the capped/restricted area, approximately 2,000 to 4,000 cubic yards of clean cover would be stockpiled on-site and reused while approximately 8,000 to 12,000 cubic yards of impact soil would be disposed at a permitted facility.[18] The reused soil would be used as backfill material or grading material in landscaped areas within the West Campus. In accordance with the sustainability goals for the West Campus and the Construction Waste Management Plan, at least 75 percent of the construction waste, excluding excavation materials, would be recycled.

Construction. The building structures and parking garage would require approximately 23,000 cubic yards (cy) of concrete material. There are several large concrete batch plants located near the West Campus from which the concrete could be sourced in lieu of setting up an on-site mixing station.

[18] Ron Helm, Cornerstone Earth Group, Inc., email to Jennifer Renk, Luce Forward, September 7, 2011.

2.6 PROJECT APPROVALS

City Approvals

The following discretionary approvals by the City would be required prior to the increased density at the East Campus and new construction at the West Campus:

East Campus

- **Environmental Review.** Certification of the EIR and approval of the mitigation measures identified in the EIR, the Mitigation Monitoring and Reporting Plan, and approval of the Statement of Overriding Considerations.
- **Conditional Development Permit.** A CDP amendment would be required to convert the existing 3,600 employee density cap to an AM and PM peak period and daily vehicle trip cap.
- **Development Agreement.** The Project Sponsor proposes to enter into a Development Agreement with the City to create vested rights in Project approvals, address implementation of the proposed design and infrastructure improvements in the Project area, and specify benefits to the City.

West Campus

- **Environmental Review.** Certification of the EIR and approval of the mitigation measures identified in the EIR, the Mitigation Monitoring and Reporting Plan, and approval of the Statement of Overriding Considerations.
- **Rezoning from M-2 to M-2-X.** An X Conditional Development District would be required to exceed the M-2 zoning district's 35 foot height limit and build up to 75 feet.
- **Conditional Development Permit.** A CDP would be required to establish development regulations, such as a new height limit.
- **Lot Line Adjustment/Lot Merger.** A lot line adjustment or lot merger would be required.
- **Heritage Tree Removal Permit.** A tree removal permit would be required for each heritage tree proposed for removal per Municipal Code Section 13.24.040.
- **Below Market Rate Housing Agreement.** A Below Market Rate Housing Agreement would be required for the payment of in-lieu fees associated with the City's Below Market Rate Housing Program.
- **Development Agreement.** The Project Sponsor proposes to enter into a Development Agreement with the City to create vested rights in Project approvals, address implementation of the proposed design and infrastructure improvements in the Project area, and specify benefits to the City.

Approvals by Responsible Agencies

Approvals by other agencies that may be needed for the Project to proceed are identified below and those agencies are expected to review this Draft EIR in evaluating the Project:

- Bay Area Air Quality Management District (BAAQMD) – permitting of asbestos abatement activities, if any.
- Caltrans – review of traffic circulation effects and consultation on potential traffic improvements affecting state highway facilities, ramps, and intersections; as well as review and approval of landscape and pathway improvements within Caltrans property, and approval of encroachment permits with the City for construction and maintenance of improvements.
- California Regional Water Quality Control Board (RWQCB)/San Mateo Countywide Water Pollution Prevention Program – approval of National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge.
- City/County Association of Governments (C/CAG) – review of potential effects on Routes of Regional Significance and the proposed TDM program.
- Department of Toxic Substance Control (DTSC) – the lead agency for any necessary CEQA review related to the additional corrective actions being considered by the Project Sponsor.[19]
- Menlo Park Fire Protection District – approval of proposed fire prevention systems and emergency vehicle access.
- San Mateo County Environmental Health Division – review of food service functions.
- West Bay Sanitary District – approval of wastewater hookups.

[19] The corrective action program for the combined Tyco Site and West Campus is an ongoing, separate, and independent project overseen by DTSC. DTSC has already issued a Negative Declaration with respect to the ongoing corrective action program at the site.

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Section 3
Environmental Analysis

3.1 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

Organization of this Section

This section of the Draft EIR presents an analysis of environmental conditions that may be affected by the Project and the potential impacts that could occur with approval of the Project. The environmental analysis has been prepared in accordance with California Environmental Quality Act (CEQA), as amended (Public Resources Code Section 21000, et seq.), and the State CEQA Guidelines. Each CEQA topic or environmental issue in Section 3 is given its own section; information in each of these sections is presented in the following subsections:

- **Applicable Plans and Regulations** – describes the federal, State, and local regulations regarding the impact topic that would be applicable to the construction and operation of the Project.
- **Existing Conditions** – describes existing baseline conditions, including the environmental context and regulatory background. The environmental baseline for purposes of the analysis is discussed in detail below.
- **Impacts and Mitigation Measures** – identifies standards of significance and evaluates how the Project would affect the baseline conditions. If the change to the baseline conditions would exceed the significance thresholds, a significant impact is declared, and mitigation measures to reduce, eliminate, or avoid the significant impacts are suggested. If the Project would not result in impacts regarding a specific standard, then this is discussed in an Impacts Not Evaluated in Detail subsection and not further analyzed. This section also analyzes cumulative impacts, as described in more detail below.

CEQA Methodology

CEQA Guidelines Section 15151 provides guidance for the preparation of an adequate EIR. Specifically, Section 15151 states:

- An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences;
- An evaluation of the environmental impacts of a project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible; and
- Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts.

In practice, the above points mean that EIR preparers should adopt a reasonable methodology upon which to estimate impacts. This approach means making reasonable assumptions using the best information reasonably available.

Enumeration of Impacts and Mitigation

Impacts presented in this chapter of the Draft EIR are defined according to an alpha-numerical system that identifies the environmental issue. For example, NO-1 denotes the presentation of the first impact in the Noise section. The two-letter codes used to identify the environmental issues discussed in this section are:

- LU – Land Use
- AE – Aesthetics
- WN – Wind
- TR – Transportation
- AQ – Air Quality
- GG – Greenhouse Gas Emissions
- NO – Noise
- CR – Cultural Resources
- BR – Biological Resources
- GS – Geology and Soils
- HY – Hydrology/Flood Hazards
- HM – Hazardous Materials
- PH – Population and Housing
- PS – Public Services
- UT – Utilities and Service Systems

Mitigation measures are numbered to correspond to the impacts they address; e.g., Mitigation Measure BR-1.1 refers to the first mitigation for Impact 1 in the Biological Resources section.

Classification of Impacts

In accordance with Section 15022(a) of the CEQA Guidelines, the City of Menlo Park (City) uses the significance criteria designated by CEQA and the State CEQA Guidelines (Appendix G), which are used to evaluate project impacts throughout this document, as well as City-adopted significance criteria for traffic impacts. These criteria are listed at the beginning of the impact assessment subsection, under the subsection, "Standards of Significance."

For each impact identified, a level of significance is determined using the following classifications:

- *Potentially significant (PS)* impacts include those cases where it is not precisely clear whether a significant effect would occur; the analysis in these instances conservatively assesses the credible worst-case conditions, but the discussion acknowledges that there is some uncertainty regarding the credible extent of the impact, given that certain final design-level details of a project cannot be known at this stage.
- *Less-than-significant (LTS)* impacts include effects that are noticeable, but do not exceed established or defined thresholds, or are mitigated below such thresholds.
- *No impact (NI)* includes situations where there is no adverse effect on the environment.

For each impact identified as being potentially significant (PS), the Draft EIR provides mitigation measures to reduce, eliminate, or avoid the adverse effect. If the mitigation measures would reduce the impact to a less-than-significant level successfully, this is stated in the Draft EIR. However, if the mitigation measures would not diminish these effects to less-than-significant levels, then the Draft EIR classifies the impacts as "significant and unavoidable (SU)."

Mitigation Measures

This Draft EIR identifies mitigation measures developed as part of this analysis, which are designed to reduce or avoid potential environmental impacts associated with the Project. CEQA Guidelines Section 15126.4 states that the discussion of mitigation measures shall distinguish between measures that are proposed by the project proponents to be included in the project and other measures proposed by the lead, responsible, or trustee agency or other persons who are not included, but the agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. This discussion shall identify mitigation measures for each significant environmental effect identified in the Draft EIR. For each impact assessment that concludes that the Project would result in a potentially significant impact, mitigation measures are provided immediately following. However, not all mitigation measures would reduce impacts to a less-than-significant level, resulting in a significant and unavoidable conclusion.

Environmental Baseline

In determining whether impacts are significant, an EIR ordinarily compares the potential impacts of the project with pre-project environmental conditions. The CEQA Guidelines specify that the baseline normally consists of the physical conditions that exist at the time the NOP is published or the time the environmental analysis begins.[1]

The approach for the analysis of the West Campus is consistent with what is specified in the CEQA Guidelines. At the time the NOP was released (April 21, 2011), the existing buildings on the West Campus were vacant and had been vacant since approximately 2003. These buildings could not be reoccupied without significant modification. The Project Sponsor proposes to demolish the existing development at the West Campus and construct a new campus. The baseline and, accordingly, the point from which impacts are measured, is a vacant site.

There are, however, exceptions to the general rule for establishing the baseline. The lead agency may determine that another baseline is more appropriate, either for overall evaluation of a project's impacts or for evaluation of a particular project impact. The date for establishing a baseline cannot be a rigid one. Environmental conditions may vary from year to year and, in some cases, it is necessary to consider conditions over a range of time periods. *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125. A baseline of permitted operations is appropriate where the project is a modification of an existing permit. *Benton v. Board of Supervisors* (1991) 226 Cal.App.3d 1467, 1477. When a project changes the operations of an existing facility, a discussion of

[1] CEQA Guidelines Sections 15125(a) and 15126.2(a).

past operational patterns may be necessary to establish the existing operational conditions and assess project impacts that would be created by the change in operations. *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953. An agency has discretion not to use an environmental baseline set as of the time of the NOP as long as its exercise of discretion is supported by substantial evidence. *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1277.

The approach to the baseline in the Draft EIR as it pertains to the East Campus is an exception to the general rule. In 1991, the City issued a Conditional Development Permit (CDP) for the East Campus that allowed up to 3,600 employees to occupy the roughly one million sf office development. The permit was exercised and rights under the CDP vested when the East Campus was occupied and operated by Sun Microsystems at the maximum allowable capacity of 3,600 employees for over two decades. In 2008, Oracle acquired the East Campus and occupied the site with approximately 2,000 employees. Although the employee occupancy dipped as a result of this acquisition, the normal condition of the East Campus since the issuance of the CDP was operation at maximum capacity. A temporary lull or spike in operations that happens to occur at the time environmental review for a new project begins should not depress or elevate the baseline. *Communities for a Better Environment v. South Coast Air Quality Management* (2010) 48 Cal.4th 310, 328. Therefore, the City is exercising its discretion based upon substantial evidence of permitted use, as well as past and existing operational/occupancy conditions, to establish the analytic baseline for the East Campus at 3,600 employees.

At issue is the Project Sponsor's right to occupy the East Campus with more than 3,600 employees. The existing buildings are in good condition and could be occupied with 3,600 employees by the Project Sponsor at any time under the existing CDP. In fact, the Project Sponsor has undertaken Tenant Improvements and will be moving up to 3,600 employees onto the East Campus in 2012. The Project Sponsor is entitled to do this without any discretionary or additional environmental review by the City. Moreover, the City does not have unilateral regulatory authority to require any analysis of or reduction in environmental impacts associated with occupancy of the East Campus by 3,600 employees. Therefore, the appropriate focus of this environmental review is the difference between the East Campus operating at maximum permitted density (i.e. 3,600 employees) and the increased density arising from the Project Sponsor's CDP modification request (i.e. approximately 3,000 net new employees). The Project Sponsor is requesting the conversion of the 3,600 employee cap in the existing CDP to a vehicle trip cap, which would ultimately allow approximately 6,600 employees on site or an additional 3,000 employees. The true effects of the Project and what is analyzed in this Draft EIR is the increase in intensity of use at the East Campus. *Communities for a Better Environment v. South Coast Air Quality Management* (2010) 48 Cal.4th 310, 325. Therefore, although the existing buildings on the East Campus were not fully occupied at the time of the NOP, there is legal and factual support for establishing the East Campus baseline as a fully occupied campus with 3,600 employees.

Impact Evaluation for the East Campus

With respect to the East Campus, this Draft EIR analyzes the change in the CDP from an employee cap to a trip cap. This change is anticipated to allow the Project Sponsor to increase the number of employees on-site by approximately 3,000 people without increasing the footprint of the existing

buildings. Because this does not involve any ground-disturbing construction activities or exterior modifications to existing buildings, several technical discussions in this section do not apply to the East Campus, as follows:

- Aesthetics;
- Wind;
- Cultural Resources; and
- Biological Resources.

The remaining technical chapters (Transportation, Air Quality, Greenhouse Gas Emissions, Noise, Geology and Soils, Hydrology and Water Quality, and Hazards and Hazardous Materials, Population and Housing, Public Services, and Utilities) analyze impacts related to both the East Campus and the West Campus. However, three of these sections (Geology and Soils, Hydrology and Water Quality, and Hazards and Hazardous Materials) have both population-based and footprint-based thresholds and the East Campus is only evaluated where appropriate.

Environmental Approach to Addressing Cumulative Impacts

In addition to the evaluation of project-specific impacts, CEQA also requires an evaluation of cumulative impacts. In accordance with CEQA, the discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. According to Section 15355 of the CEQA Guidelines:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time.

Throughout this Draft EIR, cumulative impacts are denoted by a "C" (i.e., Impact C-NO-1). An analysis of cumulative impacts follows the Project-specific impact evaluation and recommendation of mitigation measures in each section. An introductory statement that defines the cumulative context that is being analyzed for respective sections (e.g., the City, the Bay Area Air Basin) is included at the beginning of each cumulative impacts section. In some instances, a project-related impact may be considered less than significant, but would be considered potentially significant in combination with development of the surrounding area. Similarly, a potentially significant impact may result on a Project level, but would not result in a cumulatively considerable impact.

The cumulative projects considered in this Draft EIR consist of two categories, as shown in Table 3.1-1 and Table 3.1-2 and depicted in Figure 3.1-1. The first category of projects, identified as Tier 1, consist of reasonably foreseeable development projects identified by the City and within City limits. Where appropriate, the cumulative effect of the Tier 1 projects is quantified and discussed in details that are specific to the projects listed. The second category, identified as Tier 2, encompasses a larger geographic area not within the boundaries of the City and projects that are in the early stages of planning or whose development could be considered somewhat speculative. The cumulative analysis in this Draft EIR qualitatively considers the Tier 2 projects to the extent feasible. For purposes of the quantitative cumulative analyses in the Transportation, Air Quality, and Noise sections, an ambient growth rate of 1 percent per year is applied in addition to the analysis of the Tier 1 cumulative projects as this percentage has been determined by City staff to reasonably represent regional growth in traffic from those projects.

Impacts That Do Not Require Further Analysis

Section 15128 of the CEQA Guidelines states that "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR." Implementation of the Project would not result in significant environmental impacts to agricultural or forestry resources and mineral resources. Therefore, these issues are not discussed in detail in Section 3 of this Draft EIR.

Agricultural and Forestry Resources. There is approximately 5,483 acres of farmland in San Mateo County. However, the Project site is not on or adjacent to any farmland and is considered "Urban and Built-Up Land" by the California Department of Conservation.[2] Therefore, the Project would not convert or have the potential to convert existing farmland to a nonagricultural use. In addition, the Project site is not currently protected under the Williamson Act or zoned for agricultural uses.[3] All properties to be directly or indirectly impacted by the Project are zoned for office, research and development, and industrial uses. Therefore, the Project would result in ***no impact*** to agricultural resources.

There are currently about 624 trees at the West Campus; however, these are not considered to be forestry resources per the definitions of Public Resources Code Section 12220(g), timberland as defined by Public Resources Code Section 4526, or timberland zoned Timberland Production per Government Code Section 51104(g). Based on a review of maps and aerial photographs of the Project site, as well as site visits, the Project site is not on or in the immediate vicinity of forest lands. The surrounding area is characterized by light industrial and office uses, and, therefore, implementation of the Project would have ***no impact*** to forest resources.

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[2] State Department of Conservation, Farming Mapping and Monitoring Program, "San Mateo County Important Farmland 2008," May 2009, website: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx, accessed September 14, 2011.

[3] State Department of Conservation, Division of Land Resource Protection, "San Mateo County Williamson Act 2006," April 5, 2007, website: http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx, accessed September 14, 2011.

Table 3.1-1
Cumulative Projects for the Tier 1 Analysis

ID	Address	Type of Use	Size	Unit	Status
		Office/Retail/Commercial/Etc			
1	1283 Willow Road (Police/City Service Center)	Office	3,800	sf	Under Construction
		Retail	5,096	sf	
2	1300 El Camino Real	Commercial	110,065	sf	Approved New Construction
3	1906 El Camino	Medical Office	9,825	sf	Under Construction
4	1706 El Camino	Medical Office	10,166	sf	Approved New Construction
5	100-155 Constitution Drive and 100-190 Independence Drive (Menlo Gateway)	Office/Health Club/Restaurant/ Hotel (includes 230 Rooms)	744,304	sf	Approved New Construction
6	2550 Sand Hill Road	Office	23,011	sf	Complete
7	100 Middlefield	Office	8,936	sf	Under Construction
8	2484 Sand Hill Road (Quadrus Bldg. 9)	Office	8,970	sf	Proposed New Construction
9	Civic Center	Fitness	26,900	sf	Constructed/Proposed Construction
		Subtotal Non-Residential Uses	*951,073*	*sf*	
		Residential			
10	110 Linfield Drive (Taylor Morrison)	Residential	22	du	Under Construction, Partially Occupied
11	297 Terminal Ave	Residential	21	du	Proposed New Construction
12	2122 Santa Cruz Avenue (Royal Oaks Subdivision)	Residential	7	du	Under Construction, Partially Occupied
13	389 El Camino	Residential	26	du	Proposed New Construction
		Subtotal Residential Units	*76*	*du*	
		Mixed-Use			
14	1460 El Camino Real	Office	14,784/16	sf/du	Approved New Construction
15	580 Oak Grove (Derry)	Commercial	3,635/108	sf/du	Proposed New Construction
		Subtotal Mixed-Use	*18,419/124*	*sf/du*	
		TOTAL RESIDENTIAL	**200**	**du**	
		TOTAL NON-RESIDENTIAL	**969,492**	**sf**	

Source: City of Menlo Park, 2011.

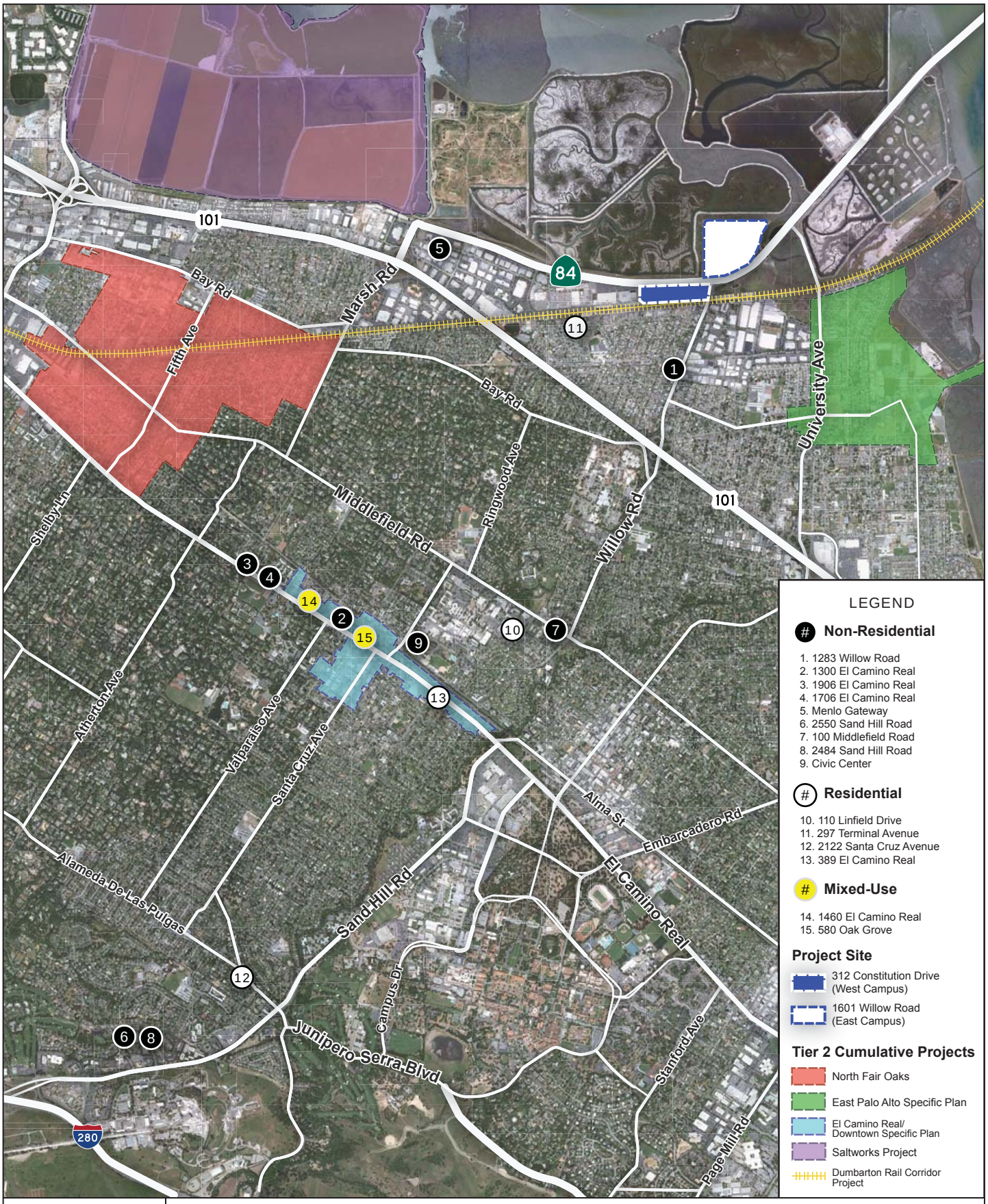
Notes: square feet (sf); dwelling unit (du).

Table 3.1-2
Cumulative Projects for the Tier 2 Analysis

Project	Type of Use	Size	Unit	Status	Location
El Camino Real/Downtown Specific Plan	Retail	91,800	sf	Proposed	West Menlo/Downtown/El Camino Real
	Office	240,820	sf		
	Hotel	380	rooms		
	Residential	680	du		
EPA Specific Plan	Residential	835	du	Proposed	University/Dumbarton/Ravenswood/Bay Road
	Office	1,268,500	sf		
	Retail	112,400	sf		
	R&D/Industrial	351,820	sf		
	Civic	61,000	sf		
	Parks/Trails	30	ac		
North Fair Oaks	Residential (net new)	3,024	du	Proposed	Redwood City to north, west, southwest, Atherton to the east, Menlo Park to the northeast
	Retail (net new)	180,000	sf		
	Office (net new)	155,000	sf		
	R&D/Industrial (net new)	210,000	sf		
	Institutional (net new)	110,000	sf		
	Parks/Trails (net new)	4	ac		
Saltworks	Residential	12,000	du	Proposed	Northeastern portion of Redwood City
	Commercial Office	17	ac		
	Schools and Public Facilities	37	ac		
Dumbarton Rail Corridor Project	Rail Corridor from East Bay to Peninsula	20.5	mi	Proposed	Rail corridor from the East Bay to the Peninsula. Potential stations on the Peninsula include: East Palo Alto/Menlo Park, Downtown Menlo Park, North Fair Oaks, and Redwood City.
	Total Residential	**16,539**	**du**		
	Total Non Residential	**2,781,340**	**sf**		
	Total Non-Residential Acres	**54**	**ac**		
	Total Hotel	**380**	**rooms**		
	Parks/Trails	**34**	**ac**		
	Rail Corridor	**20.5**	**mi**		

Source: City of Menlo Park, 2011.

Notes: square feet (sf); dwelling unit (du); acre (ac); miles (mi).



ATKINS

FIGURE 3.1-1
Cumulative Projects

Source: City of Menlo Park, Atkins, 2011.

Mineral Resources. The State legislation protecting mineral resource zones is the Surface Mining and Reclamation Act of 1975. Part of the purpose of the act is to classify mineral resources in the State and to transmit the information to local governments which regulate land use in each region of the State. Local governments are responsible for designating lands that contain regionally significant mineral resources in local general plans to assure resource conservation in areas of intensive competing land uses. The law has resulted in the preparation of Mineral Land Classification Maps delineating Mineral Resource Zones (MRZ) 1 through 4 for aggregate resources (sand, gravel, and stone).

The Project site is not delineated as a locally-important mineral resource by the California Geological Survey (CGS) or on any County or City land use plan. The *San Mateo County General Plan – Mineral Resources Map* does not specify that the Project site contains any significant mineral resources. However, according to this map, the area directly north, east, and west of the East Campus is delineated as Salines, which are salt evaporation ponds.[4] Nonetheless, since no construction activities would occur at the East Campus with implementation of the Project, there would be ***no impact*** on mineral resources.

[4] San Mateo County Department of Environmental Management Planning and Development Division, San Mateo County General Plan, Mineral Resources Map, website: http://www.sforoundtable.org/P&B/gp/maps/gp%20mineral%20resources%20(11x17).pdf, accessed September 14, 2011.

3.2 LAND USE

Introduction

Land use and planning analyses under the California Environmental Quality Act (CEQA) generally consider the compatibility of a project with neighboring areas, change to or displacement of existing uses, and consistency of a project with relevant local land use policies that have been adopted with the intent to mitigate or avoid an environmental effect. With respect to land use conflicts or compatibility issues, the magnitude of these impacts depends on how a project affects the existing development pattern, development intensity, and local air quality, noise, and visual setting in the immediately surrounding area. Specific environmental-related issues (visual, air quality, noise, etc.) and their potential significance are discussed in detail in the associated topical sections of this Draft EIR (such as Section 3.3, Visual Quality; Section 3.5, Transportation; Section 3.6, Air Quality; and Section 3.8, Noise).

This section describes the existing and proposed land uses within and around the Project site and evaluates the potential for land use incompatibilities to occur with the development of the Project. New development adjacent to existing land uses, particularly if it is much more intensive or involves operations or activities whose effects extend beyond the property, may create land use incompatibilities. This section also addresses the consistency of the Project with applicable land use goals and policies from the City of Menlo Park General Plan (General Plan), adopted in 1994, and the City of Menlo Park Municipal Code (Municipal Code), Title 16 Zoning Ordinance (current through Ordinance 973, passed December 2010) that were specifically adopted to mitigate, or avoid, a significant environmental effect. The General Plan and Municipal Code consistency analysis is provided for environmental review; however, City Council will ultimately determine the Project's consistency with the goals and policies contained in the General Plan and other City planning documents.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to Bay Conservation and Development Commission (BCDC) permits for development within the 100-foot shoreline band and consistency with the General Plan Circulation Element and the City/County Association of Governments (C/CAG).

Applicable Plans and Regulations

Plans and regulations applicable to the Project include the General Plan, the Municipal Code, the BCDC Bay Plan and Public Access Guidelines for the San Francisco Bay, the Association of Bay Area Governments (ABAG) Bay Trail Plan and Design Guidelines, and the C/CAG Congestion Management Plan (CMP). These plans and regulations are discussed in detail below.

General Plan

The General Plan guides the physical development and character of the City. The General Plan sets forth City policies regarding the types and locations for future land uses and activities and is used by the City Council and Planning Commission in considering planning and land use decisions. The central purpose of the General Plan, as stated in the document, "is to maintain Menlo Park's special character as a residential community that includes a broad range of residential, business, and employment opportunities and to provide for the change necessary to maintain a vital community."

Land Use Designations. The Land Use Diagram in the General Plan depicts the land use pattern for future development in the City. The boundaries of the land use designations on the Land Use Diagram are depicted generally. The land use designations are meant to outline building intensity and population density for the various land uses.

The Project site is designated as Limited Industry in the General Plan. The Limited Industry designation allows for light manufacturing and assembly, distribution of manufactured products, research and development facilities, industrial supply, incidental warehousing, offices, limited retail sales (such as sales to serve businesses in the area), public and quasi-public uses, and similar and compatible uses. The maximum floor area ratio (FAR) allowed shall be in the range of 0.45 for office uses to 0.55 for related office uses (such as amenities). Under the Limited Industry designation, hotel and other commercial uses are not allowed.

Goals and Policies. Applicable land use goals, policies, and programs from the Land Use Element, Circulation and Transportation Element, Open Space and Conservation Element, Seismic Safety and Safety Element, and Noise Element of the General Plan are discussed under Impact LU-1, below. In addition, applicable policies are outlined in the relevant sections of this Draft EIR.

City of Menlo Park Municipal Code (Title 16, Zoning Ordinance)

The Zoning Ordinance enforces the land uses designated in the General Plan. Title 16 of the Municipal Code was adopted as a precise zoning plan for the City and is designed "to preserve and extend the charm and beauty inherent to the residential character of the city; to regulate and limit the density of population; encourage the most appropriate use of land; to conserve land and stabilize the value of property to provide adequate open space for light, air, and fire protection; to lessen traffic congestion; to facilitate the provision of community facilities; to encourage tree and shrub planting; to encourage building construction of pleasing design; and to provide the economic and social advantages of a planned community." The Zoning Ordinance defines the zoning districts that the City is divided into and identifies the land uses permitted and conditionally permitted. The ordinance also establishes development regulations such as building height, land cover by buildings, and floor area restrictions.

The East Campus is currently zoned M-2-X (General Industrial, Conditional Development) and the West Campus is zoned M-2 (General Industrial). The M-2 District permits warehousing, manufacturing, printing, assembling, and office uses. Conditional uses allowed in the M-2 District include cafés, convenience stores, personal services (such as barbers, beauty, launderette, dry cleaning, and shoe repair), and daycare facilities all intended to serve the employees in the immediate area.

Development regulations for the M-2 district include a maximum land cover by structures of 50 percent of the site and a maximum of 0.45 FAR for office buildings and 0.55 FAR for general industrial uses. In addition, the maximum building height should not exceed 35 feet; however, additional height may be permitted with a conditional development permit.

BCDC Bay Plan and Public Access Design Guidelines for the San Francisco Bay (Bay Plan)

The Bay Plan was completed and adopted by the BCDC in 1968 and submitted to the California State Legislature in 1969. The Legislature acted upon the BCDC's recommendations in the Bay Plan and revised the McAteer-Petris Act by designating the BCDC as the agency responsible for maintaining and carrying out the provisions of the Act and the Bay Plan for the protection of the Bay and its natural resources, as well as the development of the Bay and shoreline. The McAteer-Petris Act directs the BCDC to exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction [1]

The latest amendment to the Bay Plan was adopted in October 2011 (Resolution 11-08), which added new climate change findings and policies and encourages jurisdictions to develop regional adaptive management strategies. It also revised findings and policies pertaining to tidal marsh and tidal flats, safety of fills, protection of shoreline, and public access.[2] However, the analysis contained in this Draft EIR bases its compliance conclusions on the BCDC Bay Plan effective at the time the NOP was released (April 2011) in accordance with CEQA.

The purpose of the BCDC Public Access Design Guidelines for the Bay is to provide the Bay region with a design resource for development projects along the shoreline of the Bay. These guidelines provide suggestions for site planning, as well as recommendations for designing and developing attractive and usable public access areas. The guidelines are not legally enforceable standards, but are an advisory set of design principles aimed at enhancing shoreline access while providing for the protection of Bay resources, regional livability, and local economic prosperity.[3]

The East Campus is just within the 100-foot BCDC shoreline band and, therefore, the Bay Plan and Public Access Design Guidelines would be applicable to the East Campus.

ABAG Bay Trail Plan and Design Guidelines

The Bay Trail Plan proposes development of a regional hiking and bicycling trail around the perimeter of the San Francisco and San Pablo Bays. The Bay Trail Plan mandates that the Bay Trail provide

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1 San Francisco Bay Conservation and Development Commission, "San Francisco Bay Plan," 1969, amended February 2008, website: http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf, accessed September 15, 2011.

2 San Francisco Bay Conservation and Development Commission, "Resolution No. 11-08: Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies," website: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf, accessed October 31, 2011.

3 San Francisco Bay Conservation and Development Commission, "Shoreline Spaces: Public Access Design Guidelines for the San Francisco Bay," April 2005.

connections to existing park and recreation facilities, create links to existing and proposed transportation facilities, and be planned in a way to avoid adverse effects on environmentally sensitive areas. The Bay Trail Plan policies and design guidelines are intended to complement, rather than supplant, the adopted regulations and guidelines of local managing agencies. Implementation of the Bay Trail Plan relies on the continued cooperation among shoreline property owners, and federal, State, and local agencies with jurisdictions over the trail alignment.[4] The Bay Trail Plan and Design Guidelines would be applicable to the Project because the existing Bay Trail crossing at the intersection of Bayfront Expressway and Willow Road would be diverted to the undercrossing beneath Bayfront Expressway.

C/CAG Congestion Management Program (CMP)

The C/CAG has prepared a CMP to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The intersection of Bayfront Expressway and Willow Road is a CMP-designated intersection and is monitored by C/CAG.[5] Project consistency with the CMP is discussed further in Section 3.5, Transportation.

Existing Conditions

For the purpose of this land use discussion, the "Project vicinity" encompasses approximately 0.5-mile radius from the center of the Project site. The subsequent paragraphs document the land uses and development intensities in the Project vicinity. The land use and zoning designations of the Project site are discussed under Applicable Plans and Regulations, later in this section.

Adjacent Uses

The City encompasses an area of about 19 square miles, including nearly 12 square miles of the Bay and wetlands. The approximately seven-square-mile urbanized portion of the City is virtually built out. The character in the Project vicinity is influenced by both the undeveloped areas along the Bay and the mix of development uses in the area that include industrial, office, residential, and commercial uses. Within a 0.5-mile radius of the Project site, land uses include the Bay, salt ponds, and Ravenswood Slough to the north, east, and northwest; Menlo Science and Technology Park (AMB) to the southeast; Belle Haven neighborhood with residential, commercial, and industrial uses to the south; and industrial buildings and warehouses to the southwest. Further to the northwest, across the salt ponds, is the open space of Bedwell-Bayfront Park (Bayfront Park) and the Bay beyond. Development in the Project vicinity ranges from large industrial buildings and warehouses to low-density single-family residential units. Figure 3.2-1 depicts the surrounding development and existing zoning.

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[4] Association of Bay Area Governments, "Bay Trail Plan," June 30, 1999, website: http://www.baytrail.org/baytrailplan.html, accessed on September 19, 2011.

[5] City/County Association of Governments of San Mateo County, "Final San Mateo County Congestion Management Program 2009," September 2009, website: http://www.ccag.ca.gov/pdf/tac/2009/FINAL_SMC_2009_CMP.pdf, accessed September 15, 2011.

AMB is located to the southeast of the Project site, across the Dumbarton Rail Corridor and to the east of Willow Road. This area includes businesses involved in the science and technology sector, including biotech, research and development, and high-tech firms. AMB consists of large industrial warehouses approximately two stories in height with surface parking lots and street trees. AMB is designated as Limited Industry under the General Plan and is mainly zoned M-2, General Industrial District. However, two small properties at the intersection of O'Brien Drive and Willow Road are zoned C-4 (General Commercial). Also included in the office park is the Mid-Peninsula High School, which is a non-profit, independent day school for students in grades nine through 12.

The Belle Haven neighborhood, to the south of the Project site, generally consists of one- to two-story single-family units. The neighborhood also features open space areas, parks, low-intensity commercial retail areas adjacent to Willow Road, and the Belle Haven Elementary School. The Dumbarton Rail Corridor separates the Belle Haven neighborhood from the Project site to the north. The majority of the Belle Haven neighborhood is zoned as R-1-U, Single Family Urban Residential District, with a General Plan land use designation of Low Density Residential. However, along the southern border of Dumbarton Rail Corridor, within the Project vicinity, zoning includes R-3 (Apartment District), M-1 (Light Industrial District), and C-2-S (Neighborhood Commercial District, Special). Similarly, along Willow Road in the Belle Haven neighborhood, zoning includes C-2-S, R-3, and C-2-B (Neighborhood Commercial District, Restrictive). Along US 101, to the north, are areas that are zoned R-3 and R-2 (Low Density Apartment District). Other zoning in the Belle Haven neighborhood include PF (Public Facilities) for Belle Haven Elementary School and Kelly Park and OSC (Open Space and Conservation) for Hamilton Park.

To the west of the Project site are properties zoned as M-2 and M-2-X (General Industrial, Conditional) with a General Plan land use designation of Limited Industrial. These large parcels feature low-rise buildings surrounded by paved parking lots and sparse landscaping. In general, the uses in this area include research and development for the electronics firm TE Connectivity.

Pedestrian and bicycle trails are also located in the vicinity of the Project site. A BCDC Public Shore Trail borders the East Campus and runs along the perimeter. In addition, the Bay Trail travels along Bayfront Expressway. The Bay Trail is a series of existing and planned regional hiking and bicycle trails administered by the ABAG that will eventually connect continuously around the perimeter of the San Francisco and San Pablo Bays and link 47 cities with 500 miles of trails.[6] This portion of the Bay Trail runs to the north of Bayfront Expressway, west of the East Campus, travels over the Bayfront Expressway/Willow Road intersection, and continues along the southern portion Bayfront Expressway, to the east.

[6] Association of Bay Area Governments, "Overview," website: http://www.baytrail.org/overview.html, accessed July 12, 2011.

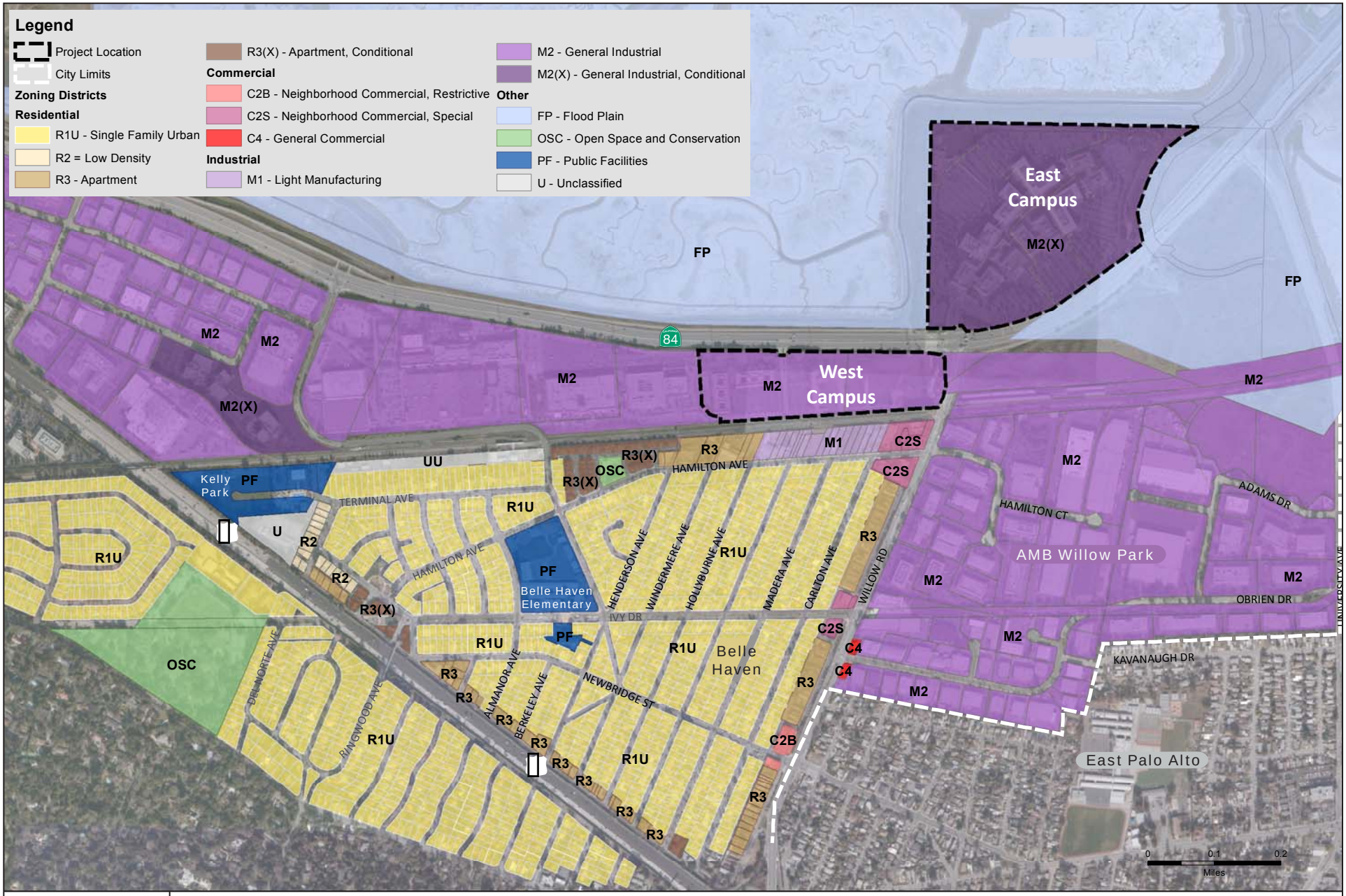

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FIGURE 3.2-1
Existing Zoning

Source: Menlo Park, 2011.

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Menlo Park Facebook Campus Project

Project Site

As described in Section 2, Project Description, for the purposes of this analysis, the Project site refers to both the East Campus and West Campus. These two sites collectively comprise 78.9 acres. The East Campus is approximately 56.9 acres and the West Campus is approximately 22 acres. The Project site is in the northeastern portion of the City, north of US 101 and immediately adjacent to the Bay to the north, east, and west. The East Campus and the West Campus are separated by Bayfront Expressway, which runs in an east-west direction between the two campuses. The campuses are connected by an existing undercrossing beneath Bayfront Expressway.

East Campus. The East Campus, which was formerly occupied by Oracle (formerly Sun Microsystems), is bound by the tidal mudflats and marshes of the Bay and Ravenswood Slough to the north, east, and west and Bayfront Expressway to the east and south. The East Campus consists of one parcel, which was recently merged and has not yet been assigned an Assessor's Parcel Number (APN) by the County. The site is accessible via the main egress/ingress point at 1601 Willow Road, which is adjacent to the intersection of Bayfront Expressway and Willow Road. A second access point for vehicles coming from the East Bay is located off of Bayfront Expressway in the eastern portion of the site.

There are nine existing buildings on the East Campus, totaling more than one million square feet (sf). These buildings mainly include office uses except for Buildings 11, 18 and 19, which include cafés and a fitness center, respectively. The buildings range in height from 31.5 feet to 47 feet to the top of the parapet. In addition to these buildings, the site also includes surface parking for 3,165 vehicles (including 36 motorcycle parking spaces), 10 parking spaces for the BCDC Trail (which are not included as part of the parking calculations), a central courtyard, landscape features, and a sports field and lighted basketball courts adjacent to the fitness center.

West Campus. The West Campus, which was formerly owned by GM and TE Connectivity, is bound by Bayfront Expressway to the north, Willow Road to the east, the Dumbarton Rail Corridor to the south, and the TE Connectivity site to the west. The residential Belle Haven neighborhood is located across the Dumbarton Rail Corridor, further to the south. Approximately half of the West Campus is developed and the entire site is currently unoccupied. The West Campus is currently accessible by an unsignalized entrance on Bayfront Expressway. The driveway includes left- and right-turn in access, and right-turn out access. Secondary and emergency vehicle access is provided via Constitution Drive, along the site's southern edge.

The West Campus currently consists of two parcels: APN 055-260-210 to the west and APN 055-260-220 to the east, which will be merged as part of the West Campus entitlements. Also included in the proposed West Campus is a 0.13-acre plot of land in the northwestern corner. This area includes APN 055-260-200 and is currently part of the adjacent TE Connectivity site, but would become part of the West Campus with implementation of the Project by way of a lot line adjustment. The developed, western portion of the site consists of approximately 13.5 acres with 12 percent of the parcel occupied by development. Existing development at this site includes two office buildings totaling 127,246 sf, with a maximum height of 35.4 feet, a surface parking lot with 347 parking stalls, landscape features, a

basketball court, and a guard house. The vacant, eastern portion of the site is approximately 8.5 acres and consists of previously developed land with minimal vegetation. There is also fencing around an engineered cap on the eastern area of the West Campus to control the existing area of contaminated soil.

Impacts and Mitigation Measures

Standards of Significance

A project would have a significant adverse land use impact if it would:

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Land Use Analysis Methodology

CEQA requires that an EIR consider whether a proposed project may conflict with any applicable land use plan, policy, or regulation that was adopted for the purpose of avoiding or mitigating an environmental impact. This environmental determination differs from the larger policy determination of whether a proposed project is consistent with a jurisdiction's general plan. The former determination (that is intended for consideration in a CEQA document) is based on, and limited to, a review and analysis of environmental matters. The latter determination, by comparison, is made by the decision-making body of the jurisdiction and is based on a jurisdiction's broad discretion to assess whether a proposed project would conform to the policies and objectives of its general plan/specific plan as a whole. In addition, the broader general plan consistency determination takes into account all evidence in the record concerning the project characteristics, its desirability, as well as its economic, social, and other non-environmental effects.

Conflicts of a project with land use policies do not, in and of themselves, constitute significant environmental impacts. Policy conflicts are considered environmental impacts only when they would result in direct environmental effects. Decision-makers will need to consider the consistency of the proposed development with applicable plans and policies that do not directly relate to physical environmental issues when determining whether to approve or disapprove the Project. As such, this discussion is provided to help decision-makers (in this case, the Menlo Park City Council).

Impacts Not Evaluated In Detail

The Project would not divide an established community. The Project site is located to the north of the Dumbarton Rail Corridor in an area that is characterized by light-industrial uses. The East Campus is developed with office buildings and the Project would not alter the existing buildings or permitted uses

and will replace the previous use with a similar use. The West Campus would include the construction of five new office buildings with additional amenities structures and a parking garage. Although this would add new development to the area, it would be located in an area of similar uses and be physically separated by the Dumbarton Rail Corridor from the Belle Haven neighborhood. As such, the Project would not divide the established community, resulting in ***no impact***.

In addition, the Project is not a part of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. However, the Project site is adjacent to the salt marshes to the north and west that are a part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). The Refuge is actively pursuing expansion and the protection of the habitats and associated plant and wildlife species contained therein. The Refuge is also closely involved with the South Bay Salt Pond Restoration Project that has active restoration sites near the Project site. Because implementation of the Project would not involve any construction outside the currently developed boundaries of the East Campus and West Campus, none of the construction activities would interfere with the management and/or expansion of the Refuge or with the restoration of the salt ponds. ***No impact*** to an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan would occur from the implementation of the Project.

Further, the East Campus is within the 100-foot shoreline band that is under the jurisdiction of BCDC; however, no new development is proposed within the 100-foot shoreline band. Since there would be no change from existing conditions, the Project would not conflict with the BCDC Bay Plan or Public Access Design Guidelines. Additionally, the West Campus is not within the 100-foot shoreline band; therefore, the Project at the West Campus would not conflict with the BCDC Bay Plan or the Public Access Design Guidelines resulting in ***no impact***.

Environmental Analysis

LU-1 ***Conflicts with Adopted Land Use Plans and Policies.*** *Implementation of the Project at both the East Campus and West Campus would be generally consistent with the General Plan, Municipal Codes, and BCDC, ABAG, and C/CAG plans. As such, the impact would be less than significant. (LTS)*

East Campus

Consistency with the General Plan

Land Use Designations. The Project is required to be consistent with the land use designations and goals and policies outlined in the General Plan. As described above, the East Campus has a land use designation of Limited Industry, which allows for light manufacturing and assembly, distribution of manufactured products, research and development facilities, industrial supply, incidental warehousing, offices, limited retail sales (such as sales to serve businesses in the area), public and quasi-public uses, and similar and compatible uses. The maximum FAR shall be in the range of 0.45 to 0.55, depending on the land use. The East

Campus would retain the existing structures and continue to use the buildings for office uses, which are permitted under the Limited Industry designation. As such, the Project would not conflict with the existing land use designation.

Goals and Policies. Table 3.2-2, later in this section, outlines the General Plan goals, policies, and actions that have been identified as applicable to the Project (both the East Campus and West Campus) and describes environmental effects and potential policy conflicts. In the table, a determination of "Consistent" or "Inconsistent" is provided for each policy.

The determination of whether or not the Project at the East Campus would conflict with the applicable General Plan policies is based on the effects of changing the CDP from an employee cap to a trip cap to allow the addition of adding approximately 3,000 new employees. Since the Project at the East Campus would not result in physical changes or impacts related to ground disturbance, the East Campus would not conflict with General Plan policies related to these topics. In these instances, a determination of "Not Applicable" is made for the East Campus. Where the environmental analysis identifies necessary mitigation measures for the East Campus, the analysis in Table 3.2-2 briefly describes those measures as they relate to consistency with the General Plan. These mitigation measures and the impacts are addressed further in the relevant subsections of Section 3.

Generally, the Project at the East Campus would be consistent with the General Plan goals and policies. However, the ultimate determinations of General Plan consistency can and will be made by City Council. In addition, the ultimate finding of General Plan consistency does not require that a project be entirely consistent with each individual General Plan policy. A proposed project can be generally consistent with a general plan even though the project may not promote every applicable goal and policy. Considering this, the Project as it relates to the East Campus would generally be consistent with the applicable goals, policies, and actions, resulting in a ***less-than-significant*** impact.

Consistency with the Zoning Ordinance

The East Campus is currently zoned M-2-X (General Industrial, Conditional Development), which permits warehousing, manufacturing, printing, assembling, and office uses. Conditional uses allowed in the M-2-X District include cafés, convenience stores, personal services (such as barbers, beauty, launderette, dry cleaning, and shoe repair), and daycare facilities all intended to serve the employees in the immediate area. The Project at the East Campus would include uses consistent with those permitted under the M-2-X District. In addition, since the Project would retain the existing buildings and would not include new construction, the FAR, gross floor area (GFA), site coverage, building heights, and parking would remain the same.

The Project Sponsor can occupy the East Campus in compliance with the existing CDP and zoning. However, the Project Sponsor seeks to increase the density on the site. Rather than establish a new maximum number of on-site employees, the Project Sponsor seeks to convert the existing density cap to a trip cap. Since the Project would not change the use of the

buildings, the Project would be consistent with the Zoning Ordinance, resulting in a ***less-than-significant*** impact.

Consistency with the ABAG Bay Trail and Design Guidelines

The existing undercrossing of Bayfront Expressway at Willow Road would be improved with Phase 1 of the Project to provide a connection from Menlo Park to the Bay Trail. This connection would provide bicyclists and pedestrians a grade-separated route to cross Bayfront Expressway. The undercrossing would be opened during initial occupancy of the East Campus. Since the connector would be part of the Bay Trail, the Project would comply with the Bay Trail Design Guidelines, resulting in ***less-than-significant*** impacts. However, the improvements to the existing tunnel would not occur until implementation of the Project at the West Campus.

Consistency with the C/CAG Congestion Management Plan

According to the 2009 CMP, for freeway segments currently in compliance with the adopted LOS standard, a project is considered to have an impact if the project will cause the freeway segments to operate at a level of service that violates the standard adopted. Additionally, a project would have an impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand would result in the freeway segment to operate at a level of service that violates the adopted standard. An impact could also occur if the proposed project increased traffic demand on the freeway segment by an amount equal to 1 percent or more of the segment capacity, or would cause the freeway segment v/c ratio to increase by 1 percent.

As shown in Tables 3.5-13 (2015 East Campus Only) and 3.5-27 (Cumulative East Campus) in Section 3.5, Transportation, several Routes of Regional Significance under the CMP would be impacted by the Project. The Project would implement Mitigation Measures TR-3.1 and TR-13.1, which would make improvements to the Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain significant and unavoidable because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are planned and funded on a regional scale and would be too costly for a single project to be expected to fund. The Project impacts at the East Campus are considered transportation-related and are fully evaluated in the Section 3.5, Transportation.

<u>West Campus</u>

Consistency with the General Plan

Land Use Designations. The Project is required to be consistent with the land use designations and goals and policies outlined in the General Plan. The West Campus has a land use designation of Limited Industry, which allows for light manufacturing and assembly, distribution of manufactured products, research and development facilities, industrial supply,

incidental warehousing, offices, limited retail sales (such as sales to serve businesses in the area), public and quasi-public uses, and similar and compatible uses. The maximum FAR shall be in the range of 0.45 to 0.55, depending on the land use. The West Campus would include office uses with ancillary structures for uses such as cafés, a fitness center, meeting rooms, and parking. These uses are permitted under the Limited Industry designation. As such, the Project would not conflict with the existing land use designation.

Goals and Policies. Table 3.2-2, below, outlines the General Plan goals, policies, and actions that have been identified as applicable to the Project and describes environmental effects and potential policy conflicts. The determination of whether or not the West Campus would conflict with applicable policies is based on either the Project Description or, for policies adopted for the purpose of mitigating an environmental impact, on the environmental analysis provided in the applicable sections of this Draft EIR. Where the environmental analysis identifies necessary mitigation measures for the West Campus, the analysis in Table 3.2-2 briefly describes those measures as they relate to consistency with the General Plan. These mitigation measures and the impacts are addressed further in the relevant subsections of Section 3.

Generally, the Project at the West Campus would be consistent with the General Plan goals and policies. The ultimate determinations of General Plan consistency can and will be made by City Council. In addition, the ultimate finding of General Plan consistency does not require that a project be entirely consistent with each individual General Plan policy. A proposed project can be generally consistent with a general plan even though the project may not promote every applicable goal and policy. Assuming the approval of the project, the Project would generally be consistent with the applicable goals, policies, and actions, resulting in a ***less-than-significant*** impact.

Consistency with the Zoning Ordinance

The West Campus is currently zoned M-2, which permits warehousing, manufacturing, printing, assembling, and office uses. The Project would require rezoning to M-2-X in order to allow a maximum building height in excess of 35 feet. Table 3.2-1, below, summarizes the existing development at the West Campus, the allowed development under current M-2 zoning, and the development proposed for the West Campus.

Floor Area Ratio. The M-2 District currently allows a FAR of between 0.45 and 0.55, depending on the land use. However, for office buildings, the FAR must not exceed 0.45. The office building proposed at the West Campus would be built in accordance of the allowable FAR, therefore, would not conflict with the existing FAR requirements outlined in the Zoning Ordinance or, as discussed above, the General Plan designation.

Table 3.2-1
Existing, Allowed, and Proposed West Campus Development

	Existing Development	Maximum Allowed Development (M-2 Zoning)	Proposed Development
Floor Area Ratio (FAR)	0.23	0.45	0.45
Total Square Feet (sf)	127,246	449,346[a]	439,850
Site Coverage	12%	50%	28%[b]
Building Heights	35.4 feet	35 feet	75 feet[c]
Parking	242 stalls	1,302 stalls	1,554 stalls

Sources: City of Menlo Park, 2011; Gensler, 2011.

Notes:

a. Per the Zoning Code, and based on the size of the West Campus and Facebook's needs, up to 363,058 sf can be dedicated to office uses and up to 86,288 sf can be dedicated to amenities.

b. Buildings would occupy 28 percent of the site. In addition, open space would constitute 49 percent of the site and paving would make up 24 percent of the site. (Totals exceed 100 percent due to rounding)

c. Exceeds existing height permitted under M-2 Zoning.

Gross Floor Area and Site Coverage. Per the Zoning Ordinance, and based on the size of the West Campus and the Project Sponsor's needs, buildings can occupy approximately 449,346 sf of gross floor area. Up to 363,058 sf can be dedicated to office uses and up to 86,288 sf can be dedicated to amenities. The Project would include 361,850 sf for office uses and 78,000 sf for associated amenities and, therefore, would be within the allowed floor area. The proposed buildings would occupy 28 percent of the West Campus. In addition, open space would constitute 49 percent of the site and paving would make up 24 percent of the site.[7] As such, the West Campus would be consistent with the gross floor area and site coverage requirements.

Building Heights. The M-2 District has a height limit of 35 feet, which does not include the screened mechanical areas on rooftops. The proposed buildings would range from two to four stories in height, with the Project Sponsor proposing an overall height limit of 75 feet for the entire West Campus. This increase in the height limit from 35 feet to 75 feet would require rezoning the site to M-2-X. In addition, a CDP would be required to authorize the increase in height and deviation from standard development regulations in the M-2 zone. The proposed new zoning and CDP would allow the Project to be consistent with the Zoning Ordinance, resulting in less-than-significant impacts.

Parking. Parking on the West Campus would be provided in the undercroft of Buildings 4 and 5 and in the five-level parking structure in the western portion of the campus. In total, approximately 1,544 parking stalls would be provided at the West Campus. Building 4 would contain 52 parking stalls and Building 5 would include 62 parking stalls, which would be reserved as priority parking for energy efficient vehicles. The five-level parking structure

[7] The percentages exceed 100 percent due to rounding.

would have capacity for approximately 1,430 vehicles. The M-2 zoning requires parking for 1,302 vehicles. The Project exceeds this requirement.

Consistency with the ABAG Bay Trail and Design Guidelines

As stated above, the undercrossing at Bayfront Expressway would be open during implementation of the East Campus. With construction of the West Campus, the undercrossing would be enhanced to provide lighting and security improvements, final grading of the approaches for ADA-compliant access, removal of the narrow elevated walkway within the undercrossing, and signing/striping improvements. In addition, a pump would be installed to protect the undercrossing from seasonal flooding. The number of crossings that public Bay Trail users would need to make is minimized by placing the pedestrian path on the eastern side of the tunnel. As they approach from Willow Road, pedestrians would travel through the tunnel unimpeded; on the north side of the tunnel near the East Campus, a single crossing point to access the Bay Trail would be provided. The crossing would be enhanced with advanced yield lines and high visibility crosswalk striping to maximize visibility. Facebook employees would be required to cross the people mover lane in a single crossing point near the West Campus. The crossing would also be enhanced with similar treatments of advanced yield lines and high visibility crosswalk striping.

Since the connector would be part of the Bay Trail, the Project would comply with the Bay Trail Design Guidelines. The Design Guidelines require multi-use paths to have a minimum horizontal clearance of 14 to 16 feet and a vertical clearance of 10 feet.[8] The rehabilitated and extended Bay Trail would be 17-feet-wide and 10.5-feet in height, meeting these standards. The paths would include the required trail markings, signage, and lighting and would result in ***less-than-significant*** impacts.

Consistency with the C/CAG Congestion Management Plan

As shown in Table 3.5-19 (2018 East Campus Plus West Campus) in Section 3.5, Transportation, several Routes of Regional Significance under the CMP would be impacted by the Project. The Project would implement Mitigation Measure TR-8.1, which would make improvements to the Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain significant and unavoidable because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes, are planned and funded on a regional scale and would be too costly for a single project to be expected to fund. The Project's impacts are considered transportation-related impacts and are fully evaluated in the Section 3.5, Transportation.

[8] Association of Bay Area Governments, "Bay Trail Plan," June 30, 1999, website: http://www.baytrail.org/baytrailplan.html, accessed on September 16, 2011.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Land Use Element, *adopted December 1, 1994 and amendments through December 7, 2010*		
Policy I-E-4: Any new or expanded office must include provisions for adequate off-street parking, mitigating traffic impacts, and developing effective alternatives to auto commuting, must adhere to acceptable architectural standards, and must protect adjacent residential uses from adverse impacts.	CONSISTENT. The Project would include a Transportation Demand Management (TDM) program to reduce the number of vehicles driving to/from the East Campus, which would attempt to mitigate traffic impacts and provide alternatives to auto commuting. No new construction would occur and, therefore, would be consistent with architectural standards and adjacent residential areas. Adequate off-street parking would be provided consistent with the zoning ordinance requirements and in compliance with previously permitted CDP.	CONSISTENT. The Project would attempt to mitigate traffic impacts by providing its employees with a TDM program and alternative modes of transportation including shuttles, vanpools, subsidized public transit, etc. In addition, the new development would undergo review by the Planning Commission regarding architectural control to ensure that design is not detrimental to the existing surroundings and matches with the character of the neighborhood. Adequate off-street parking would be provided consistent with the zoning ordinance.
Policy I-G-7: Public access to the Bay for the scenic enjoyment of the open water, sloughs, and marshes shall be protected.	CONSISTENT. Public access to the Bay is currently provided via the BCDC Public Shoreline Trail along the perimeter of the East Campus. The BCDC Trail would not be affected by the Project. However, the Bay Trail runs to the southwest of the East Campus. Phase 1 of the Project would open the undercrossing at the intersection of Bayfront Expressway and Willow Road and would be accessible to users of the Bay Trail.	CONSISTENT. The Project would enhance the existing Bay Trail by providing an improved connection to the Bay Trail. The undercrossing that would be opened during Phase 1 would be enhanced under Phase 2 to provide lighting and security improvements, final grading of the ADA-compliant approaches, elevated walkway removal, and signing/striping improvements.
Policy I-G-8: The Bay, its shoreline, San Francisquito Creek, and other wildlife habitat and ecologically fragile areas shall be maintained and preserved to the maximum extent possible. The City shall work in cooperation with other jurisdictions to implement this policy.	NOT APPLICABLE. The Project at the East Campus would not result in physical changes.	CONSISTENT. The Project could affect wildlife habitat due to vegetation and building removal, as well as the construction of new buildings, at the West Campus. However, implementation of Mitigation Measures BR-1.1 and BR-4.1 would reduce the potentially significant impacts on bats and nesting migratory birds. In addition, Mitigation Measure BR-2.2 would reduce the potential for increased raptor predation on special-status marsh species.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy I-G-10: Extensive landscaping should be included in public and private development, including greater landscaping in large parking areas. Where appropriate, the City shall encourage placement of a portion of the required parking in landscape reserve until such time as the parking is needed. Plant material selection and landscape and irrigation design shall adhere to the City's Water Efficient Landscaping Ordinance.	NOT APPLICABLE. Landscaping is already included at the East Campus and will not be altered with change to the CDP for the East Campus.	CONSISTENT. Landscaping would be provided throughout the West Campus in a manner that supports sustainability goals, encourages active use of the outdoors, and reflects the various adjacent native environments. The new landscaping would be developed pursuant to the City's Water-Efficient Landscape Ordinance. Landscape features would include hardscape paving, groundcover, landscape buffers along the perimeter, and stormwater gardens.
Policy I-G-11: Well-designed pedestrian facilities should be included in areas of intensive pedestrian activity.	CONSISTENT. Pedestrians traveling between the two campuses would use the tunnel under Bayfront Expressway and would generally access the East Campus buildings via the central courtyard. Designated pedestrian ways would be located adjacent to bike paths. The BCDC Shore Trail along the northern, eastern, and western perimeter of the East Campus would also continue to serve pedestrians.	CONSISTENT. Multi-modal travel at the West Campus and between campuses would be encouraged through the central courtyard, which would be designed to facilitate pedestrian and bicycle movement. The West Campus would be arranged around a common area, which would establish bicycle and pedestrian connections to the East Campus, the Belle Haven neighborhood, and the Bay Trail. In addition, the Bay Trail would continue to provide recreational opportunities along Bayfront Expressway and within an improved connection via the underground tunnel.
Goal I-H: To promote the development and maintenance of adequate public and quasi-public facilities and services to meet the needs of the City's residents, businesses, workers, and visitors.	CONSISTENT. The Project would not develop or include public and quasi-public facilities. The BCDC Public Shore Trail along the perimeter would not be altered and would continue to be used by the public. However, Phase 1 of the Project would open the undercrossing at the intersection of Bayfront Expressway and Willow Road and would be accessible to users of the Bay Trail. Instead of crossing at-grade, the Bay Trail would travel in the undercrossing.	CONSISTENT. The Project would improve the public-access Bay Trail along the segment that crosses Bayfront Expressway. Phase 2 would enhance the undercrossing for improved accessibility and lighting. The Project would adhere to the design guidelines outlined in the Bay Trail Plan.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy I-H-1: The community design should help conserve resources and minimize waste.	NOT APPLICABLE. The buildings at the East Campus already include design features to conserve resources and minimize waste. This would not be altered by the change to the CDP for the East Campus.	CONSISTENT. The West Campus would pursue LEED BD+C Gold certification. Several sustainability features to conserve resources and reduce waste would be employed including, but not limited to: energy efficient building design, water-efficient plumbing fixtures and landscaping, a construction waste management plan to recycle 75 percent of materials, reuse of existing paving, and indoor environmental quality measures.
Policy I-H-2: The use of water-conserving plumbing fixtures in all new public and private development shall be required.	NOT APPLICABLE. The buildings at the East Campus already include water-conserving fixtures and would not be altered by the change to the CDP for the East Campus.	CONSISTENT. The sustainability features at the West Campus would include water-efficient plumbing fixtures to reduce water consumption by at least 40 percent of California Title 24 Energy Code Standards baseline. In addition, water efficient landscape and irrigation design would be included to reduce potable water consumption by at least 50 percent of standard design CalGreen (the green building code) baseline.
Policy I-H-3: Plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance.	NOT APPLICABLE. The landscaping within the interior courtyard at the East Campus is already consistent with the Water Efficient Landscaping Ordinance.	CONSISTENT. The new landscaping at the West Campus, which would include groundcover, landscape buffers, and stormwater gardens would be developed pursuant to the City's Water Efficient Landscape Ordinance.
Policy I-H-7: The use of reclaimed water for landscaping and any other feasible uses shall be encouraged.	NOT APPLICABLE. The existing landscaping is water-efficient and uses irrigation to reduce water use.	CONSISTENT. No reclaimed water is available at the West Campus; however, an efficient irrigation design would minimize potable water use for irrigation.
Policy I-H-9: Urban development in areas with geological and earthquake hazards, flood hazards, and fire hazards shall be regulated in attempt to prevent loss of life, injury, and property damage.	CONSISTENT. The East Campus is already developed with buildings and, therefore, is not new development. The levee around the perimeter serves to reduce flood hazards and reduce risk to the additional employees at the East Campus.	CONSISTENT. Although there are seismic hazards, the Geotechnical Feasibility Evaluation for the West Campus concluded development of the Project is feasible provided the potential hazards are mitigated through design and construction. Adherence to federal, State, and local laws would reduce natural hazards. In addition, the Project would raise the site above the flood level to avoid flood hazards.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy I-H-11: Buildings, objects, and sites of historic and/or cultural significance should be preserved.	NOT APPLICABLE. The East Campus does not include buildings of historical significance and no ground disturbance would occur.	CONSISTENT. The West Campus includes two buildings that would be demolished as part of the Project, but these are not considered historic. Ground disturbance would occur; however, implementation of Mitigation Measures CR-1.2, CR-3.1, and CR-4.1 would reduce impacts on archeological and paleontological resources or human remains.
Policy I-H-12: Street orientation, placement of buildings, and the use of shading should contribute to the energy efficiency of the community.	NOT APPLICABLE. The Project would not change street or building orientation at the East Campus.	CONSISTENT. The proposed sustainability features at the West Campus would attempt to reduce energy use. The features include, but are not limited to: heat island effect mitigation by shading more than 50 percent of parking and other hard surfaces with shade trees, building orientation on an east-west axis to capitalize on climate-responsive design benefits of south-facing façades, and floor plates that are conducive to daylighting strategies.
Circulation and Transportation Element, *December 1, 1994 and amendments through December 7, 2010*		
Goal II-A: To maintain a circulation system using the Roadway Classification system that will provide for the safe and efficient movement of people and goods throughout the City for residential and commercial purposes.	CONSISTENT. Safe and efficient movement of people within the City would be enhanced with the opening of the undercrossing at the intersection of Bayfront Expressway and Willow Road, which would allow bicyclists, pedestrians, and East Campus employees to easily access offsite areas. This undercrossing would connect the East Campus with the Bay Trail and the residential and commercial portions of the Belle Haven neighborhood. The bicycle improvements incorporated as part of the Project are expected to significantly improve bicycle access to the East Campus.	CONSISTENT. Safe and efficient movement of people within the City would be improved with the proposed enhancements to the undercrossing at the intersection of Bayfront Expressway and Willow Road, which would allow access to bicyclists, pedestrians, and the intra-campus people-mover. This undercrossing would connect the East Campus with the Bay Trail and the residential and commercial portions of the Belle Haven neighborhood. The bicycle improvements incorporated as part of the Project are expected to significantly improve bicycle access to the West Campus.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy II-A-1: Level of Service D (40 seconds average stopped delay per vehicle) or better shall be maintained at all City-controlled signalized intersection during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and at intersections along Willow Road from Middlefield Road to US 101.	CONSISTENT. The Cumulative 2025 East Campus Only Condition (worst-case scenario) in the AM and PM peak hours would result in impacts at the intersection of two City-controlled arterials. The addition of Project-generated peak hour traffic would result in an increase in delay at the critical movements at the intersection of Willow Road and Middlefield Road, resulting in a potentially significant impact at this location. However, this intersection is exempt from Policy II-A-1.	CONSISTENT. The Cumulative 2025 East Campus and West Campus Condition (worst-case scenario) in the AM and PM peak hours would result in an increase in delay at the critical movements at the intersection of Willow Road and Middlefield Road resulting in a potentially significant impact at this location. However, this intersection is exempt from Policy II-A-1.
Policy II-A-2: The City should attempt to achieve and maintain average travel speeds of 14 miles per hour (Level of Service D) or better on El Camino Real and other arterial roadways controlled by the State and at 46 miles per hour (Level of Service D) or better on US 101. The City shall work with Caltrans to achieve and maintain average travel speeds and intersection level of service consistent with standards established by the San Mateo County Congestion Management Plan.	INCONSISTENT. Under Cumulative East Campus Only Condition, the following Routes of Regional Significance would be potentially impacted by the Project: US 101 North of Marsh Road, US 101 between Willow Road and University Avenue, US 101 South of University Avenue. To the extent feasible, the City will work with Caltrans to maintain acceptable levels of service at these locations, but as discussed in Section 3.5, these impacts are considered significant and unavoidable.	INCONSISTENT. Under the Cumulative East Campus and West Campus Condition, the following Routes of Regional Significance would be potentially impacted by the Project: US 101 North of Marsh Road, US 101 between Willow Road and University Avenue, and US 101 South of University Avenue To the extent feasible, the City will work with Caltrans to maintain acceptable levels of service at these locations, but as discussed in Section 3.5, these impacts are considered significant and unavoidable.
Policy II-A-3: The City shall work with Caltrans to ensure that average stopped delay on local approaches to State-controlled signalized intersections does not exceed Level of Service E (60 Seconds per vehicle).	INCONSISTENT. In the AM peak hour, at the State-controlled intersection of Willow Road and Newbridge Street, which currently operates at LOS E, the Project-related traffic would increase delay at the local approaches causing a potentially significant impact at this intersection. In the PM peak hour, at the State-controlled intersections of Marsh Road and US 101 northbound ramps and University Avenue and Bayfront Expressway, which currently operate at LOS F, the Project-related traffic would increase intersection delay by greater than four seconds causing an impact at this intersection.	INCONSISTENT. In the AM peak hour, at the State-controlled intersections of Marsh Road and US 101 northbound ramps, the Project-related traffic would increase intersection level of service from LOS D to LOS F, resulting in a potentially significant impact. In the PM peak hour, at the State-controlled intersection of University Avenue and Bayfront Expressway, which would operate at LOS F, the Project-related traffic would increase intersection delay by greater than four seconds causing a potentially significant impact at this intersection. Although the City will work with Caltrans to reduce Project impacts, these impacts would still be significant and unavoidable.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
	Although the City will work with Caltrans to reduce Project impacts, these impacts would still be significant and unavoidable.	
Policy II-A-4: New development shall be restricted or required to implement mitigation measures in order to maintain the levels of service and travel speeds specified in Policies II-A-1 through II-A-3.	CONSISTENT. As discussed in Section 3.5, Transportation, the Project at the East Campus would result in several significant and unavoidable impacts to the levels of service and travel speeds within the City. Nonetheless, the Project would implement all feasible mitigation, as listed in Section 3.5 of this Draft EIR.	CONSISTENT. As discussed in Section 3.5, Transportation, the Project at the West Campus would result in several significant and unavoidable impacts to the levels of service and travel speeds within the City. Nonetheless, the Project would implement all feasible mitigation, as listed in Section 3.5 of this Draft EIR.
Policy II-A-8: New developments shall be reviewed for its potential to generate significant traffic volumes on local streets in residential areas and shall be required to mitigate potential significant traffic problems.	CONSISTENT. Traffic and circulation impacts for the Project are evaluated in Section 3.5, Transportation, and mitigation is included where necessary to address traffic impacts. Because the Project is located in a developed commercial area and is not accessed through residential neighborhoods, the increase of traffic as a result of the East Campus would result in significant impacts. Where feasible, mitigation measures have been identified, but impacts would remain significant and unavoidable.	CONSISTENT. Traffic and circulation impacts for the Project are evaluated in Section 3.5, Transportation, and mitigation is included where necessary to address traffic impacts. Because the Project is located in a developed commercial area and is not accessed through residential neighborhoods, the increase of traffic as a result of the West Campus would result in significant impacts. Where feasible, mitigation measures have been identified, but impacts would remain significant and unavoidable.
Goal II-B: To promote the use of public transit.	CONSISTENT. Currently, there are no public transit stops within the vicinity of the East Campus. However, the TDM program would provide shuttle service, which would connect the campus to public transit stations. In addition, subsidized public transit passes would be provided to employees who use public transit as a commuting option.	CONSISTENT. Currently, there are no public transit stops within the vicinity of the West Campus. However, the Project would provide shuttle service, which would connect the campus to public transit stations. Other incentives for using public transit as a commuting option would likely be included in the TDM program.
Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects.	CONSISTENT. The Project includes a TDM program that includes transit options and alternative travel modes to promote transit, carpooling, bicycling, and walking.	CONSISTENT. The West Campus would include a TDM program, which, similar to the East Campus TDM program, would likely include transit options and alternative travel modes to promote transit, carpooling, bicycling, and walking.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Goal II-D: To promote the safe use of a bicycle as a commute alternative and for recreation.	CONSISTENT. The TDM program at the East Campus would promote bicycling as a commute alternative. Several incentives would be provided including bicycle parking/storage, subsidies, bicycle-share programs, and showers/changing rooms. In addition, the East Campus would include a bicycle/pedestrian route within the interior courtyard, linking together the buildings. The route would continue to the West Campus via the tunnel under Bayfront Expressway. The designated route would provide markings for a two-way bike path immediately adjacent to the pedestrian way.	CONSISTENT. A TDM program is proposed as part of the sustainability features at the West Campus. It is expected that the TDM program would support bicycling as a commute alternative, similar to the East Campus TDM program. The West Campus would provide bicycle parking/storage facilities and would include a bicycle/pedestrian route within the interior common area that would connect the five office buildings, the amenities structures, and the parking structure. The route would also connect to the Bayfront Expressway undercrossing to provide access to the East Campus and the Bay Trail.
Policy II-D-4: The City shall require new commercial and industrial development to provide secure bicycle storage facilities on-site.	CONSISTENT. The TDM program at the East Campus includes bicycle parking, with short-term racks, long-term lockers, and storage facilities.	CONSISTENT. The West Campus would include areas for bicycle storage and related amenities in Buildings 4 and 5. Building 4 would include 7,650 sf for bicycle parking/storage and bicycle-related amenities, while Building 5 would not have parking/storage, but would have bicycle-related amenities.
Goal II-E: To promote walking as a commute alternative and for short trips.	CONSISTENT. The TDM program at the East Campus includes subsidies for employees who walk or bike to work. Walking will also be promoted through the proposed onsite pedestrian linkages.	CONSISTENT. As part of the West Campus sustainability features, a TDM program would be offered to the employees. The TDM program could include subsidies for employees who walk to work, similar to the East Campus. Walking would also be promoted through the proposed onsite pedestrian linkages.
Policy II-E-1: The City shall require all new development to incorporate safe and attractive pedestrian facilities.	CONSISTENT. Pedestrians traveling between the two campuses would use the tunnel under Bayfront Expressway and would generally access the East Campus buildings via the central courtyard. Designated pedestrian ways would be located adjacent to bike paths. In addition, the Bay Trail would continue to provide recreational opportunities along Bayfront Expressway and within an improved connection via the underground tunnel. The BCDC Shore Trail along the northern, eastern, and western	CONSISTENT. Multi-modal travel at the West Campus and between campuses would be encouraged through the central courtyard, which would be designed to facilitate pedestrian and bicycle movement. The West Campus would be arranged around a common area, which would establish bicycle and pedestrian connections to the East Campus, the Belle Haven neighborhood, and the Bay Trail.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
	perimeter of the East Campus would also continue to serve pedestrians.	
Policy II-E-2: The City shall endeavor to maintain safe sidewalks and walkways where existing within the public right of way.	CONSISTENT. Phase 1 of the Project would open the undercrossing at the intersection of Bayfront Expressway and Willow Road and would be accessible to users of the Bay Trail.	CONSISTENT. The Project at the West Campus proposes to provide a new public right-of-way sidewalk along Willow Road, from Bayfront Expressway to the Dumbarton Rail Corridor. Currently, no sidewalk exists in this segment; therefore, the Project would improve pedestrian connectivity in this area. Phase 2 of the Project would also implement several safety features in the undercrossing such as lighting and pavement striping.
Policy II-E-3: Appropriate traffic control shall be provided for pedestrians at intersections.	CONSISTENT. Phase 1 of the Project would close the at-grade crosswalk at Bayfront Expressway and Willow Road and would open the existing undercrossing to allow for unimpeded pedestrian movement. Subject to Caltrans approval.	CONSISTENT. The Project at the West Campus would enhance the pedestrian undercrossing with improved lighting and pavement striping. Currently, pedestrians, including those using the Bay Trail must cross the six-lane Bayfront Expressway. The Project, with Caltrans' approval, would remove the at-grade crosswalk and divert pedestrian traffic to the undercrossing.
Noise Element, *adopted November 14, 1978*		
Goal: To prevent the escalation of noise levels in areas where noise-sensitive uses are located.	INCONSISTENT. The on-site activity at the East Campus would not significantly increase the exposure of people to noise in excess of the existing General Plan standards because it would not result in new noise sources. The noise sources associated with operations at the East Campus, including HVAC systems, parking lots, emergency generator testing, and use of the existing sport field and basketball court would continue to operate as they do under existing conditions. The Project would not result in any new additional noise sources other than what is associated with the increase in employees. The exterior noise levels on the East Campus would incrementally increase, because with implementation of the Project, the East Campus would accommodate	INCONSISTENT. The West Campus would result in a human activity noise level increase because the West Campus is currently unoccupied. Noise from human activity would mostly occur during the beginning and end of the work day and during lunch hours. The outdoor common areas and amenities provided on the West Campus are intended to encourage informal (and, on occasion, formal) gatherings throughout the day. Human activity on the West Campus would not exceed 60 dBA at the nearest noise sensitive land use and would not exceed the Noise Ordinance limit for residential land uses or the General Plan compatibility standard. Noise from the increase in human activity would not be audible over roadway noise at sites near busy roadways and the increase in human activity

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
	an additional approximately 3,000 employees over existing conditions. Noise generating activity would mostly occur during the beginning and end of the work day and during lunch hours. Exterior activity and noise levels would be minimal when most employees are inside working and outside of working hours. Residential uses and schools in the Project vicinity are currently exposed to noise levels in excess of the City standards. The addition of Project-related traffic would further increase traffic noise levels above the City's standards for residential uses. Particularly, the Project would result in significant incremental increases to noise levels at identified sensitive uses on Marsh Road and Willow Road. No feasible mitigation measure is available to reduce traffic-related noise exposure.	would not expose persons to noise in excess of standards. However, the West Campus is adjacent to noise-sensitive land uses such as the Belle Haven neighborhood and schools such as Belle Haven Elementary School and Mid-Peninsula High School. The addition of Project-related traffic would further increase traffic noise levels above the City's standards for residential uses. Particularly, the Project would result in significant incremental increases to noise levels at identified sensitive uses on Marsh Road and Willow Road. No feasible mitigation measure is available to reduce traffic-related noise exposure. In addition, the West Campus could exceed the Noise Ordinance standards as a result of emergency generator testing if noise attenuation is not installed. Mitigation Measure NO-1.1 and NO-1.2 would reduce emergency generator noise to less-than-significant levels. Construction activities would also temporarily increase noise. Implementation of Mitigation Measures NO-4.1 and NO-4.2 would reduce construction noise impacts.
Policy: Analyze in detail the potential noise impacts of any actions that the City may take or act upon which could significantly alter noise level in the community.	CONSISTENT. Section 3.8, Noise, of this Draft EIR analyzes noise impacts as a result of the East Campus in detail. Where applicable and feasible, Section 3.8 includes mitigation measures to reduce the potential noise impacts.	CONSISTENT. Section 3.8, Noise, of this Draft EIR analyzes noise impacts as a result of the West Campus in detail. Where applicable and feasible, Section 3.8 includes mitigation measures to reduce the potential noise impacts.
Policy: Encourage creative solutions when potential conflicts between noise levels and land use arise.	INCONSISTENT. Noise levels and land uses could conflict due to the increase in traffic in the area. The Project includes a TDM program that sets forth a variety of measures designed to reduce the number of daily trips. However, the TDM program may not reduce trips enough to reduce the Project's contribution to traffic noise to a less-than-significant level.	INCONSISTENT. Noise levels and land uses could conflict due to new emergency generator testing, construction, and the increase in traffic in the area. Mitigation Measure NO-1.1 and NO-1.2 would reduce emergency generator and Mitigation Measures NO-4.1 and NO-4.2 would reduce construction noise impacts. However, no feasible mitigation measures would reduce the noise impacts associated with increases in traffic to a less-than-significant level. Although the

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
		Project includes a TDM program as part of mitigation (see Section 3.5, Transportation), it may not reduce trips enough to reduce the Project's contribution to traffic noise to a less-than-significant level.
Policy: Control unnecessary, excessive, and annoying noises within the City where not preempted by federal or State control.	CONSISTENT. Noise increases due to the additional employees at the East Campus would not be significant, with the exception of traffic noise, as discussed above. The Project would not generate unnecessary and excessive noise, but would generate standard noises from business land uses.	CONSISTENT. Noise increases due to the additional employees at the East Campus would not be significant, with the exception of traffic noise, as discussed above. The Project would not generate unnecessary and excessive noise, but would generate standard noises from business land uses.
Policy: Enforce applicable federal and State laws.	CONSISTENT. The East Campus would be required to comply with applicable federal and State laws and regulations with regard to noise impacts.	CONSISTENT. The West Campus would be required to comply with applicable federal and State laws and regulations with regard to noise impacts.
Seismic Safety and Safety Element, *adopted June 22, 1976*		
Policy 11: Require submission of geologic, seismic, and/or soils reports prior to taking action on development proposals for locations identified as potential problem areas in this element.	NOT APPLICABLE. Since no ground disturbance would occur at the East Campus, a geologic, seismic, and/or soil report is not required.	CONSISTENT. Cornerstone Earth Group prepared a Geotechnical Feasibility Evaluation for the West Campus in November 2010.
Policy 12: Prohibit structural development in areas where hazards cannot be mitigated by accepted methods to a level of acceptable risk.	NOT APPLICABLE. The East Campus is already developed with existing structures; therefore, the Project would not construct buildings in an area where hazards cannot be mitigated.	CONSISTENT. The West Campus is not in areas where hazards cannot be mitigated by accepted methods to a level of acceptable risk. The main hazard at the West Campus is the capped area consisting of deep PCB-contaminated soil. In addition, previously unidentified hazards could be unearthed during construction. Implementation of Mitigation Measures HM-2.1 through HM-2.9 would reduce the impacts of soil and groundwater contamination to a less-than-significant level.
Policy 13: Require that all new development incorporate adequate hazard mitigation measures to reduce risks from natural hazards.	NOT APPLICABLE. The East Campus is already developed with buildings and, therefore, is not considered new development. The levee around the perimeter serves to reduce flood hazards.	CONSISTENT. Although there are seismic hazards, the Geotechnical Feasibility Evaluation for the West Campus concluded development of the Project is feasible provided the potential hazards are mitigated through design and construction. Adherence to federal, State, and local laws would reduce natural

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
		hazards. In addition, the Project would raise the site above the flood level to avoid flood hazards.
Implementation Program 15: Require that potential geologic, seismic, soils, and/or hydrologic problems confronting public or private development be thoroughly investigated at the earliest stages of the design process, and that these topics be comprehensively evaluated in the Environmental Impact Report for each project, by persons of competent geologic expertise.	CONSISTENT. The potential geologic, seismic, soils, and/or hydrologic problems at the East Campus have been investigated and evaluated in this Draft EIR. Geologic impacts are discussed in Section 3.11 of this document and hydrologic issues are discussed in Section 3.12.	CONSISTENT. The potential geologic, seismic, soils, and/or hydrologic problems at the West Campus have been investigated and evaluated in this Draft EIR. Geologic impacts are discussed in Section 3.11 of this document and hydrologic issues are discussed in Section 3.12.
Implementation Program 16: Require that all private roads be designed to allow unrestricted access to all emergency vehicles as a prerequisite to the granting of permits and approvals for construction.	NOT APPLICABLE. The existing interior road system at the East Campus, which loops around the surface parking lot, will remain the same with implementation of the Project. Currently, emergency vehicles can access the site and will continue to have full access.	CONSISTENT. Emergency vehicle access at the West Campus would be provided along the outside perimeter of the office buildings with access to the common area from the eastern end of the campus. Each building would be accessible to emergency vehicles via the perimeter roadway. In addition to the main entry and the secondary access points, emergency vehicles would be able to access the West Campus via an emergency access easement through the adjacent TE Connectivity property, to the west of the parking structure. Staging and turn-out areas for emergency vehicles would be located throughout the site and the design of the roundabout island to the southeast of Building 4 would meet the requirements established by the Fire Code, based on the size of the fire department's apparatus.
Implementation Program 47: Monitor manufacturing, storage, transportation, and use of hazardous and/or explosive materials.	CONSISTENT. Operation at the East Campus would involve the use of hazardous materials-containing products. However, these products would be used in moderation, consistent with other office developments in the area, and would comply with federal, State, and local regulations.	CONSISTENT. Construction and operation of the Project at the West Campus would involve the use of hazardous materials-containing products. However, these products would be used in moderation, consistent with other office developments in the area, and would comply with federal, State, and local regulations.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy 48: Consider the threat of tsunamis in the planning and management of bayland areas.	CONSISTENT. As discussed in Section 3.12, Hydrology and Water Quality, the potential for tsunami is low according to the California Emergency Management Agency (Cal EMA).	CONSISTENT. As discussed in Section 3.12, Hydrology and Water Quality, due the location of Bayfront Expressway in between the site and the Bay, the West Campus is not vulnerable to the threat of tsunamis.
Implementation Policy 51: Require that new structures in potential inundation areas either be elevated above the inundation level, or utilize waterproof hardware.	NOT APPLICABLE. No new structures are proposed on the East Campus.	CONSISTENT. As discussed in Section 3.12, Hydrology and Water Quality, development on the West Campus involves placement of fill to raise the site above the Base Flood Elevation. Mitigation Measures HY-4.1 and HY-4.2 would ensure that the West Campus is further protected from inundation related to sea level rise through infrastructure protection and stormwater improvements.
Policy 52: Consider potential risks from inundation in the development approval process.	CONSISTENT. No new development would occur on the East Campus; however, the Project at the East Campus would expose additional people to the risk from inundation. However, as explained in Section 3.12, Hydrology and Water Quality, this would not be significant.	CONSISTENT. As discussed in Section 3.12, Hydrology and Water Quality, development on the West Campus involves placement of fill to raise the site above the Base Flood Elevation. Mitigation Measures HY-4.1 and HY-4.2 would ensure that the West Campus is further protected from inundation related to sea level rise through infrastructure protection and stormwater improvements.
Policy 57: Encourage City-Fire District coordination in the planning process.	CONSISTENT. The City has coordinated with the Menlo Park Fire Protection District (MPFD) regarding the increase in employees at the East Campus. The input from the MPFD is reflected in Section 3.15, Utilities and Service Systems, of this Draft EIR.	CONSISTENT. The City has coordinated with the MPFD regarding the new development at the West Campus. The input from the MPFD is reflected on the plans and in Section 3.15 of this Draft EIR.
***Open Space and Conservation Element**, adopted June 26, 1973*		
Goal 2: To encourage the enhancement of boulevards, plazas, and other urban open spaces in residential, commercial, and industrial neighborhoods.	CONSISTENT. The interior courtyard at the East Campus would be enhanced and would contain plazas that would serve as urban open space for the employees.	CONSISTENT. The common area between the five office buildings would include hardscaping and courtyards to create an urban open space. Pathways within the campus would provide for interior circulation.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Goal 3: To retain the unique appeal and visual amenities of the City's Baylands.	NOT APPLICABLE. The East Campus would not include exterior changes from existing conditions (with the exception of minimal signage). As such, views of the Bay would not be altered.	CONSISTENT. Although it is unknown at this time what types of façade articulation and architectural design will be used for the buildings, it is expected that they will be harmonious with each other and their surroundings. The buildings would likely develop an architectural language of massing, materiality, transparency of façade, and interconnectivity of buildings that links the campus visually to its broader context. In addition, the Project Sponsor would be required to adhere to the City's architectural review, as outlined in Section 16.68.020 of the Municipal Code.
Goal 4: To conserve in a natural state the bay and its shoreline as they are valuable natural resources.	NOT APPLICABLE. The Project would not impact the adjacent Bay and shoreline as no exterior development or ground disturbance would occur.	CONSISTENT. The West Campus would include construction of a new office campus, significantly altering the site. However, it is separated from the Bay by the six-lane Bayfront Expressway and, therefore, would not have direct impacts on the Bay.
Goal 7: To protect and conserve open areas rich in wildlife or of a fragile ecological nature.	NOT APPICLABLE. The East Campus is directly adjacent to the Bay, salt ponds, and marshes, which feature diverse wildlife. However, no physical changes would occur.	CONSISTENT. The Project could affect wildlife habitat due to vegetation and building removal, as well as the construction of new buildings, at the West Campus. However, implementation of Mitigation Measures BR-1.1 and BR-4.1 would reduce the potentially significant impacts on bats and nesting migratory birds. The Project would also include new perching or nesting opportunities for predatory birds, providing them with a vantage point to prey on special-status species in the adjacent salt marshes. Nonetheless, implementation of Mitigation Measure BR-2.2 would reduce the potential for increased raptor predation.
Goal 8: To preserve historic building, objects, and sites of historic and cultural significance.	NOT APPLICABLE. The East Campus does not include buildings of historical significance and no ground disturbance would occur.	CONSISTENT. The West Campus includes two buildings that would be demolished as part of the Project, but these are not considered historical. Ground disturbance would occur; however, implementation of Mitigation Measures CR-1.2, CR-3.1, and CR-4.1 would reduce impacts on

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
		archeological and paleontological resources or human remains.
Goal 12: To enhance and preserve air quality in accord with regional standards.	INCONSISTENT. Operation of the East Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, PM_{10} and $PM_{2.5}$, but would not exceed BAAQMD's significance thresholds. However, emissions of NOx from the East Campus operations would exceed BAAQMD's significance thresholds. There are no feasible mitigation measures that would reduce these emissions.	INCONSISTENT. Operation of the West Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, PM_{10} and $PM_{2.5}$, but would not exceed BAAQMD's significance thresholds. However, emissions of NOx from the West Campus operations would exceed BAAQMD's significance thresholds. There are no feasible mitigation measures that would reduce these emissions.
Policy 2: Include landscaping and plazas on public and private lands and well-designed pedestrian facilities in areas of intensive pedestrian activity. Require greater landscaping in extensive parking areas.	NOT APPLICABLE. The interior courtyard at the East Campus includes pedestrian linkages between the buildings. The parking lot includes landscaping.	CONSISTENT. The entire West Campus would include new landscaping and hardscape for use by the employees. Pedestrian connectors would be located between the new buildings and would link to the East Campus. Parking areas, however, would be included at the parking garage and in the basements of Buildings 4 and 5.
Policy 4: Develop hiking and biking paths consistent with the recommendations of the proposed bikeway system.	CONSISTENT. The East Campus includes a bicycle/pedestrian route within the interior courtyard, linking together the buildings. Under Phase 1, the undercrossing would be open to pedestrians and cyclists.	CONSISTENT. The West Campus would include a bicycle/pedestrian route within the interior common area that would connect the five office buildings, the amenities structures, and the parking structure. The route would also connect to the Bayfront Expressway undercrossing to provide access to the East Campus and the Bay Trail.
Policy 5: Provide public access to the bay for the scenic enjoyment of the open water, the sloughs, and the marshes.	CONSISTENT. The East Campus would not restrict public access to the Bay shoreline. The BCDC Public Shoreline Trail would continue to be accessible to the public for scenic enjoyment of the open water, salt ponds, and the marshes. The Bayfront Expressway undercrossing would be opened during Phase 1 for users of the Bay Trail.	CONSISTENT. The Project at the West Campus would allow for public enjoyment of the Bay. The Project would improve the segment of the Bay Trail that crosses Bayfront Expressway by allowing public access in the undercrossing and enhancing the connection with features such as lighting, security, and pavement striping.

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
Policy 6: Protect conservation and scenic areas, historic and cultural sites from deterioration or destruction by vandalism, private actions or public actions.	NOT APPLICABLE. No new development would occur at the East Campus.	CONSISTENT. While the Project would result in additional height, bulk, and massing that would interrupt existing views of the Santa Cruz Mountain Range, the increase of development would represent a small portion of the overall vista. Views from all of scenic viewpoints generally tend to focus away from the West Campus and more towards the north, where views encompass panoramic and expansive scenery of the marsh, salt ponds, Bay, and the East Bay Hills. As such, the proposed development would not impact scenic areas. Implementation of Mitigation Measures CR-1.2, CR-3.1, and CR-4.1 would reduce impacts on archeological and paleontological resources or human remains.
Policy 7: Preserve and protect water, water-related areas, wildlife and plant habitat areas to maintain and enhance their open-space and conservation purposes.	CONSISTENT. The East Campus is directly adjacent to the Bay, salt ponds, and marshes, which feature wildlife and plant habitats. However, no construction would occur.	CONSISTENT. The Project at the West Campus would not create runoff that would be discharged directly into the Bay, which could impact water resources. However, the Project could affect wildlife habitat due to vegetation and building removal, as well as the construction of new buildings, at the West Campus. However, implementation of Mitigation Measures BR-1.1 and BR-4.1 would reduce the potentially significant impacts on bats and nesting migratory birds. The Project would also include new perching or nesting opportunities for predatory birds, providing them with a vantage point to prey on special-status species in the adjacent salt marshes. Nonetheless, implementation of Mitigation Measure BR-2.2 would reduce the potential for increased raptor predation.
Policy 9: Discourage, and in some instance prohibit, urban development in hazardous area. These hazards include geologic and earthquake hazards, flood hazards, and fire hazards.	CONSISTENT. The East Campus is already developed with buildings and, therefore, is not considered new development. The levee around the perimeter serves to reduce flood hazards for the increase of employees exposed at the site.	CONSISTENT. Although there are seismic hazards, the Geotechnical Feasibility Evaluation for the West Campus concluded development of the Project is feasible provided the potential hazards are mitigated through design and construction. Adherence to federal, State, and local laws would reduce natural

Table 3.2-2
Comparison of Project to General Plan Goals and Policies

General Plan Goal/Policy	East Campus	West Campus
		hazards. In addition, the Project would raise the site above the flood level to avoid flood hazards.
Action Program 8: The City will continue architectural and site review for all development (except single family dwelling) within the City since this process has improved site planning and building design.	CONSISTENT. The Project at the East Campus would not change the exterior appearance and, therefore, would not require architectural and site review.	CONSISTENT. Per Section 16.68.020 of the Municipal Code, any proposal for a new structure, addition to an existing structure, or change to the exterior of a structure that requires a building permit requires that the Planning Commission conduct architectural control review with regard to the following findings: general appearance of the structures is consistent with the character of the neighborhood, the development would not be detrimental to the harmonious growth of the City, the development would not impair the desirability of the neighborhood, and the development would provide adequate parking. The Project would be required to adhere to all of these requirements.

Sources: City of Menlo Park General Plan; Atkins, 2011.

Cumulative Impacts

Because land use policies are regional in scope, the geographic context for the cumulative impacts associated with land use issues is broader than the City and would include regional development under the jurisdiction of the ABAG. Past, present, and future cumulative development within this geographic context assumes full build-out of the General Plan of these nine counties, as well as development envisioned in the Land Use Element of the General Plan, including the Tier 1 and Tier 2 cumulative projects identified in Section 3.1 (Introduction to the Environmental Analysis). Cumulative impacts are only addressed for those thresholds that have a Project-related impact, whether it is less than significant, significant, or significant and unavoidable. If the Project results in no impact under a particular threshold, it cannot contribute to any cumulative impact, and no analysis is required. This cumulative analysis examines the effects of the Project in the relevant geographic area, in combination with other current projects, probable future projects, and projected future growth.

C-LU-1 ***Cumulative Land Use Impacts.*** *The Project, in combination with other foreseeable development in the nine-county ABAG region, would have a less-than-significant cumulative impact with regard to consistency with applicable land use plans, policies, and regulations. (LTS)*

Tier 1/Tier 2

As noted, CEQA requires that an EIR consider whether a proposed project may conflict with any applicable land use plan, policy, or regulation that was adopted for the purpose of avoiding or mitigating an environmental impact. This environmental determination differs from the larger policy determination of whether a proposed project is consistent with a jurisdiction's general plan. Regional growth in general is reviewed for consistency with adopted land use plans and policies by the individual cities and counties in the geographic context in accordance with the requirements of CEQA, the State Zoning and Planning Law, and the State Subdivision Map Act, all of which require findings of plan and policy consistency prior to approval of entitlements for development. This process applies to all cumulative projects identified in Table 3.1-2. Analysis of project consistency with land use policies or regulations adopted for the purpose of avoiding or mitigating an environmental impact is similarly evaluated for each individual project and would be addressed in the analysis for each specific resource area. For example, if an individual project resulted in a loss of trees protected by a tree ordinance, this would be addressed in the biological resources section of that project's EIR or other environmental document. The environmental evaluation for this individual project would also include an analysis of the loss of protected trees on a cumulative basis.

Because consistency with land use plans and policies is inherently a project-specific issue, and each jurisdiction would decide on project consistency on the project level, there would be no cumulative impact as a result of cumulative development in the ABAG region. As discussed above, implementation of the Project at both the East Campus and West Campus

would be generally consistent with the General Plan, Municipal Codes, and BCDC, ABAG, and C/CAG plans. For this reason, the Project's cumulative impact would be ***less than significant***.

3.3 AESTHETICS

Introduction

This section describes the existing aesthetic resources and visual characteristics of the Project site and its immediate vicinity, along with existing plans and policies that are relevant to visual resource issues within the City. This section also evaluates the effect on existing visual resources associated with implementation of the Project. Potential impacts to aesthetic and visual resources due to implementation of the Project at the West Campus are evaluated based on a review of photographs, visual simulations, view studies, shadow simulations, site reconnaissance, and Project data. The specific impacts examined in this section pertain to the Project's potential to change the visual quality and character of the Project area and to create new sources of light, glare, or shadows.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to increased building heights and the landscape plan. Commenters also requested that simulations of the West Campus development be provided.

The change in the Conditional Development Permit (CDP) at the East Campus would not result in visual impacts. Therefore, Project impacts at the East Campus are not discussed further in this section.

Applicable Plans and Regulations

Local

City of Menlo Park General Plan. The General Plan guides development and use of land within the City. Several goals and policies of the General Plan apply broadly to aesthetics across the City. The following policies from the Land Use Element[1] of the General Plan pertain to the Project:

> *Policy I-G-7:* Public access to the Bay for the scenic enjoyment of the open water, sloughs, and marshes shall be protected.
>
> *Policy I-G-10:* Extensive landscaping should be included in public and private development, including greater landscaping in large parking areas. Where appropriate, the City shall encourage placement of a portion of the required parking in landscape reserve until such time as the parking is needed. Plant material selection and landscape and irrigation design shall adhere to the City's Water Efficient Landscaping Ordinance.

[1] City of Menlo Park, Menlo Park General Plan, adopted December 1, 1994 with amendments through December 7, 2010.

The following goals and policies from the Open Space and Conservation Element[2] of the City's General Plan pertain to the Project.

> **Goal 2:** To encourage the enhancement of boulevards, plazas, and other urban open spaces in residential, commercial, and industrial neighborhoods.
>
> **Goal 3:** To retain the unique appeal and visual amenities of Menlo Park's baylands.
>
> *Policy 2:* Include landscaping and plazas on public and private lands and well-designed pedestrian facilities in areas of intensive pedestrian activity. Require greater landscaping in extensive parking areas.
>
> *Policy 5:* Provide public access to the bay for the scenic enjoyment of the open water, the sloughs, and the marshes.
>
> *Policy 6:* Protect conservation and scenic areas, historic and cultural sites from deterioration or destruction by vandalism, private actions or public actions.
>
> Action Program 8: The City will continue architectural and site review for all development (except single family dwelling) within the City since this process has improved site planning and building design.

Menlo Park Municipal Code, Chapter 13.24, Heritage Trees. Chapter 13.24[3] protects the health and maintenance of Heritage Trees, those being a tree or group of trees of historical significance, special character, or community benefit; all oak trees native to California (*Quercus*) which have trunks of 31.4 inches or greater circumference and all trees other than oaks which have a trunk with a circumference of 47.1 inches or more, measured 54 inches above natural grade.

Menlo Park Municipal Code, Chapter 16.64, Fences, Walls, Trees and Hedges. The Zoning Ordinance (Chapter 16.64)[4] includes standards for fences in non-residential and residential areas. In non-residential areas, fences, walls, hedges, and similar structures located between the building and front lot line are required to obtain approval by the Community Development Director. The following features must be considered when obtaining approval: structural stability; aesthetics; general health, safety, and welfare of the community; and clear lines of sight for vehicular and pedestrian traffic or other safety factor.

Design Guidelines for Signs. The Design Guidelines for Signs[5] provides regulations for the design of signs in residential and non-residential areas. The stated intent of the guidelines is to "encourage

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[2] City of Menlo Park, Menlo Park General Plan, Open Space and Conservation Element, adopted June 26, 1973.

[3] City of Menlo Park, Municipal Code, Title 13: Streets, Sidewalks, and Utilities, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 29, 2011.

[4] City of Menlo Park, Municipal Code, Title 16: Zoning, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 29, 2011.

[5] City of Menlo Park, Community Development Department, Planning Division, "Design Guidelines for Signs," updated August 2008, website: http://www.menlopark.org/departments/pln/signdesgnguide.pdf, accessed July 29, 2011.

signage that helps maintain the positive image of the area enjoyed by the residents and businesses of the City. Every Menlo Park business is encouraged to post an attractive sign stating the name of the business. The sign should be at a scale appropriate to the pedestrian and vehicular streetscape and the nature of the business." All new and modified signs require approval by the Director of Community Development or his/her designee.

Architectural Control. Per Action Program 8 of the Open Space and Conservation Element and Section 16.68.020 of the Municipal Code,[6] any proposal for a new structure, addition to an existing structure, or change to the exterior of a structure that requires a building permit (with the exception of single-family dwellings, duplexes, and accessory buildings) requires that the Planning Commission conduct architectural control review with regard to the following findings:

1. That the general appearance of the structures is in keeping with character of the neighborhood;
2. That the development will not be detrimental to the harmonious and orderly growth of the City;
3. That the development will not impair the desirability of investment or occupation in the neighborhood; and
4. That the development provides adequate parking as required in all applicable City ordinances and has made adequate provisions for access to such parking.

Existing Conditions

Visual Quality

The visual quality of an area is based on the physical appearance and characteristics of the built environment; the proximity and balance of man-made structures with open space or landscaping; and views of public open space or of more distant landscape features such as hills, water bodies, or built landmarks, such as bridges. These elements help define a sense of place and a physical orientation in a larger visual setting.

Regional Setting

The City of Menlo Park is a 19-square-mile municipality situated approximately 30 miles south of San Francisco and about 20 miles north of San Jose on the San Francisco Peninsula. Menlo Park is one of over a dozen cities located on the flatter portions of the western margin of San Francisco Bay (Bay), east of the San Andreas Fault zone. The municipalities of Atherton and Redwood City border Menlo Park to the north, and Palo Alto and East Palo Alto border Menlo Park to the south.

Urban development within the region is largely concentrated between the Bay and the Interstate 280 (I-280) corridor. In general, the Peninsula is developed with low-density uses within distinct neighborhoods that include commercial, retail, and residential buildings. Larger-scale development, such as office parks and industrial buildings, tend to be located between the Bay and US 101. Some

[6] City of Menlo Park, Municipal Code, Chapter 16.68: Buildings, passed December 14, 2010, website: http://www.codepublishing.com/CA/menlopark/, accessed July 28, 2011.

high-rise office, apartment, and hospital buildings are located between US 101 and I-280; however, these buildings are mainly concentrated along the US 101 and El Camino Real corridors.

The Bay and its natural features are visible key visual components in the eastern and northern portions of the City. The principal topographic feature visible from the City is the Santa Cruz Mountain Range, which runs the length of the Peninsula and forms a barrier between the Pacific Ocean and the Bay. The mountain range is visible from adjacent cities and the majority of Menlo Park, especially to the north and east of US 101. The portion of the mountain range visible from Menlo Park and the adjacent cities is Skyline Ridge, rising over 2,400 feet in height and located approximately 15 miles south of the Project site.

Local Setting

The visual and urban design character in the Project site vicinity is influenced by both the undeveloped areas along the Bay and by the mix of developed uses in the area that include industrial, office, residential, and commercial uses. Within a 0.25-mile radius of the Project site, land uses include the Bay, salt ponds, and Ravenswood Slough to the north, east, and west; the Belle Haven neighborhood with residential, commercial, and industrial uses to the south; and industrial buildings and warehouses to the west. Further to the northwest, across the salt ponds, is the hilly open space of Bedwell-Bayfront Park (Bayfront Park) and the Bay beyond. Glimpses of the Dumbarton Bridge to the east can be seen from portions of the East Campus.

The contrast between the differing land uses and the natural setting of the Bay provides limited unity and inconsistent visual patterns. Development in the Project area ranges from large industrial buildings and warehouses to low-density single-family residential units. The Belle Haven neighborhood, to the south of the Project site, generally consists of one- to two-story houses on medium-sized lots, with ample street setbacks, landscaped front yards, mature street trees, and well-maintained sidewalks. The neighborhood also features open space areas, parks, a small commercial retail area adjacent to Willow Road/State Route (SR) 114, and Belle Haven Elementary School. The Dumbarton Rail Corridor separates the Belle Haven neighborhood from the industrial uses to the north (and to the west of the Project site). These industrial uses are located on large parcels of land and feature low-rise, boxy buildings with limited windows and no decorative façades. The buildings are surrounded by paved parking lots and sparse landscaping.

Pedestrian and bicycle trails are located in the vicinity of the Project site. A Bay Conservation and Development Commission (BCDC) Public Shore Trail borders the East Campus and runs along the perimeter, providing its users with views of the salt ponds, marshes, the Bay, and the Santa Cruz Mountain Range, as well as the East Bay Hills on clear days. The trail is evenly-paved and includes some maintained vegetation, benches, and trash receptacles. In addition, the Bay Trail travels along Bayfront Expressway. The Bay Trail is a series of existing and planned regional hiking and bicycle trails administered by the Association of Bay Area Governments (ABAG) that will eventually connect continuously around the perimeter of the San Francisco and San Pablo Bays and link 47 cities with 500 miles of trails.[7] This portion of the Bay Trail runs to the north of Bayfront Expressway, west of the

[7] Association of Bay Area Governments, "Overview," website: http://www.baytrail.org/overview.html, accessed July 12, 2011.

East Campus, travels over the Bayfront Expressway/Willow Road intersection, and continues along the southern portion Bayfront Expressway, to the east. The trail is evenly paved, but otherwise does not include other features, such as benches and landscaping.

Project Site Setting

As described in Section 2, Project Description, the Project site refers to both the East Campus and the West Campus. These two sites collectively comprise 79 acres. The East Campus and West Campus are separated by the six-lane Bayfront Expressway/SR 84, which runs in an east-west direction between the two campuses. There is an existing undercrossing beneath Bayfront Expressway, originally intended to link the two Raychem campuses (now the East Campus and West Campus). The two campuses are currently developed and both sites are built on Bay fill lands that formerly consisted of salt and brackish water marshes.

East Campus. The 56.9-acre East Campus is currently accessible from the main egress/ingress point at 1601 Willow Road, which is adjacent to the intersection of Bayfront Expressway and Willow Road. A second access point for vehicles coming from the East Bay is located off of Bayfront Expressway in the eastern portion of the site (right-in and right-out only). The East Campus is bound by Ravenswood Slough and the salt ponds to the north and east, Bayfront Expressway to the east and south, and Bay marshlands and salt ponds to the west. Further to the north is the Don Edwards San Francisco Bay National Wildlife Refuge. The site is enclosed by a chain-link fence and dense landscaping along its perimeter. Due to these features, the East Campus is isolated from other light-industrial and office development in the area.

The East Campus is developed with nine buildings, totaling more than one million square feet (sf). The buildings range in height from 31.5 feet to 47 feet to the top of the parapet. As shown in Figure 3.3-1a, the buildings surround an interior courtyard with ample landscaping, paved walkways, and plazas. This courtyard is not visible offsite. The buildings are surrounded on all sides by an expansive paved surface parking lot with capacity for 3,450 vehicles and a roadway network (Figure 3.3-1b). In addition, the northwest corner of the site, as shown in Figure 3.3-1c includes an athletic field and basketball courts. Overall, the East Campus is well-maintained and consists of manicured vegetation, paved surfaces, and modern two- to three-story buildings. The buildings at the East Campus are significantly set-back from Bayfront Expressway and are blocked from view by dense, mature landscaping along the perimeter of the property. This vegetation creates a visual border and emphasizes the separation between the adjacent streets and on-site buildings.

In the southwest portion of the East Campus, adjacent to the main entry, an undercrossing travels under Bayfront Expressway and connects with the West Campus. As shown in Figure 3.3-1d, the tunnel consists of concrete and metal railings and is approximately 10.5 feet in height and 32 feet in width. This tunnel, which was originally intended to link the two Raychem campuses, is currently closed to pedestrians, bicyclists, and motorists.

a. East Campus Interior Courtyard

b. East Campus Building 10 facing North

c. Existing Bayfront Expressway Tunnel facing Southeast

d. East Campus Athletic Field facing North

***Source*:** Atkins, 2011.

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FIGURE 3.3-1
Existing Conditions at the East Campus

West Campus. The West Campus is currently accessible by an unsignalized entrance on Bayfront Expressway. The driveway includes left- and right-turn in access, and right-turn out access. Emergency vehicle access is also currently provided via Constitution Drive along the southwestern edge. The West Campus is bound by Bayfront Expressway to the north, Willow Road to the east, the Dumbarton Rail Corridor to the south, and the TE Connectivity site to the west. The Belle Haven neighborhood is located across the Dumbarton Rail Corridor, further to the south. Similar to the East Campus, the site is enclosed by a chain-link fence and dense landscaping along its perimeter.

Visual Character. The West Campus consists of two parcels. The developed western portion, as shown in Figure 3.3-2a, includes two office buildings, a surface parking lot for 347 vehicles, a guard house, and landscaped islands with mature trees. The two buildings are two stories in height and feature floor-to-ceiling tinted windows, cement columns, and large tiled roofs. In addition, each building has three interior courtyards, which are not visible off-site. The second parcel (Figure 3.3-2b), to the east, is vacant and consists of paved surfaces covered in patches of weeds and groundcover. Some man-made features are present intermittently throughout the site, including pipes, fencing, and an abandoned storage unit.

The perimeter of the West Campus is surrounded on all sides by a chain-link fence with barbed-wires and moderate to dense landscape buffers, as depicted in Figure 3.3-2c. Utility wires and wooden poles run along the northern and southern perimeters of the West Campus. In addition, four lattice transmission towers and 60 kilovolts (kV) electrical transmission lines bisect the northern and eastern portions of the site.

On-Site Topography. The West Campus was undeveloped marshland and was filled prior to development of the Raychem facilities (now TE Connectivity). The fill source for the West Campus was reported to be from a road cut for I-280 construction.[8] As such, the East Campus is relatively flat and is approximately five to nine feet above mean sea level (msl).

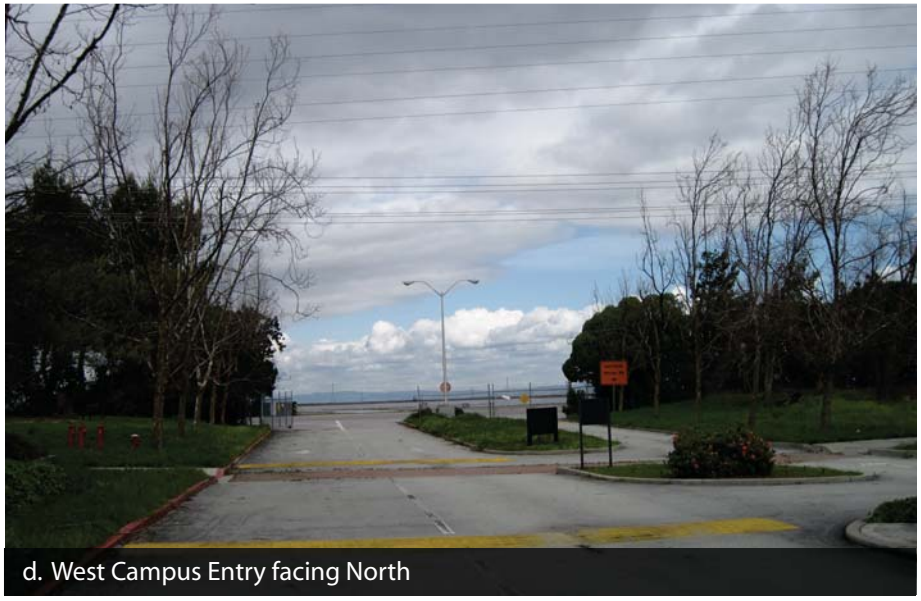
Vegetation. Vegetation on the West Campus differs between the developed western portion and the formerly developed eastern portion. In the western portion, vegetation is present within landscaped parking islands, along the entrance roadway, and around and between the buildings. The landscaping associated with the former development is overgrown with non-native annual grasses and forbs. The northern portion of this developed parcel features open space with unmaintained vegetation, three sports courts, and benches. Each building features three interior courtyards with vegetation and a courtyard with an unused decorative fountain is present between the two buildings. The eastern parcel features limited vegetation with natural groundcover and some unmaintained small shrubs; otherwise, the eastern parcel is barren.

[8] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

a. West Campus Existing Buildings

b. Eastern Vacant Portion of West Campus

c. View of Belle Haven Neighborhood from West Campus facing South



d. West Campus Entry facing North

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FIGURE 3.3-2
Existing Conditions at the West Campus

***Source*:** Atkins, 2011.

The perimeter of the entire West Campus is covered in moderate to dense trees and bushes, providing a visual barrier between the site and the exterior uses. In total, the arborist report prepared for the West Campus (included as Appendix 3.3 of this Draft EIR) identified 624 trees, consisting of 36 tree species. Of these, 233 trees qualify as heritage trees under the City's Tree Ordinance.[9]

Lighting and Shadows. Light sources at the West Campus are extremely limited due to the unoccupied nature of the site. Although there are some light fixtures on the existing buildings and around the paved parking areas, these are not currently in use. In addition, there is no lighting along the adjacent segment of SR 84, except for the cobra-style street lighting at the intersection of Bayfront Expressway/Willow Road, to the northeast. As such, the only existing sources of light at the West Campus include the intersection lighting, vehicle headlights from traffic traveling along Willow Road and Bayfront Expressway, and light spillage from the adjacent TE Connectivity site to the west.

The existing buildings at the West Campus are two stories in height and are located far enough from the property line that they do not cast shadows onto adjacent properties, roadways, or open spaces. No shadows are cast on the Belle Haven neighborhood to the south. However, the lattice utility towers, power lines, and some of the taller vegetation cast shadows on Bayfront Expressway to the north. The shadows are the most extreme during the Winter solstice when they can reach past Bayfront Expressway to the Bay Trail, the salt ponds/marsh, and the East Campus parking lot.

Site Visibility and View Corridors

Due to the relatively flat topography of the Project site and its vicinity, and the prevalence of existing buildings and vegetation, views at street-level are largely restricted. There are, however, some longer-range views available from several locations within the Project site, such as from the entrances and exits of the East Campus and West Campus.

Views from the East Campus and West Campus differ. Within the interior of the East Campus, views are limited due to the flat topography, the existing two- to three-story buildings, and the perimeter levees, fencing, and vegetation. Looking north, east, and west, at ground-level, foreground views consist of the surface parking lots, the levees, and existing vegetation with channelized background views of the East Bay Hills. Views of the salt ponds, marshes, and Bay are obstructed from pedestrian-level viewpoints (Figure 3.3-2d); however, these natural features are most likely visible from the upper levels of the buildings. Facing south, foreground views encompass the parking lot, vegetated islands, perimeter landscaping, and a channelized view of the Bayfront Expressway/Willow Road intersection. Background views looking south include mainly obstructed views of the Santa Cruz Mountain Range.

As previously mentioned, the West Campus is relatively flat; therefore, views of the surrounding environment from the West Campus are limited. Facing north, foreground views include the on-site vegetation and partially blocked views of Bayfront Expressway. At the entry driveway, as depicted in Figure 3.3-2d, middleground views of the salt ponds are visible and background views of the East Bay Hills are visible on clear days. In addition, the roof of the existing buildings on the East Campus can be seen

[9] SBCA Tree Consulting, "Tree Survey - Facebook West Campus," May 18, 2011, Survey Addendum, July 19, 2011.

looking northeast. However, due to dense vegetation, views facing east are limited to glimpses of vehicles travelling on Willow Road. To the south, the site provides foreground views of the unused Dumbarton Rail Corridor. Further to the south, industrial buildings, open lots, and single-family houses in the Belle Haven neighborhood are visible. Background views include partially obstructed views of the Santa Cruz Mountain Range. Figure 3.3-2c shows views from the West Campus, looking south. Facing west, views are limited to the existing on-site buildings and the industrial buildings at the TE Connectivity site.

Although portions of each campus are visible from public vantage points, the whole Project site is not visible in its entirety from a single, ground-level vantage point due to its large size, flat topography, and surrounding low-rise buildings. There are six prominent public vantage points and the views of the West Campus are discussed below. Since no construction would occur at the East Campus with implementation of the Project, and, therefore, there would be no significant change of its visual conditions, the discussion below focuses on views of the West Campus only.

BCDC Public Shore Trail. The West Campus is visible from the western portion of the existing BCDC Public Shore Trail, which runs along the perimeter of the East Campus, as explained above. Figure 3.3-3a depicts the existing view from the BCDC Public Shore Trail facing south towards the West Campus. From this vantage point, the foreground views feature the trail, the marsh, and the salt ponds. Middleground views include Bayfront Expressway, the vegetation on the West Campus, the rooftops of the existing West Campus buildings, and the electrical transmission towers and lines. Further south are primarily unobstructed, panoramic background views of the Santa Cruz Mountain Range. Due to the presence of the natural Bay features to the west and north, and the views of the Santa Cruz Mountain Range to the south, this viewpoint is considered a scenic view.

Bay Trail. The Bay Trail travels to the north of Bayfront Expressway, across the road from the West Campus. This segment of the Bay Trail, as shown in Figure 3.3-3b, runs between the salt ponds and marsh to the north and Bayfront Expressway to the south. Looking west, the perimeter vegetation along the West Campus boundary is visible in the middleground with background views of the Santa Cruz Mountain Range. Looking east, middleground views of the East Campus are visible. Further east, background views of the East Bay Hills are visible on clear days. Depending on the location of the bicyclist/pedestrian using the Bay Trail, the existing West Campus buildings are visible through the vegetation, to the south. However, other than these buildings, the flat topography, the center median of Bayfront Expressway, and the dense perimeter vegetation block the majority of the views of the West Campus. Due to the views of the natural Bay setting to the north and east, and views of the Santa Cruz Mountain Range and the East Bay Hills, this viewpoint is considered a scenic view.

Bayfront Park. Bayfront Park, located approximately 1.15 miles northwest of the Project site, was built on the site of a former landfill that has been redeveloped into a park. The park now contains grass-covered hills, bushes, and scattered eucalyptus and pine trees. The 155-acre park features large open space areas with trails for hiking and a 2.3-mile perimeter trail that is part of the Bay Trail system.[10]

[10] Menlo Park Community Services Department, "City of Menlo Park – Recreation Facility Summary," Katrina Whiteaker, email to Atkins May 25, 2011.

a. BCDC Shore Trail facing South

b. Bay Trail facing West

c. Lower Elevation of Bayfront Park facing Southeast

d. Higher Elevation at Bayfront Park facing Southeast

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FIGURE 3.3-3
Views from Existing Trails and Parks

***Source*:** Atkins, 2011.

As shown in Figure 3.3-3c, foreground views from within the park looking southeast towards the Project site are of grassy vegetation, the marsh and salt ponds, and Bayfront Expressway. Due to the flat topography, background views from this location are limited. However, from the top of the low rolling hills of Bayfront Park (as depicted in Figure 3.3-3d), looking southeast towards the Project site and across Bayfront Expressway, the views are more expansive. Middleground views from this vantage point include low-rise structures of varying height and color along Constitution Drive to the north of the Dumbarton Rail Corridor, mature trees, and vegetation. In the background, the Santa Cruz Mountain Range is visible to the south and the East Bay Hills are visible to the northeast on clear days. Due to the distance and existing dense vegetation, the existing buildings at the West Campus are not visible from any location at Bayfront Park. Because of the expansive views of the Bay setting to the north, east, and west (from higher elevations of Bayfront Park), and views of the Santa Cruz Mountain Range, views from Bayfront Park are considered to be scenic.

Intersection of Bayfront Expressway and Willow Road. Bayfront Expressway is a major roadway that links the Dumbarton Bridge to US 101. This six-lane roadway runs between the southern boundary of the East Campus and the northern boundary of the West Campus. A concrete median, approximately three-feet in height, separates the eastbound and westbound lanes. Views of the West Campus from passing automobiles traveling either eastbound or westbound are mainly obscured by both the median and the existing dense perimeter vegetation.

Willow Road is one of three major roadways linking the Dumbarton Bridge to US 101. This four-lane roadway (plus turn lanes) runs parallel to the eastern boundary of the West Campus and crosses over the Dumbarton Rail Corridor. Along the segment of Willow Road, between Bayfront Expressway and the Dumbarton Rail Corridor, the street is lined with dense, mature vegetation and flanked mainly by unused parcels of land. To the east of Willow Road (south of Bayfront Expressway) is open marshland and to the west is the vacant West Campus property. There is also a driveway to a warehouse/storage complex that abuts a small portion in the southeast corner of the road segment (shown in Figure 3.3-4a).

As shown in Figure 3.3-4b, foreground views from the Bayfront Expressway/Willow Road intersection facing west include the intersection of Bayfront Expressway/Willow Road and fairly unobstructed views of the northwest portion of the West Campus. Other prominent features include traffic signal lights, cobra-style street lighting, West Campus vegetation, and the electrical transmission towers and wires in the northern and eastern portion of the campus. In the background, there are partially obstructed views of the Santa Cruz Mountain Range.

Belle Haven Neighborhood. As discussed above, the Belle Haven neighborhood contains mainly single-family residential units setback from the streets with mature and well-maintained landscaping. The residential features of the neighborhood are depicted in Figure 3.3-4c. However, the neighborhood also includes some industrial buildings and open parcels along the Dumbarton Rail Corridor, parks, small commercial retail areas, and institutional buildings such as Belle Haven Elementary School. Due to the flat topography, existing structures, and dense vegetation, background views of the areas surrounding the Belle Haven neighborhood are not visible at pedestrian level.

a. Willow Road facing North

b. Bayfront Expressway/Willow Road facing West

c. Madera Avenue (Belle Haven) facing North

d. Hamilton Avenue (Belle Haven) facing West

ATKINS

FIGURE 3.3-4
Views from Adjacent Roadways and Belle Haven

***Source*:** Atkins, 2011.

Due to the limited development directly abutting the Dumbarton Rail Corridor, there are channelized views of the West Campus from select streets in the Belle Haven neighborhood. Hamilton Avenue, as shown in Figure 3.3-4d, runs parallel to the Dumbarton Rail Corridor, but is separated from the right-of-way by industrial/warehouse uses and vacant parcels. As such, motorists driving along Hamilton Avenue have intermittent views of the West Campus. In addition, streets that run perpendicular to Hamilton Avenue, such as Hollyburne Avenue and Madera Avenue, have channelized view corridors of the West Campus. The existing buildings at the West Campus are visible looking north on Windermere Avenue and Hollyburne Avenue. Other streets, such as Madera Avenue (Figure 3.3-4c), have channelized views of the West Campus, but only the existing perimeter vegetation is visible.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.
- Significantly shadow public open space other than public streets and adjacent sidewalks.

Methodology

Visual conditions within the Project area are defined by a mix of regional roadways and industrial, office, recreational, residential, and commercial development. The interplay of these elements of the visual setting varies from point to point, depending on viewer location. The appearance of the Project site (specifically the West Campus) and the surrounding community would change with implementation of the Project, which would result in the construction of new and taller buildings at the West Campus.

To illustrate the general appearance of the development proposed at the West Campus, photomontages (massing studies) from six vantage points were prepared, as shown in Figure 3.3-5. A photomontage is a photograph of the existing conditions with an image of the proposed buildings superimposed over the photograph through the use of computer imaging techniques. The photomontages have been constructed in a photo-realistic fashion to show how the proposed development would look inclusive of buildings, parking structures, and landscaping. The photomontages are used to illustrate the development that is proposed at the West Campus and provide a reasonable representation of the buildings' general massing, scale, and height upon Project completion. Since façade articulations and architectural designs have not yet been developed, these features are not included in the photomontages. The

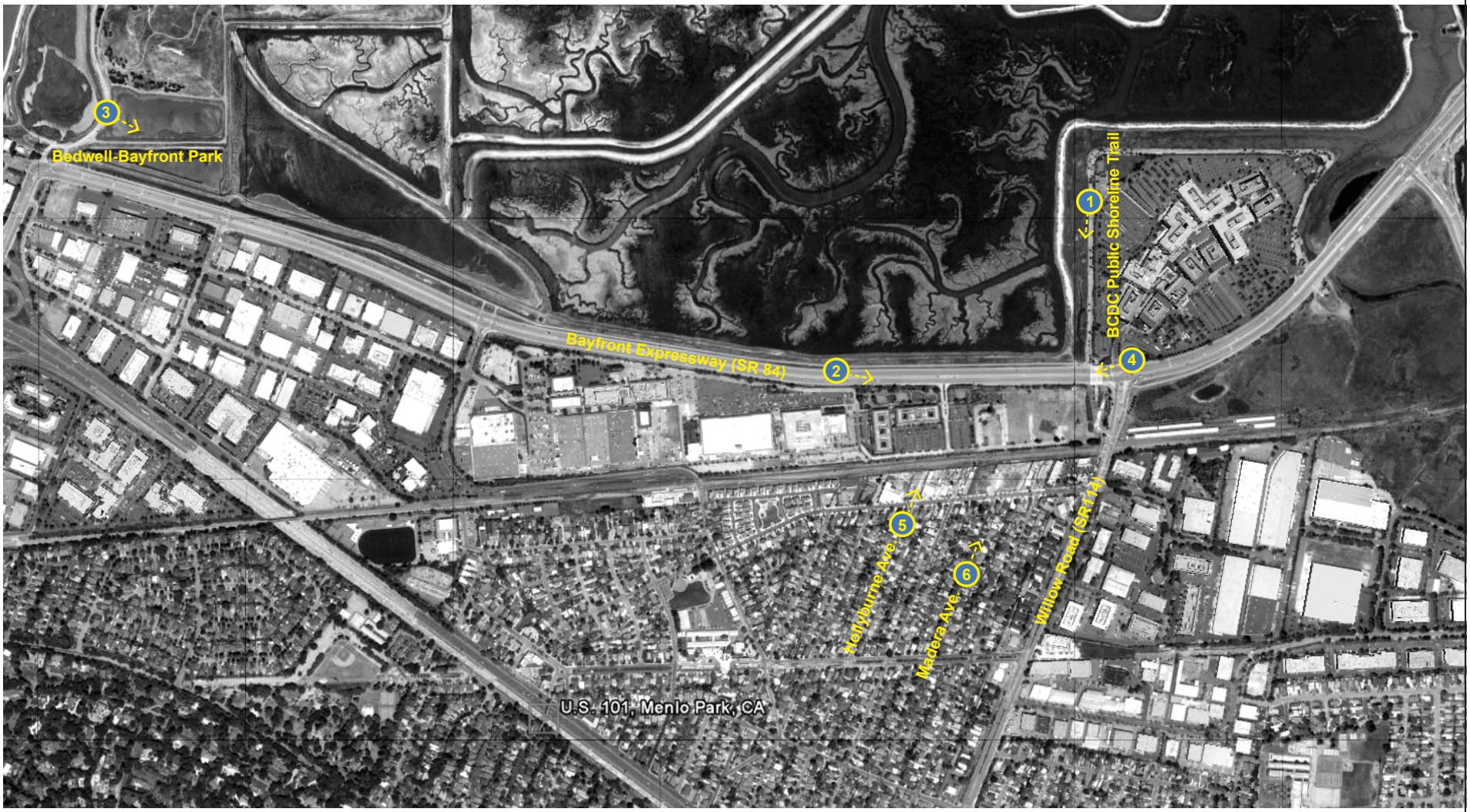

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FIGURE 3.3-5
Aerial Map of Viewpoints

***Source*:** Atkins, 2011.

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photomontages, as included in Figure 3.3-6 through Figure 3.3-11, depict views of the Project at the West Campus from the following locations:

- Viewpoint 1: West Campus looking south from the BCDC Public Shore Trail
- Viewpoint 2: West Campus looking southeast from the Bay Trail and Bayfront Expressway
- Viewpoint 3: West Campus looking southeast from Bayfront Park
- Viewpoint 4: West Campus looking southwest from the intersection of Bayfront Expressway and Willow Road
- Viewpoint 5: West Campus looking north from Hollyburne Avenue in the Belle Haven neighborhood
- Viewpoint 6: West Campus looking north from Madera Avenue in the Belle Haven neighborhood

Prior to preparing the photomontages, field investigations were conducted to determine those locations that would offer maximum visual exposure of the Project from public vantage points (see Figure 3.3-5). The photomontage locations selected include both "existing" (without the West Campus development) and "proposed" (with West Campus development) views.

Impacts Not Evaluated In Detail

The Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway. SR 84 (Bayfront Expressway) and SR 114 (Willow Road) are not designated as a State scenic highway by the California Department of Transportation. The closest designated scenic highway is I-280, which is over 5.5 miles southwest from the Project site.[11] No views of the Project site can be seen from any portion of I-280. Therefore, although the Project would remove trees, ***no impacts*** related to scenic resources within a State scenic highway corridor would occur. Thus, this issue is not discussed below.

Environmental Analysis

AE-1 ***Alteration of Scenic Views.*** *The Project at the West Campus would have a less-than-significant impact to scenic vistas in areas surrounding the Project site. (LTS)*

Impacts to Scenic Vistas. For the purposes of this analysis, a scenic vista is defined as a vantage point with a broad and expansive view of a significant landscape feature (e.g., a mountain range, lake, or coastline) or of a significant historic or architectural feature (e.g., views of a historic tower). A scenic vista is a location that offers a high visual quality, harmonious, and visually interesting view.

[11] California Department of Transportation, "California Scenic Highway Mapping System, San Mateo County," website: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed July 29, 2011.

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FIGURE 3.3-6
BCDC Public Shoreline Trail facing South (Viewpoint 1)

***Source*:** Gensler, 2011.

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FIGURE 3.3-7
Bayfront Expressway/Bay Trail facing Southeast (Viewpoint 2)

Source: Gensler, 2011.

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FIGURE 3.3-8
Bayfront Park facing Southeast (Viewpoint 3)

Source: Gensler, 2011.

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FIGURE 3.3-9
Bayfront Expressway/Willow Road (Viewpoint 4)

Source: Gensler, 2011.

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FIGURE 3.3-10
Hollyburn Avenue facing North (Viewpoint 5)

Source: Gensler, 2011.

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FIGURE 3.3-11
Madera Avenue facing North (Viewpoint 6)

***Source*:** Gensler, 2011.

The City does not have any officially designated scenic views or vistas. However, in the areas surrounding the Project site, the locations that could be considered scenic vistas are the BCDC Public Shore Trail, the Bay Trail, and Bayfront Park. These areas feature expansive views of the natural setting of the marsh and salt ponds, with the Bay further to the north. In addition, viewers who use these facilities can be considered sensitive viewers, since they are aware of their surroundings during their recreational activities.

BCDC Public Shore Trail (Viewpoint 1). The proposed development at the West Campus would significantly increase massing, height, and bulk over existing conditions. As shown in Viewpoint 1, Figure 3.3-6a, existing views from the BCDC Public Shore Trail facing south include the marsh and salt ponds in the foreground, Bayfront Expressway and the perimeter vegetation of the West Campus in the middleground, and the Santa Cruz Mountain Range in the background. As depicted in Figure 3.3-6b, the foreground views would remain the same with implementation of the Project, but the background views would be altered due to development in the middleground. The proposed development at the West Campus would interrupt the panoramic and mostly unobstructed views of the Santa Cruz Mountain Range. Nonetheless, the continuous ridgeline would still be visible over the roofs and mechanical screening areas of Building 1 (74 feet in height), Building 2 (61 feet), Building 3 (66 feet), and the parking structure (56 feet). Since the ridgeline would still be visible from certain areas, the impact would not be significant.

Bay Trail (Viewpoint 2). Viewpoint 2 shows the existing and proposed conditions as seen from the Bay Trail, looking southeast towards the West Campus. Currently, views from this direction encompass Bayfront Expressway, the utility towers and lines, and perimeter vegetation at the West Campus. With Project development, as shown in Figure 3.3-7b, the five-story parking structure and the two- to four-story office buildings in the northern portion of the West Campus would be visible. While this would represent a significant increase in building mass over existing conditions, the buildings would not block views of scenic features, such as the Santa Cruz Mountain Range to the south and the salt ponds to the north. Therefore, the impact would not be significant.

Bayfront Park (Viewpoint 3). Viewpoint 3 depicts a lower-elevation view from Bayfront Park under existing and proposed conditions. As shown in Figure 3.3-8b, the West Campus is at a significant distance from the park (approximately 1.15 miles). As such, views of the proposed development are mainly obstructed by foreground views of the marsh and salt ponds and middleground views of Bayfront Expressway and vegetation. Buildings 1 and 2 and the parking structure would be visible from the lower elevations of Bayfront Park; however, due to distance, the proposed buildings blend with their surroundings and are hardly visible. Therefore, the visual impact to Bayfront Park would not be significant.

Overall Impacts to Scenic Vistas. The Project would result in additional height, bulk, and massing from the proposed buildings and associated mechanical screening areas that would interrupt existing views of the Santa Cruz Mountain Range; however, the increased development would represent a small portion of the overall vista. Views from all of the scenic

viewpoints generally tend to focus away from the West Campus and more towards the north, where views encompass panoramic and expansive scenery of the marsh, salt ponds, Bay, and the East Bay Hills. Since Bayfront Expressway and other manmade features, such as large transmission towers and lines, are located between the salt ponds and the West Campus, the views facing south towards the West Campus are not as significant as those facing north.

It is also important to note that the views of the West Campus change as the viewer adjusts position. As the viewer approaches the site along the BCDC Shore Trail or Bay Trail, the development would appear larger and would block a greater amount of background views. However, the development at the West Campus would appear smaller against the backdrop of the mountains as the viewer retreats away from the site. For example, from Viewpoint 1, the ridgeline of the Santa Cruz Mountain Range would be unobstructed even with the development of the West Campus buildings. However, as the viewer travels south along the BCDC Shore Trail, the buildings would appear larger and would block the majority of the mountains, including the ridgeline. Therefore, since the viewer would be in motion along these trails, background views would be different from any given location.

Although the development at the West Campus would considerably increase height, mass, and bulk at the site, this change would not have a significant impact on scenic vistas. As stated above, the scenic vistas from these sensitive viewer locations are mainly facing north, away from the West Campus; therefore, the proposed buildings would not significantly alter the scenic vistas. As such, the proposed development at the West Campus would have a ***less-than-significant*** impact on scenic vistas from the BCDC Public Shore Trail, the Bay Trail, and Bayfront Park.

AE-2 ***Degradation of Existing Visual Character or Quality.*** *The Project at the West Campus could substantially alter the existing visual character. However, compliance with the City's design review and landscaping requirements would help reduce the potential aesthetic degradation of the visual character of the surroundings. Therefore, this impact would be less than significant. (LTS)*

For the purposes of this analysis, as it relates to the West Campus, a substantial degradation of the existing visual character or quality would occur if the Project would introduce a new visible element that would be inconsistent with the overall quality, scale, and character of the surrounding development. The analysis considers the degree of contrast between the proposed features and existing features that represent the area's valued aesthetic image, in addition to the degree to which the West Campus development would contribute to the area's aesthetic value. This analysis examines the changes in visual character and quality of the site itself, and also examines how the Project at the West Campus would change the existing visual character and quality, as seen from sensitive areas surrounding the Project site.

Impacts to On-site Character or Quality. The West Campus is not a visually significant area since it consists of two office buildings, a surface parking lot for 347 vehicles, a guard house, landscaped islands with mature trees, and paved surfaces covered in patches of weeds and

groundcover. The vacant buildings, unmanaged vegetation, and unkempt land that do not complement the natural quality of the salt ponds and marshes to the north or the Belle Haven neighborhood to the south. The mix of uses in this area, which includes the office complex of the East Campus to north, residential uses to the south, and office/light-industrial uses to the west, generally results in an inconsistent visual pattern.

The Project would redevelop the West Campus with five separate main buildings arranged with the long axis of each building along an east-west orientation. In total, the five main buildings and the amenities buildings would consist of approximately 440,000 sf. The office buildings would be organized around a courtyard consisting of open spaces, landscaped areas, ancillary buildings/meeting rooms, and pedestrian linkages. The site would also include a five-story parking structure in the western portion of the site, adjacent to the existing TE Connectivity site.

Landscaping would be provided throughout the West Campus in a manner that supports sustainability goals, encourages active use of the outdoors, and reflects the various adjacent native environments. Four stormwater gardens would be located adjacent to the proposed buildings. These stormwater retention and treatment areas would serve as landscape elements to reduce drainage impacts and function as soil and plant-based filtration devices to remove pollutants through a variety of physical, biological, and chemical treatment processes.[12]

Currently, a dense vegetative barrier is present along the perimeter of the West Campus, providing a visual buffer between the site and Bayfront Expressway, Willow Road, portions of the Belle Haven neighborhood, and portions of the TE Connectivity site. The majority of these trees and shrubs would remain with implementation of the Project, continuing to obstruct views of the West Campus to outside areas.

There are 624 existing trees at the West Campus. Of these trees, 233 are considered to be "Heritage Trees," per Section 13.24 of the City's Municipal Code. Under the existing site plans, 91 Heritage Trees and 286 non-Heritage Trees would be removed. However, per the Municipal Code requirements, 147 trees would be planted to offset the Heritage Tree removal, which would result in 76 new trees at the West Campus in excess of the required heritage tree replacement. Of the 91 heritage trees to be removed, the majority are located in the interior of the site, rather than along the perimeter; therefore, the visual impact of their loss is reduced. The only perimeter vegetation that would be removed would be at the northwest corner of the site and along Willow Road.[13] As such, the majority of the existing vegetative barrier would remain with implementation of the Project.

While the development at the West Campus would substantially increase on-site building height, mass, and bulk, the Project would have a less-than-significant impact on on-site visual character. Currently, the site consists of vacant buildings, unmaintained vegetation, and unoccupied land that does not complement the natural quality of the salt ponds and marshes to

[12] San Mateo County, San Mateo Countywide Water Pollution Prevention Program, Chapter 6.1, page 68.
[13] Gensler, "Facebook @ Menlo Park," August 5, 2011.

the north and the Belle Haven neighborhood to the south. The proposed development at the West Campus would provide increased unity with its surroundings by creating contiguous landscape areas and buildings that reflect a similar architectural design.

Impacts on Public View Corridors. The public view corridors identified under Existing Conditions include Willow Road, Bayfront Expressway, and the residential areas of the Belle Haven neighborhood. In addition, the BCDC Public Shore Trail, the Bay Trail, and Bayfront Park also have public view corridors; however, these are considered scenic vistas and are discussed in detail under Impact AE-1, above.

Bayfront Expressway/Willow Road Intersection (Viewpoint 4). As shown in Figure 3.3-9a, foreground views from Bayfront Expressway facing southwest include the intersection of Bayfront Expressway/Willow Road and fairly unobstructed views of the northwest portion of the West Campus. The background features nearly panoramic views of the Santa Cruz Mountain Range. With development of the proposed buildings at the West Campus, the buildings would obstruct the majority of the Santa Cruz Mountain Range from Viewpoint 4. As depicted in Figure 3.3-9b, Buildings 3 (66 feet) and T2 (47 feet) are visible in the foreground, while there are channelized views of portions of Buildings 1, 2, and 4. These multi-story structures would add significant height and bulk at the southwest corner of Bayfront Expressway/Willow Road. However, this viewpoint is not considered sensitive. These roadways are highly-traveled and motorists only have fleeting views of the Santa Cruz Mountain Range due to the permitted speeds. Therefore, the views from the Bayfront Expressway/Willow Road Intersection do not constitute sensitive views and motorists along these corridors are not considered sensitive viewers, resulting in a less-than-significant impact.

Belle Haven Neighborhood (Viewpoints 5 and 6). As discussed above, the Belle Haven neighborhood mainly features single-family residential units setback from the streets with mature and well-maintained landscaping. Due to the flat topography, existing structures, and dense vegetation, background views of the areas surrounding the Belle Haven neighborhood are not visible. However, as shown in Figure 3.3-10a and Figure 3.3-11a, streets that run perpendicular to Hamilton Avenue, such as Hollyburne Avenue and Madera Avenue, have channelized view corridors of the West Campus.

With implementation of the Project, the taller buildings (Buildings 1, 2, and 3) would be set back from the Belle Haven neighborhood and along Bayfront Expressway in order to reduce the visual impacts to the neighborhood. The parking garage and Buildings 4 and 5 would be the most visible from the Belle Haven neighborhoods. From Viewpoint 5 at Hollyburne Avenue (Figure 3.3-10b), the 53-foot-tall Building 5 would be visible beyond the light-industrial uses that abut the Dumbarton Rail Corridor to the south. However, the majority of Building 5 would be blocked by existing vegetation along the right-of-way that would remain with implementation of the Project. In addition, the terracotta tiled roof of one of the existing West Campus buildings is currently visible, as shown in Figure 3.3-10a. With implementation of the Project, this building would be demolished and replaced by the entry court. As such, although a new building would be added, the increase in building mass from this view would not be

substantial due to the demolition of the existing structure and the intervening vegetation and structures. Therefore, the impact is less than significant.

Viewpoint 6 from Madera Avenue (Figure 3.3-11b) would include views mainly of the 53-foot-tall Building 4. In addition, the rooftops of the other proposed buildings on the campus would also be visible. Nonetheless, the proposed buildings would be visually separated from the Belle Haven neighborhood by existing mature vegetation in the neighborhood and along the Dumbarton Rail Corridor and other dominant structures. Although no existing West Campus development is currently visible from Madera Avenue, as shown in Figure 3.3-11a, the increase in building mass would be less than significant.

Overall Degradation of Existing Visual Character or Quality. While the Project at the West Campus would substantially increase on-site building height, massing, and bulk, the Project would have a less-than-significant impact on on-site visual character. Currently, the site consists of a partially vacant lot with two unused buildings, unmaintained vegetation, and broken pavement. The Project would replace the abandoned site with new buildings, enhanced landscaping, and bicycle/pedestrian amenities that would complement the existing office development at the East Campus and the TE Connectivity site. The proposed site plan at the West Campus would provide increased unity with its surroundings by creating contiguous landscape areas and buildings that reflect a similar architectural design.

Although it is unknown at this time what types of façade articulation and architectural design will be used for the buildings, it is expected that they will be harmonious with each other and their surroundings. The buildings would likely develop an architectural language of massing, materiality, transparency of façade, and interconnectivity of buildings that links the campus visually to its broader context. The design of the parking structure would also attempt to reduce the visual impact of the structure with architectural elements, such as step-backs, trellises and other features. In addition, the Project Sponsor would be required to adhere to the City's architectural review, as outlined in Section 16.68.020 of the Municipal Code and described above.

Implementation of the Project would substantially change the visual character of the site, but would not significantly alter the character of the surrounding areas due to the dense perimeter vegetation and flat topography. As such, although the upper levels of the proposed buildings would be visible from surrounding areas, this would not change the overall views to the extent that the visual character of the area would be substantially different. Therefore, the Project would have a ***less-than-significant*** impact on the overall degradation of existing visual character and quality and may be considered an improvement over existing conditions.

AE-3 ***New Sources of Light and Glare.*** *The Project at the West Campus could create new sources of light or glare that could adversely affect day or nighttime views. Therefore, this impact would be potentially significant. (PS)*

Exterior Lighting. Exterior lighting would be added to an area where there currently is little to no lighting. The West Campus is visible from Bayfront Expressway and Willow Road and could serve as a nuisance or distraction to the motorists. Increased lighting at the site could also impact residents in the Belle Haven neighborhood.

Proposed development at the West Campus would include nighttime lighting from vehicles, the interior streets, the parking lots, buildings, and security. The increase in buildings heights would make building lights more visible to motorists along Bayfront Expressway and Willow Road and residents in Belle Haven, but some of the interior lights would be screened by the perimeter vegetation and potentially by window overhangs and awnings.

Due to the urbanized nature of the surrounding area to the south and west, a significant amount of ambient nighttime lighting currently exists, affecting views of the nighttime sky. However, areas to the north and east, which include the salt ponds, marshes, the East Campus, and open spaces, contain a limited amount of nighttime lighting. The lighting performance standards set by Leadership in Energy and Environmental Design (LEED) would be followed and light pollution would be considered. Energy-efficient site lighting and design to meet the Illuminating Engineering Society of North America (IESNA) lighting density and control standards would attempt to minimize light pollution. Nonetheless, the increase in buildings and on-site activity at the West Campus would result in a ***potentially significant*** increase in lighting in the area.

Glare from Buildings. Glare is caused by light reflections from pavement, vehicles, and building materials, such as reflective glass and polished surfaces. During the daylight hours, the amount of glare depends on the intensity and direction of sunlight. Glare can create hazards to motorists and nuisances for bicycles/pedestrians and other sensitive viewers.

With implementation of the Project, highly reflective surfaces at the West Campus could pose the most significant impacts along major road corridors, such as Bayfront Expressway and Willow Road. At this time, the types of building materials and glass surfaces are unknown. As such, it is conservatively assumed that the Project at the West Campus would result in ***potentially significant*** glare impacts.

Vehicle Headlights. The proposed five-story parking garage would be located immediately adjacent to the light-industrial uses to the south and east and the Belle Haven neighborhood to the south. In addition, the parking structure would be visible to motorists traveling along Bayfront Expressway. As such, light and glare from vehicle headlights on the levels of aboveground parking could be a nuisance to occupants of the surrounding light-industrial uses and the residential uses, and motorists on Bayfront Expressway.

There are currently no proposed design and architectural features for the parking structure; therefore, it can be assumed that vehicle headlights from the parking garage could spill onto adjacent properties. The exterior wall of the parking structure could conceal headlights of most sedans, but it is not certain that the walls could obstruct lighting from higher vehicles that would also use the garage. Light and glare impacts from vehicle headlights within the aboveground parking levels would, therefore, be ***potentially significant***.

MITIGATION MEASURES. Implementation of Mitigation Measure AE-3.1, AE-3.2, and AE-3.3 would reduce potential light and glare impacts at the West Campus to a ***less-than-significant*** level. (LTS)

AE-3.1 *Design Lighting at the West Campus to Meet Minimum Safety and Security Standards*. Concurrent with the building permit submittal, the Project Sponsor shall incorporate lighting design specifications to meet minimum safety and security standards. The comprehensive site lighting plans shall be subject to review and approval by the Planning Division prior to building permit issuance of the first building on that site. The following measures shall be included in all lighting plans:

- Luminaries shall be designed with cutoff-type fixtures or features that cast low-angle illumination to minimize incidental spillover of light onto adjacent private properties. Fixtures that shine light upward or horizontally shall not spill any light onto adjacent private properties.
- Luminaries shall provide accurate color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color-corrected shall not be used, except as part of an approved sign or landscape plan.
- Luminary mountings shall be downcast and pole heights minimized to reduce potential for back scatter into the nighttime sky and incidental spillover light onto adjacent properties and undeveloped open space. Light poles shall be no higher than 20 feet. Luminary mountings shall be treated with non-glare finishes.

AE-3.2 *Treat Reflective Surfaces at the West Campus*. The Project Sponsor shall ensure application of low-emissivity coating on exterior glass surfaces of the proposed structures. The low-emissivity coating shall reduce visible light reflection of the visible light that strikes the glass exterior and prevent interior light from being emitted brightly through the glass.

AE-3.3 *Provide Obstruction for Glare from Vehicle Headlights in the West Campus Garage*. The Project Sponsor shall ensure that the design for the parking garage provides concrete barriers and/or landscaping along the entire perimeter of all parking levels of the garage. These barriers shall be at a height so that glare from vehicle headlights is screened from off-site viewers.

AE-4 ***New Sources of Shadows.*** *Shadows cast by the proposed structures at the West Campus would not shade open spaces or public areas for an extended period and are, therefore, considered to be less than significant. (LTS)*

Significant shading of public open spaces could be considered an adverse impact if new shadows change the usability or comfort of a space. Recreational fields, pathways, plazas, and courtyards within the Project site are considered to be private open spaces. As such, these areas are not considered in the analysis. However, the Bay Trail, which is located to the north of Bayfront Expressway, is the closest public area to the West Campus that could be affected.

Shadow simulations have been created for critical periods of the day during March 20 (Spring equinox), June 21 (Summer solstice), September 23 (Fall equinox), and December 22 (Winter solstice) to depict the maximum and minimum shadows cast by the Project at the West Campus. Shadow impacts are most noticeable during the day between 9:00 a.m. and 3:00 p.m. To estimate the shade effects throughout the year, the shadow simulations include 9:00 a.m., 12:00 p.m., and 3:00 p.m. The shadow simulations are presented in Figure 3.3-12 through Figure 3.3-15.

As shown in the figures, no public parks, open space areas, or private residences would be affected by shadows cast by the proposed office buildings and parking structure. The only shadows cast off-site by the Project would be towards Bayfront Expressway. At 3:00 p.m. on the Winter solstice (Figure 3.3-15), the Project would cast shadows onto all lanes of Bayfront Expressway. However, impacts on Bayfront Expressway would be less than significant because the shadows would be noticeable for only a few seconds by motorists. As shown in Figure 3.3-15, the only shadows from the West Campus that would reach the Bay Trail would be from the existing transmission towers. Since this is an existing condition and would not be altered with implementation of the Project, there would be no shadow impacts on the Bay Trail from the proposed development at the West Campus.

As depicted in Figure 3.3-12 through Figure 3.3-15, shadows would be restricted to the West Campus during the Summer solstice and the Spring and Fall equinoxes, resulting in no shadow spillage onto adjacent properties or public spaces. The shadows during the Winter solstice would extend to just north of Bayfront Expressway, but as explained above, this would not be considered significant since it would not impact public open space. As such, the Project would result in ***less-than-significant*** shadow impacts.

March 20, 9 am

March 20, 12 pm

March 20, 3 pm

NORTH
NOT TO SCALE

Source: Gensler, 2011.

ATKINS

FIGURE 3.3-12
Spring Equinox (March 20) Shadows

June 21, 9 am

June 21, 12 pm

June 21, 3 pm

NORTH
NOT TO SCALE

Source: Gensler, 2011.

ATKINS

FIGURE 3.3-13
Summer Solstice (June 21) Shadows

September 23, 9 am

September 23, 12 pm

September 23, 3 pm

NORTH
NOT TO SCALE

ATKINS

FIGURE 3.3-14
Fall Equinox (September 23) Shadows

Source: Gensler, 2011.

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Menlo Park Facebook Campus Project

December 22, 9 am

December 22, 12 pm

December 22, 3 pm

NORTH
NOT TO SCALE

ATKINS

FIGURE 3.3-15
Winter Solstice (December 22) Shadows

Source: Gensler, 2011.

Cumulative Impacts

The geographic context for cumulative aesthetic impacts is generally confined to areas visible to and from the Project site that could combine to cause a cumulative impact. For the Project, the cumulative context includes the West Campus plus adjacent development along Bayfront Expressway and in the Belle Haven neighborhood. Proposed projects in the City on the other side of US 101 are not included because the distance, flat topography, and intervening development serve as a visual barrier between the two areas. As such, the cumulative analysis only includes development to the north and east of US 101.

As with the Project analysis above, the cumulative analysis does not include the East Campus, since the changes at the East Campus would not result in visual impacts. No exterior alterations at the East Campus would be implemented with the Project; therefore, the cumulative analysis below only includes the development at the West Campus in combination with proposed Tier 1 and Tier 2 projects, as listed in Section 3.1.

C-AE-1 ***Cumulative Alteration of Scenic Views.*** *The Project at the West Campus, in combination with other foreseeable development in the surrounding area, would not have a significant cumulative impact on scenic views. (LTS)*

Tier 1

The West Campus is visible from the BCDC Public Shore Trail, the Bay Trail, and Bayfront Park. In addition, the West Campus development would be visible from public corridors such as Bayfront Expressway, Willow Road, and the Belle Haven neighborhood. Tier 1 projects that could be visible from these areas include the Menlo Gateway Project to the east, the police station along Willow Road to the south, and the residential development at 297 Terminal Avenue to the southeast. Due to the flat topography, distance, intervening vegetation and development, and the relatively low-scale characteristics of the proposed development at 1283 Willow Road and 297 Terminal Avenue, it is unlikely that these projects would be visible from the BCDC Public Shore Trail, the Bay Trail, and Bayfront Park. The police station and the residential development would both be visible from select locations in the Belle Haven neighborhood. Given the distance of these projects from the West Campus, there would be no cumulative impact from viewer locations in the Belle Haven neighborhood. Therefore, the Project, in combination with these projects, would not result in a cumulative impact on scenic views and vistas.

Due to the large-scale development under the Menlo Gateway Project along Bayfront Expressway, it is likely that both the West Campus buildings and the Menlo Gateway buildings would be visible from all three scenic areas and, potentially, the Belle Haven neighborhood. From the BCDC Public Shore Trail and the Bay Trail segment across Bayfront Expressway from the West Campus, the buildings at the West Campus would be in the foreground to middleground views, while the buildings at the Menlo Gateway site would appear in the background views. From Bayfront Park and the Bay Trail segment

across Bayfront Expressway from the Menlo Gateway site, the buildings at the Menlo Gateway site would appear in the foreground, while the West Campus buildings would appear in the background. Views from the Belle Haven neighborhood have the potential to include both sites; however, this would be restricted to certain locations due to distance and flat topography.

The West Campus and the Menlo Gateway site are approximately one mile apart. As such, depending on the view point, the closer development would appear as a dominant feature, while the other development would appear to blend with surrounding vegetation, Bayfront Expressway, intervening structures, and its general surroundings. As discussed above, development at the West Campus would not result in a significant Project-level impact to scenic views or vistas. Therefore, the Project, together with the Menlo Gateway Project, would not result in a cumulative impact on scenic vistas. The Project's cumulative impacts would be ***less than significant***.

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. The projects to the north and east of US 101 include the East Palo Alto Specific Plan, the Saltworks Project, and the Dumbarton Rail Corridor Project. Due to flat topography and distance from the Project site, it is unlikely that these projects, especially development contemplated under the East Palo Alto Specific Plan, would be visible from the portions of the BCDC Public Shore Trail and the Bay Trail adjacent to the Project site. Although the Saltworks Project would be adjacent to Bayfront Park, the Project would be on the other side of the park. As such, viewers would need to look east for views of the West Campus and look west for views of the Saltworks Project; in other words, viewers could not see both sites together from a single vantage point and there would be no cumulative impact from development of the Tier 2 projects and the Project on scenic views.

In addition, a station for the Dumbarton Rail Corridor could be constructed at a location along its right-of-way. At this time, it is expected that the station will be to the south of the Dumbarton Rail Corridor and to the east of Willow Road, approximately 0.17 miles southeast of the West Campus.[14] The height and bulk of the station is currently unknown. Due to the close proximity, if the station is large enough to be visible from the surrounding area, this could result in a significant cumulative visual impact. However, since this project is speculative, visual impacts are unknown at this time. Therefore, cumulative impacts from Tier 2 projects are considered ***less than significant***.

[14] City of Menlo Park Administrative Services Department, Staff Report #11-180, "Discuss and Confirm the Selection of the Site for the Future Dumbarton Transit Station in Menlo Park," November 1, 2011.

C-AE-2 ***Cumulative Degradation of Visual Character or Quality.*** *The Project at the West Campus, in combination with other foreseeable development in the surrounding area, would not have a significant cumulative impact on visual character or quality. (LTS)*

Tier 1

Cumulative Tier 1 projects consist of four residential developments, nine non-residential, and two mixed-use projects. Only cumulative projects that are in the immediate vicinity of the Project site could contribute to degradation of the visual character or quality of the existing neighborhood. The other cumulative projects are too far from the Project site to combine with the Project to degrade visual character or quality; the majority of the Tier 1 projects are clustered near and in the downtown, Atherton, and the Linfield Oaks area, and three projects are far to the south in West Menlo Park and Stanford Hills. The public view corridors identified under Existing Conditions include Willow Road, Bayfront Expressway, and the residential areas of the Belle Haven neighborhood. Thus, for purposes of this analysis, the projects visible from these view corridors at 1283 Willow Road, the Menlo Gateway Project, and the 297 Terminal Avenue projects are considered together with the Project to determine the Project's cumulative impact on visual character and quality.

Most projects in the City are required to undergo architectural review pursuant to Section 16.68.020 of the Municipal Code. Any proposal for a new structure, addition to an existing structure, or change to the exterior of a structure that requires a building permit (with the exception of single-family dwellings, duplexes, and accessory buildings) requires that the Planning Commission conduct architectural control review to ensure that the general appearance of the structures is in keeping with character of the neighborhood. Thus, the Tier 1 projects would be expected to be consistent with architectural and design guidelines and would not substantially degrade the visual character or quality of their surroundings. As described above, the existing West Campus consists of vacant buildings, unmanaged vegetation, and unkempt land that does not complement the natural quality of the salt ponds and marshes to the north or the Belle Haven neighborhood to the south. The proposed development at the West Campus would provide increased unity with its surroundings by creating contiguous landscape areas and buildings that reflect a similar architectural design. Therefore, the Project, together with the Tier 1 projects, would not result in a substantial degradation of visual character or quality of the surroundings, and the cumulative impact would be ***less than significant.***

Tier 2

The Tier 2 projects that could cumulatively contribute to a degradation of visual character or quality of the surrounding neighborhood are those in proximity to the Project site. These would include the Saltworks, the East Palo Alto Specific Plan, and the Dumbarton Rail Corridor projects. The Saltworks project would develop approximately half of a 1,436-acre property in the City of Redwood City to the northwest of the Project site with housing, retail and commercial uses, with half dedicated for habitat/wetlands, parks, a sports field

complex, and multi-use open space and waterways. The East Palo Alto Specific Plan would guide development in this area, and would permit a mix of residential, retail, R&D/industrial, office, civic, and park/trail uses. The Dumbarton Rail Corridor project passes through several jurisdictions and abuts the West Campus. In addition, a station for the Dumbarton Rail Corridor project could be constructed approximately 0.17 miles southeast of the West Campus. However, it is unknown at this time whether the station would actually be constructed and, if constructed, how large it could be.

The General Plans of Redwood City and East Palo Alto contain design goals and policies that address historic preservation and the design of buildings, civic uses, public ways, public art, and infrastructure.[15,16] These policies, in addition to provisions in their Municipal Codes, provide design and architectural standards to promote compatibility of development and aesthetic design. Similarly, development along the Dumbarton Rail Corridor would be subject to the General Plans and Municipal Codes of the jurisdictions through which it passes, including Redwood City, Menlo Park, and East Palo Alto. The potential station along near West Campus would require compliance with the Section 16.68.020 of the City's Municipal Code. Adherence to these policies would ensure that development of the cumulative projects would be compatible with adjacent development and pleasing from an aesthetic standpoint. As noted, the proposed development at the West Campus would provide increased unity with its surroundings by creating contiguous landscape areas and buildings that reflect a similar architectural design. Therefore, the Project, together with the Tier 2 projects, would not result in a substantial degradation of visual character or quality of the surroundings, and the cumulative impact would be ***less than significant.***

C-AE-3 ***Cumulative Sources of Light and Glare.*** *Implementation of the Project at the West Campus, in combination with foreseeable development, would not create new sources of light or glare that could adversely affect day or nighttime views. Therefore, this impact would be less than significant. (LTS)*

Tier 1

Cumulative development or redevelopment could include direct illumination of Project structures, features, and/or walkways, and could increase ambient nighttime lighting levels in the Project area. The proposed police station and new residential development in the Belle Haven neighborhood (as discussed above) would not likely contribute to cumulative light and glare impacts due to the small-scale development and the low amount of lighting that would be used at these sites.

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[15] City of Redwood City, General Plan, The Built Environment Element: Urban Form and Land Use, adopted October 11, 2010, website: http://www.redwoodcity.org/phed/planning/generalplan/FinalGP/01.2_Built_Environment_Urban_Form_Lnd_Use.pdf, accessed September 26, 2011.

[16] City of Palo Alto, Comprehensive Plan, Chapter 2: Land Use and Community Design, revised July 17, 2007, website: http://cityofpaloalto.org/civica/filebank/blobdload.asp?BlobID=8170, accessed September 26, 2011.

Menlo Gateway is large enough to contribute to a cumulative lighting impact and would include direct illumination of project structures, features, and/or walkways, as well as increased light and glare from vehicle headlights entering and exiting the site. Building surfaces could also increase glare if they are reflective or if the structures contain large expanses of windows. Since the final design of Menlo Gateway is unknown, the increase in ambient nighttime lighting levels and glare in the area could be significant, even though a substantial amount of ambient light and glare currently exists as a result of the urbanized nature of the area. This is a potentially significant impact. Similar to the Project, Menlo Gateway would be required to comply with all requirements of the Municipal Code with respect to lighting and architectural surfaces. However, Mitigation Measures AE-3.1, AE-3.2, and AE-3.3, as listed above, would reduce potential Project-level and cumulative light and glare impacts at the West Campus, and the Project's contribution to a cumulative light and glare impact would not be cumulatively considerable. Therefore, the Project's cumulative impact associated with ambient nighttime light and glare would be ***less than significant***.

Tier 2

Only the Tier 2 projects that are in the immediate vicinity of the Project site would contribute to a cumulative light and glare impact. The Tier 2 projects to the north and east of US 101 include the East Palo Alto Specific Plan, the Saltworks Project, and the Dumbarton Rail Corridor Project. Light and glare effects diminish with distance from the source and must be viewed directly in order to affect the viewer. In addition, the Project area is subject to a substantial level of light and glare due to its urbanized nature. Given the distance of the Tier 2 projects from the Project site and intervening structures and vegetation, these projects would likely not cumulate with the Project to result in substantial increases of light and glare that would affect daytime or nighttime views. All Project impacts with regard to light and glare are reduced to less than significant through mitigation measures. Therefore, the Project's cumulative impact would be ***less than significant.***

C-AE-4 ***Cumulative Shadow Impacts.*** *Shadows cast by the proposed structures at the West Campus, in combination with other foreseeable development, would not shade open spaces or public areas for an extended period and are, therefore, considered to be less than significant. (LTS)*

Tier 1 and Tier 2

Shadows from the development at the West Campus would extend over an extremely small geographic area and no foreseeable projects would result in shadow impacts in combination with the Project. The shadow impacts of the Project would be restricted to the interior of the West Campus and a small portion of Bayfront Expressway and, therefore, would not directly combine with shadows from other proposed projects in the area.

Although shadows from identified related projects would not overlap with shadows from the Project, there could be an overall increase of shadows in the area. The proposed police station, multi-family residential development, and the Dumbarton Rail Station are not expected to increase shadows in the area due to their probable limited mass and height. However, shadows in the Project area could be increased by the Menlo Gateway Project, which would allow buildings up to 140 feet in height. The shadows from Menlo Gateway could have the potential to extend across Bayfront Expressway to the Bay Trail and Bayfront Park to the north. As such, Menlo Gateway has the potential to affect public open spaces. However, as stated above, the shadows from the proposed structures on the West Campus would not extend to adjacent public open spaces, such as the Bay Trail. The Project would not contribute considerably to any cumulative shadow impacts. Therefore, this cumulative impact is considered ***less than significant***.

3.4 WIND

Introduction

This section describes wind conditions in the Project area and at the Project site. This section provides a general discussion of the relationship between building design and wind effects and evaluates the potential for the West Campus to result in adverse wind conditions in public areas. The analysis presented below is based on the Wind Impact Evaluation for the Menlo Park Facebook Campus Project prepared by Donald Ballanti.[1] The Wind Impact Evaluation is included in Appendix 3.4 of this document. No comments were received in response to the Notice of Preparation (NOP) (Appendix 1) or public scoping meetings with regard to potential wind impacts from implementation of the Project.

The change in the Conditional Development Permit (CDP) for the East Campus would not result in wind impacts. Therefore, Project impacts at the East Campus are not discussed further in this section.

Applicable Plans and Regulations

There are no applicable federal, State, or local regulations associated with the effect of development on wind conditions.

Existing Conditions

Wind Setting

Wind is an important factor in determining pedestrian comfort and safety. The Bay Area is noted for its cool, windy climate that, combined with frequent stratus clouds, can make outdoor space uncomfortably cool. The usability of outdoor space, parks, and even the success of retail space is partially determined by wind conditions. In the Bay Area, average wind speeds are greatest in the summer and least in the fall.[2] Winds also exhibit a diurnal variation with the strongest winds occurring in the afternoon and lightest winds occurring in the early morning.

Building Aerodynamics

The construction of a building can result in severe distortion of the wind field because the building acts as an obstacle to wind flow. The deceleration of wind on the upwind side of the structure creates an area of increased atmospheric pressure, while an area of decreased atmospheric pressure develops on the downwind side. Accelerated winds generally occur on the upwind face of the building, particularly near the upwind corners. The downwind side has generally light, variable winds. Where two buildings are close together, the areas of accelerated wind may overlap within the gap between the two

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1 Donald Ballanti, Certified Consulting Meteorologist, *Wind Impact Evaluation for the Menlo Park Facebook Campus Project*, August 26, 2011.

2 Donald Ballanti, Certified Consulting Meteorologist, *Wind Impact Evaluation for the Menlo Park Facebook Campus Project*, August 26, 2011.

structures. The strength of ground-level wind accelerations near buildings is controlled by exposure, massing, and orientation of the structure.

Exposure is a measure of the extent that the building extends above surrounding structures or terrain into the wind stream. A building that is surrounded by taller structures or sheltered by terrain is not likely to cause adverse wind accelerations at ground level, while even a comparatively small building could cause wind effects if it is freestanding and exposed.

Massing is important in determining wind impact because it controls how much wind is intercepted by the structure and whether building-generated wind accelerations occur above-ground or at ground level. In general, slab-shaped buildings have the greatest potential for wind acceleration effects. Buildings that have an unusual shape, rounded faces, or utilize set-backs have a lesser wind effect. A general rule is that the more complex the building is geometrically, the lesser the probable wind impact at ground level.

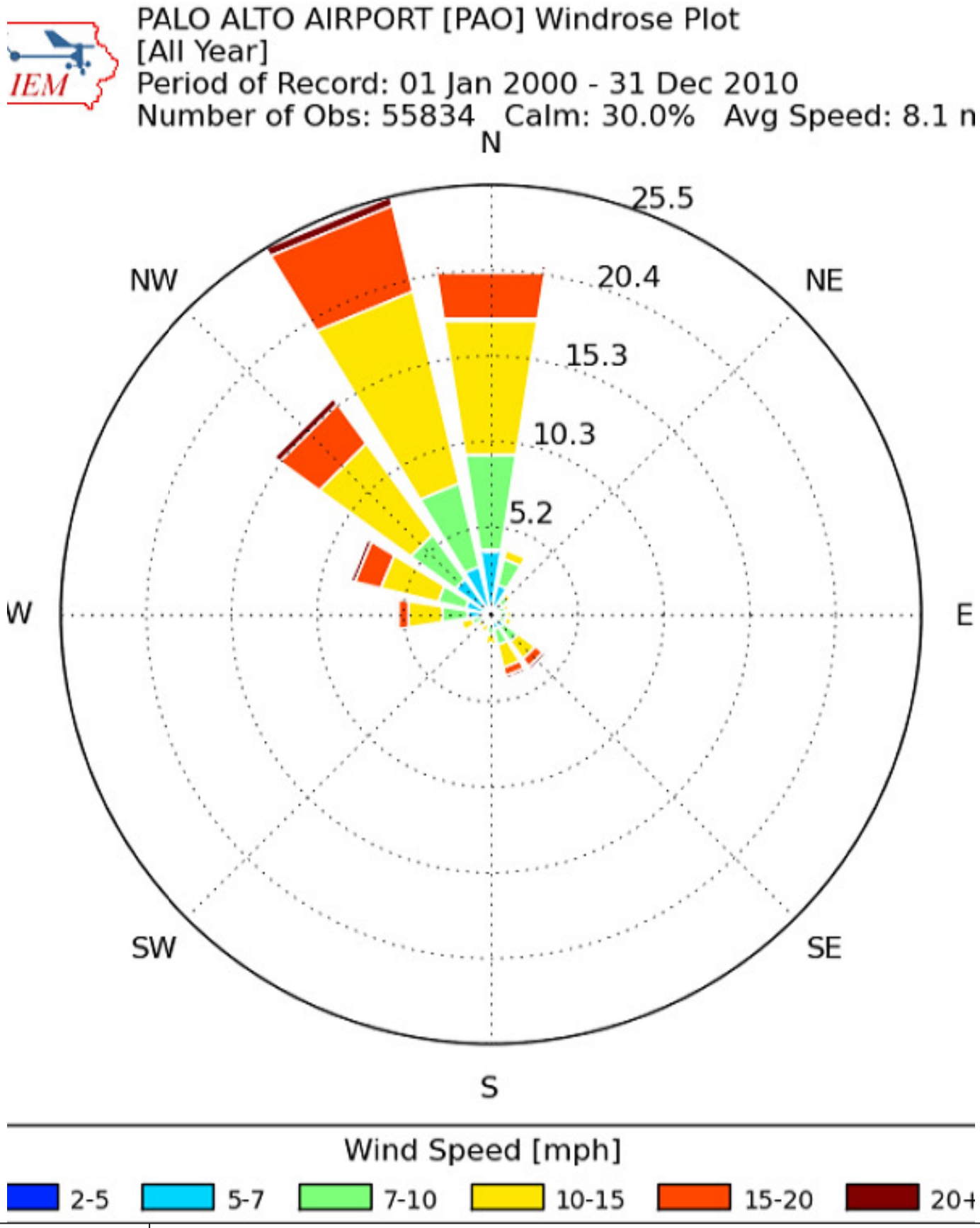
Building orientation determines how much wind is intercepted by the structure, a factor that directly determines wind acceleration. In general, buildings that are oriented with the wide axis across the prevailing wind direction will have a greater impact on ground-level winds than a building oriented with the long axis along the prevailing wind direction.

Existing Conditions at the Project Site

The closest wind monitoring station to the Project site is at the Palo Alto Airport approximately 2.25 miles to the south. The Palo Alto Airport has an exposure to winds off San Francisco Bay (Bay) similar to that of the Project site. As there are no intervening terrain features, winds measured at the Palo Alto Airport are considered representative of conditions at the Project site. Figure 3.4-1 shows a wind rose for the Palo Alto Airport, based on data from all times of day and all months of the year. As shown in Figure 3.4-1, the prevailing winds at the Palo Alto Airport, and similarly at the Project site, are northwest to north winds. Under existing conditions, neither the East Campus nor the West Campus has protection from these prevailing winds due to a lack of intervening terrain, buildings, and vegetation.

The existing, built features at the East Campus include nine buildings clustered near the center of the site with pedestrian and outdoor spaces running roughly southwest to northeast between the structures. The five wind-exposed structures on the northwest side of the pedestrian/outdoor corridor create four gaps between buildings that are aligned along northwest to north-northwest directions. All four of these gaps have two-story porous wind fences to control adverse wind conditions within the central pedestrian/outdoor corridor.

Existing development at the West Campus includes two vacant office buildings totaling 127,246 square feet (sf) with a maximum height of 35.4 feet. In addition, the western portion of the site includes a surface parking lot with 347 parking stalls, landscape features, a basketball court, and a guard house. The eastern portion of the site does not include structures and mainly consists of previously developed land with minimal vegetation. However, a dense landscape buffer of mature vegetation surrounds the perimeter of the West Campus.



Source: Don Ballanti, 2011.

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FIGURE 3.4-1
Palo Alto Airport Wind Rose

Pedestrian and bicycle trails are located in the vicinity of the Project site. As shown in Figure 2-4 (Project Description), a Bay Conservation and Development Commission (BCDC) Public Shore Trail borders the East Campus and runs along the perimeter of the site. In addition, west of Willow Road, the Bay Trail travels along the northern side of Bayfront Expressway. East of Willow Road, the Bay Trail continues along the southern side of Bayfront Expressway. There are no other public access areas in the immediate vicinity of the Project site.

Impacts and Mitigation Measures

Standards of Significance

CEQA does not list any specific criterion for the evaluation of wind effects associated with a project. Some larger cities in the Bay Area (City of San Francisco and City of Oakland) have established both standards and criteria for the evaluation of wind impacts, these standards are applicable in zoning districts where high rise structures are permitted. CEQA significance levels in San Francisco and Oakland are based on pedestrian hazard.

The City of Menlo Park has not established any CEQA significance thresholds for wind. For this analysis, the Project is considered to have a potentially significant impact if the Project would:

- Alter wind patterns in a manner that adversely affects the comfort of a public area.

Methodology

The potential for accelerated winds was evaluated based on a review of site exposure, building heights, and building orientations to identify locations where exposure, massing, or orientation to the prevailing winds would suggest that increased winds would affect pedestrian spaces.

WD-1 ***Wind Impacts.*** *Implementation of the Project at the West Campus would not change the existing wind conditions at the Project site in a manner that would adversely affect the comfort of a public area, resulting in less-than-significant impacts. (LTS)*

The West Campus has little shelter from northwest to north prevailing winds. It is likely that areas within the West Campus would experience accelerated winds due to the increased height, bulk, and alignment of the proposed buildings. Although there would be common outdoor areas for employees, there would be no areas on the West Campus open to the public.

Wind effects from development at the West Campus would not extend into surrounding neighborhoods to the south or create an uncomfortable or hazardous environment along the Bay Trail along Bayfront Expressway. Because development of the West Campus would not result in adverse wind effects on public areas, this impact is considered ***less than significant***.

Cumulative Impacts

In general, the effect of land development on wind conditions is site-specific and does not alter regional wind patterns. Therefore, the geographic context considered in evaluating the cumulative effect of the Project, in combination with other reasonable foreseeable development on wind conditions is the Project site and immediately adjacent areas.

C-WD-1 ***Cumulative Wind Impacts.*** *The Project, in combination with other foreseeable development in the Project area, would have a less-than-significant impact on cumulative wind conditions in public areas. (LTS)*

Tier 1 and Tier 2

Of the cumulative projects considered for this analysis, the cumulative Tier 1 projects closest to the Project site include an office/retail development at 1283 Willow Road, Menlo Gateway, and a 21-unit residential development at 297 Terminal Avenue. The Tier 2 projects are not located close enough to the Project site to cumulatively affect wind conditions, with the exception of a potential rail station as part of the Dumbarton Rail Corridor Project. With the exception of Menlo Gateway approximately 1.5 miles from the Project site, none of these projects would include high-rise buildings and, thus, would not likely result in significant wind-related impacts. Therefore, these cumulative development projects would not be expected to substantially alter wind conditions adjacent to public areas, such as parks, trails, or sidewalks. Although Menlo Gateway includes multi-story buildings that could alter local wind conditions, Bayfront Park (the closest public designated area) to the north is approximately 2,500 feet from Menlo Gateway and would not be substantially affected by local wind impacts. Therefore, there would be no significant cumulative problem with respect to wind.

Wind effects from development at the West Campus would not extend into surrounding neighborhoods to the south, or create an uncomfortable or hazardous environment along the Bay Trail to the north of Bayfront Expressway. Therefore, the Project, together with the identified cumulative projects, would not result in wind conditions in the vicinity of the Project site that would impact the comfort of public areas. The Project's cumulative impact would be ***less than significant***.

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3.5 TRANSPORTATION

Introduction

This study provides an evaluation of traffic and transportation issues resulting from the implementation of the Project. The information is based on current traffic volumes and traffic demand models prepared for this Draft EIR by DKS Associates. The transportation analysis for the Project was prepared according to the methodology detailed in the Menlo Park Transportation Impact Analysis (TIA) Guidelines from November 2003 and from the San Mateo County Congestion Management Program (CMP) Guidelines. Potential impacts to intersections, local roadway segments, highways, transit, bicycle, and pedestrian facilities were evaluated following these standards, methodologies, and significance criteria. Particular attention is given to vehicular impacts to transportation facilities located within the City of Menlo Park, the City of East Palo Alto, the City of Palo Alto, and the Town of Atherton.

In response to the Notice of Preparation (NOP), the California Department of Transportation (Caltrans), the Bay Trail, Citizens Committee to Complete the Refuge, City of East Palo Alto, East Palo Alto Bicycle Club, and the Silicon Valley Bicycle Coalition each expressed interest in reviewing the Draft EIR when it is available for public review and comment. The NOP comments expressed concern regarding the increase in traffic and potential conflicts with the City's General Plan goals and policies, impacts to the Willow Road/US 101 interchange, impacts to the Bay Trail, and impacts to bicycle and pedestrian facilities near the Project site. All of these concerns are addressed in this section.

The following conditions were evaluated as part of this study:

- Existing Conditions
- Near Term 2015 Condition
- Near Term 2015 East Campus Only Condition
- Near Term 2018 Condition
- Near Term 2018 East Campus and West Campus Condition
- Cumulative 2025 Condition
- Cumulative 2025 East Campus Only Condition
- Cumulative 2025 East Campus and West Campus Condition

Applicable Plans and Regulations

Regulatory Setting

Metropolitan Transportation Commission. The Metropolitan Transportation Commission (MTC) was created by the California state Legislature in 1970 as the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area (Bay Area). It is responsible for prioritizing regional transportation projects through the Regional Transportation Improvement Program (RTIP) for state and federal funding. This prioritization is accomplished through coordination with local agencies and CMPs and through the demonstration of need, feasibility, and conformance with federal and local transportation policies.

City of Menlo Park General Plan. The *Menlo Park General Plan* provides the framework for transportation planning within the City. The General Plan establishes goals related to the sustainability, reliability, and safety for all modes of transportation based on existing practices and future needs due to changes in land use, population changes, and influences of regional and local transportation planning policies. These transportation-related goals and policies are included in the Circulation and Transportation Element of the *Menlo Park General Plan* and include the following:

> **Goal II-A:** To maintain a circulation system using the Roadway Classification System that will provide for the safe and efficient movement of people and goods throughout Menlo Park for residential and commercial purposes.
>
> *Policy II-A-1:* Level of Service D (40 seconds average stopped delay per vehicle) or better shall be maintained at all City-controlled signalized intersections during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and at intersections along Willow Road from Middlefield Road to US 101.
>
> *Policy II-A-2:* The City should attempt to achieve and maintain average travel speeds of 14 miles per hour (Level of Service D) or better on El Camino Real and other arterial roadways controlled by the State and at 46 miles per hour (Level of Service D) or better on US 101. The City shall work with Caltrans to achieve and maintain average travel speeds and intersection level of service consistent with standards established by the San Mateo County Congestion Management Plan.
>
> *Policy II-A-4:* New development shall be restricted or required to implement mitigation measures in order to maintain the levels of service and travel speeds specified in Policies II-A-1 through II-A-3.
>
> *Policy II-A-8:* New development shall be reviewed for its potential to generate significant traffic volumes on local streets in residential areas and shall be required to mitigate potential significant traffic problem.
>
> **Goal II-B:** To promote the use of public transit.

Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects.

Policy II-B-2: As many activities as possible should be located within easy walking distance of transit stops, and transit stops should be convenient and close to as many activities as possible.

Goal II-C: To promote the use of alternatives to the single occupant automobile.

Policy II-C-1: The City shall work with all Menlo Park employers to encourage the use of alternatives to the single occupant automobile in their commute to work.

Policy II-C-2: The City shall provide information to existing and new Menlo Park employers to assist their employees in identifying potential carpools, transit alternatives and other commute alternatives.

Policy II-C-6: The City shall, to the degree feasible, assist Menlo Park employers in meeting the Average Vehicle Ridership (AVR) targets established by the Bay Area Air Quality Management District.

Policy II-C-7: Commuter shuttle service between the industrial work centers and the Downtown Transportation Center should be maintained and improved, within fiscal constraints. The City shall encourage SamTrans and other agencies to provide funding to support shuttle services.

Goal II-D: To promote the safe use of bicycles as a commute alternative and for recreation.

Policy II-D-2: The City shall, within available funding, work to complete a system of bikeways within Menlo Park.

Policy II-D-4: The City shall require new commercial and industrial development to provide secure bicycle storage facilities on-site.

Goal II-E: To promote walking as a commute alternative and for short trips.

Policy II-E-1: The City shall require all new development to incorporate safe and attractive pedestrian facilities on-site.

Policy II-E-2: The City shall endeavor to maintain safe sidewalks and walkways where existing within the public right-of-way.

Policy II-E-3: Appropriate traffic control shall be provided for pedestrians at intersections.

Policy II-E-4: The City shall incorporate appropriate pedestrian facilities, traffic control, and street lighting within street improvement projects to maintain or improve pedestrian safety.

City of Menlo Park Bicycle Development Plan. The 2005 Comprehensive Bicycle Development Plan (Bike Plan) provides a broad vision, strategies and actions for the improvement of bicycling in the

City. The goals of the Bike Plan provide the context for the specific policies and actions discussed in the Bike Plan. The goals provide the long-term vision and serve as the foundation of the Bike Plan, while the policies of the Bike Plan provide more specific descriptions of actions to undertake to implement the Bike Plan.

The following are the relevant bicycle-related goals and policies:

> **Goal 1:** Expand and Enhance Menlo Park's Bikeway Network
>
> *Policy 1.1:* Complete a network of bike lanes, bike routes, and shared use paths that serve all bicycle user groups, including commuting, recreation, and utilitarian trips.
>
> **Goal 2:** Plan for the Needs of Bicyclists
>
> *Policy 2.1:* Accommodate bicyclists and other non-motorized users when planning, designing, and developing transportation improvements.
>
> *Policy 2.2:* Review capital improvement projects to ensure that needs of bicyclists and other non-motorized users are considered in programming, planning, maintenance, construction, operations, and project development activities.
>
> *Policy 2.3:* Encourage traffic calming, intersection improvements, or other similar actions that improve safety for bicyclists and other non-motorized users.
>
> *Policy 2.4:* Require developers to adhere to the design standards identified in this Comprehensive Bicycle Development Plan.
>
> **Goal 3:** Provide for Regular Maintenance of the Bikeway Network
>
> *Policy 3.3:* Develop a program to ensure that bicycle loop detectors are installed at all signalized intersections on the bike network and are tested regularly to ensure they remain functional.
>
> **Goal 4:** Encourage and Educate Residents, Businesses and Employers in Menlo Park on Bicycling
>
> *Policy 4.6:* Encourage major Menlo Park employers and retailers to provide incentives and support facilities for existing and potential employees and customers that commute by bicycle.
>
> *Policy 4.9*: Promote bicycling as a healthy transportation alternative.

San Mateo County Comprehensive Bicycle and Pedestrian Plan. The City/County Association of Governments of San Mateo County (C/CAG), with support from the San Mateo County Transportation Authority (SMCTA) have developed the 2011 *San Mateo County Comprehensive Bicycle and Pedestrian Plan* (CBPP) to addresses the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance.

The following are the relevant goals and policies:

> **Goal 2:** More People Riding and Walking for Transportation and Recreation
>
> *Policy 2.6:* Serve as a resource to county employers on promotional information and resources related to bicycling and walking.
>
> **Goal 4:** Complete Streets and Routine Accommodation of Bicyclists and Pedestrians
>
> *Policy 4.1:* Comply with the complete streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.
>
> *Policy 4.5:* Encourage local agencies to adopt policies, guidelines, standards and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area.
>
> *Policy 4.6:* Discourage local agencies from removing, degrading or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative.

City/County Association of Governments of San Mateo County Congestion Management Program 2009. C/CAG, as the Congestion Management Agency for San Mateo County, is required to prepare and adopt a CMP on a biennial basis. The purpose of the CMP is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions.

The CMP is required to be consistent with the MTC planning process that includes regional goals, policies, and projects for the Regional Transportation Improvement Program (RTIP). The 2009 CMP, which is developed to be consistent with MTC's Transportation 2035 Plan, provides updated program information and performance monitoring results for the CMP roadway system.

The San Mateo County CMP roadway system is comprised of 53 roadway segments and 16 intersections, including roadway segments and intersections along state highways in The City.

Roadway Segment Level of Service Standards: The following level of service (LOS) standards apply to the roadway segments.

- If the existing (1990/91) LOS was F, then the standard was set to be LOS F.
- If the existing or future LOS was or will be E, then the standard was set to be LOS E.
- The standard for roadway segments near the San Francisco, Santa Clara, and Alameda County borders, with one exception, was set to be LOS E to be consistent with the recommendations in those counties' 1991 CMPs. (This standard would apply unless those roadway segments were already operating at LOS F.)

- On State Route (SR) 82 (El Camino Real), the standard was set to be LOS E.
- For the remaining roadway segments, the standard was set to be one letter designation worse than the LOS projected for the year 2000.

The roadway segment Level of Service Standards adopted by the C/CAG to monitor attainment of the CMP support the following objective:

The LOS Standards established for San Mateo County vary by roadway segment. By adopting LOS standards based on geographic differences, the C/CAG signaled that it intends to use the CMP process to prevent future congestion levels in San Mateo County from getting worse than currently anticipated. At the same time, the variations in LOS standards by geographic area conform to current land use plans and development differences between the coastside and bayside, between older downtowns near Caltrain stations and other areas of San Mateo County.

Level of Service Standards for CMP Roadway Segments:

- SR 84 from U.S. 101 to Willow Road, LOS D
- SR 84 from Willow Road to University Avenue, LOS E
- SR 84 from University Avenue to Alameda County Line, LOS F
- US 101 from Whipple Avenue to Santa Clara County Line, LOS F
- SR 109 from Kavanaugh Drive to SR 84 (Bayfront Expressway), LOS E
- SR 14 from U.S. 101 to SR 84 (Bayfront Expressway), LOS E

Level of Service Standards for CMP Intersections:

- Bayfront Expressway (SR 84)/University Avenue (SR 109), LOS F for AM and PM Peak Hours
- Bayfront Expressway (SR 84)/Willow Road (SR 114), LOS F for AM and PM Peak Hours
- Bayfront Expressway (SR 84)/Marsh Road, LOS F for AM and PM Peak Hours

Caltrans Implementation of Deputy Directive 64-R1: Complete Streets - Integrating the Transportation System. While there are no specific goals and policies of this Directive, local agencies are working in cooperation with Caltrans to further the intent of the Deputy Directive. Deputy Directive 64-Revision #1: Complete Streets: Integrating the Transportation System (DD-64-R1) was signed on October 2, 2008. The California Department of Transportation (Department) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System (SHS). The Department views all transportation improvements (new and retrofit) as opportunities to improve safety, access, and mobility for all travelers and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system. Bicycle, pedestrian, and transit travel is facilitated by

creating "complete streets" beginning early in system planning and continuing through project delivery, maintenance, and operations.

Providing complete streets increases travel options which, in-turn, reduces congestion, increases system efficiency, and enables environmentally sustainable alternatives to single driver automotive trips. Implementing complete streets and other multi-modal concepts supports the California Complete Streets Act of 2008 (AB 1358), as well as the California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 375, which outline the State's goals of reducing greenhouse gas emissions. With AB 1358 and DD-64-R1, both Caltrans and local agencies are working to complete and address common goals.

Existing Conditions

Study Intersections and Roadway Segments

This study was prepared according to the methodology recommended in the TIA Guidelines (City of Menlo Park, 2003). City staff selected 34 intersections for analysis, as these are the intersections that would potentially be impacted by the Project. The analysis of intersections concentrated on the peak AM and PM commute times for a typical weekday. Several of these intersections are located outside of the City or are under the jurisdiction of Caltrans as indicated by parentheses. The study intersections include the following:

1. Marsh Road and Bayfront Expressway (State)
2. Marsh Road and US 101 northbound ramps (State)
3. Marsh Road and US 101 southbound ramps (State)
4. Marsh Road and Scott Drive
5. Marsh Road and Bohannon Drive
6. Marsh Road and Bay Road
7. Marsh Road and Middlefield Road (Atherton)
8. Willow Road and Bayfront Expressway (State)
9. Willow Road and Hamilton Avenue (State)
10. Willow Road and Ivy Drive (State)
11. Willow Road and O'Brien Drive (State)
12. Willow Road and Newbridge Street (State)
13. Willow Road and Bay Road (State)
14. Willow Road and Durham Street
15. Willow Road and Coleman Avenue
16. Willow Road and Gilbert Avenue

17. Willow Road and Middlefield Road
18. University Avenue and Bayfront Expressway (State)
19. University Avenue and O'Brien Drive (State)
20. University Avenue and Kavanaugh Drive (State)
21. University Avenue and Bay Road (State)
22. University Avenue and Runnymede Street (State)
23. University Avenue and Bell Street (State)
24. University Avenue and Donohoe Street (East Palo Alto)
25. US 101 northbound ramps and Donohoe Street (State)
26. University Avenue and US 101 southbound ramps (State)
27. University Avenue and Woodland Avenue (East Palo Alto)
28. University Avenue and Middlefield Road (Palo Alto)
29. Bayfront Expressway and Chrysler Drive (State)
30. Bayfront Expressway and Chilco Street (State)
31. Middlefield Road and Ravenswood Avenue
32. Middlefield Road and Ringwood Avenue
33. Middlefield Road and Lytton Avenue (Palo Alto)
34. Bayfront Expressway and West Campus Project Driveway (State)

In addition, the impacts related to average daily traffic (ADT) added to local street segments were analyzed. Jurisdictions other than City of Menlo Park are denoted within parentheses for each study segment. The following ten segments were analyzed:

1. Marsh Road between Bay Road and Railroad Tracks
2. Willow Road between Ivy Drive and Hamilton Avenue
3. Willow Road between Durham Street and Chester Street
4. Willow Road between Nash Avenue and Blackburn Avenue
5. University Avenue between Railroad Tracks and Purdue Avenue
6. University Avenue between Bell Street and Runnymede Street (East Palo Alto)
7. University Avenue between Maple Street and Palm Street (Palo Alto)
8. Middlefield Road between Linfield Drive and Survey Lane
9. Middlefield Road between Hawthorne Avenue and Everett Avenue (Palo Alto)
10. O'Brien Drive between Adams Drive and Casey Court

Roadway Network

The existing roadway network within the Project vicinity is illustrated in Figure 3.5-1. A mix of primary arterials, minor arterials, collector, and local streets run through the study area.

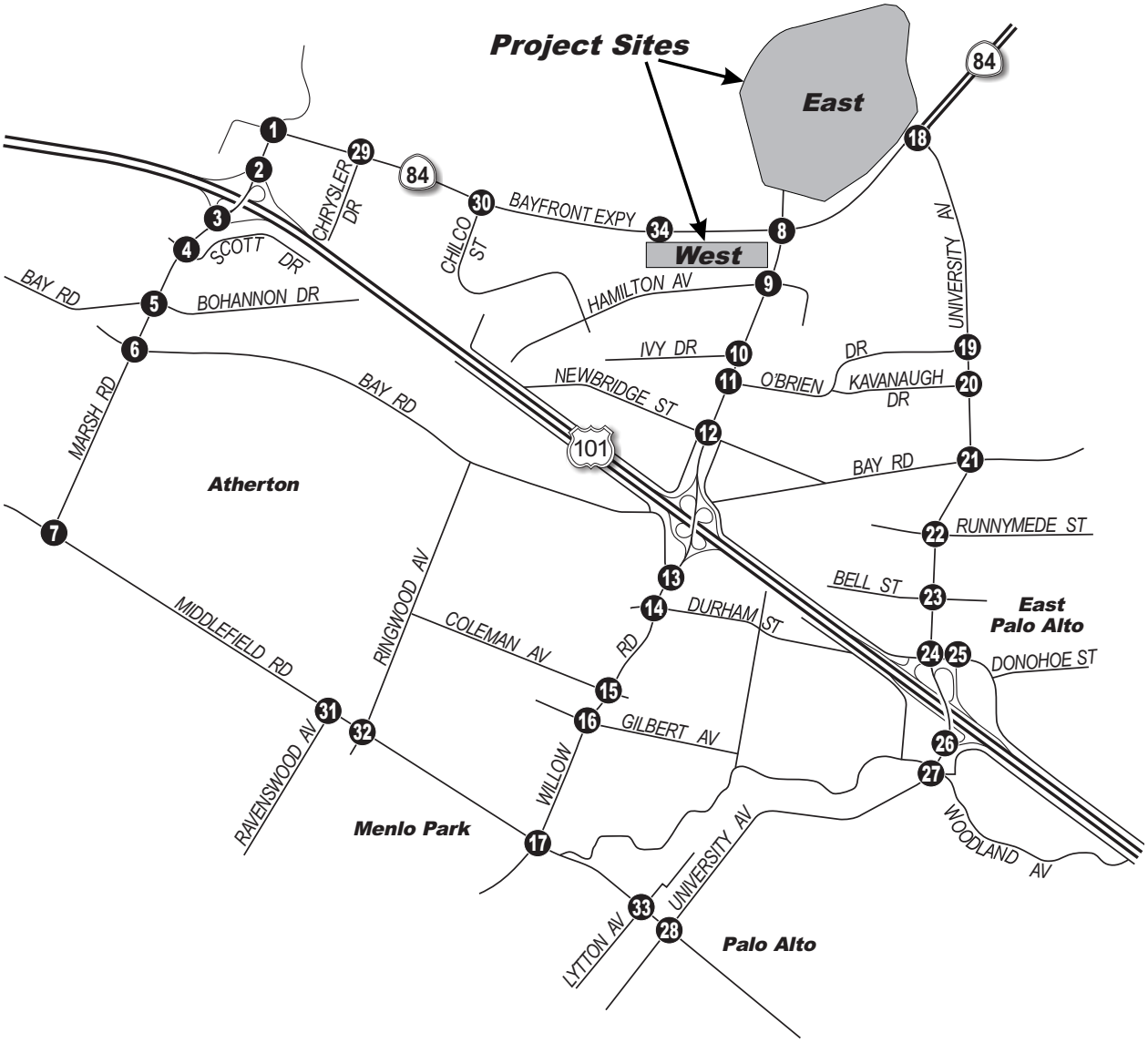
Primary arterial streets within the Project area include Marsh Road between Bohannon Drive and Bayfront Expressway, University Avenue between the City limits and Bayfront Expressway, and Willow Road between US 101 and Bayfront Expressway. Minor arterial streets near the Project site include Marsh Road between Bay Road and Bohannon Drive, Middlefield Road between the northern and southern city limits, and Willow Road between Middlefield Road and US 101.

A number of collector streets serve the Project vicinity. These include Bay Road between Willow Road and Marsh Road, Bohannon Drive between Marsh Road and Scott Drive, Chilco Street between Constitution Drive and Bayfront Expressway, Chrysler Drive between Constitution Drive and Bayfront Expressway, Hamilton Avenue between Chilco Street and Willow Road, Haven Avenue between Marsh Road and the City limit, Ringwood Avenue between Middlefield Road and the City limit. More detailed descriptions of the main study area roadways are included in the following paragraphs.

US 101 - US 101 runs between Los Angeles, California and Olympia, Washington and is a major regional freeway on the San Francisco Peninsula. One lane of the freeway in each direction is dedicated to high occupancy vehicles (HOV lane). US 101 is an eight-lane freeway running in the north-south direction approximately one mile west of the Project site. Access points near the Project site are located at Marsh Road, Willow Road, and University Avenue. The speed limit along US 101 near the Project site is 65 miles per hour. The US 101 auxiliary lane project would include adding auxiliary lanes in the northbound and southbound directions between the Marsh Road intersection and the University Avenue interchange and is currently under construction.

Bayfront Expressway (SR 84) - Bayfront Expressway is under Caltrans jurisdiction. It is a divided roadway with three lanes in each direction connecting Marsh Road with the Dumbarton Bridge. In the area of the City, SR 84 runs in a north-south direction. Each of the intersections along Bayfront Expressway is signalized with the exception of one unsignalized intersection between Chilco Street and Willow Road. The free-flow movements of Bayfront Expressway are not disrupted at this unsignalized intersection except for those making a westbound left-turn onto the currently unoccupied West Campus, west of Bayfront Expressway. On-street parking is not permitted on Bayfront Expressway and the speed limit is 50 mph.

Marsh Road - Marsh Road is an east-west roadway between Middlefield Road and Bayfront Expressway in the Town of Atherton and the City of Menlo Park. It is a primary arterial between Bohannon Drive and Bayfront Expressway. Between US 101 and Bayfront Expressway, there are three lanes in each direction and two lanes in each direction between Bohannon Drive and US 101. No on-street parking is permitted between Bohannon Drive and Bayfront Expressway and the speed limit is 35 miles per hour. Marsh Road between Bay Road and Bohannon Drive is a minor arterial with typically



LEGEND

1 - Study Intersection

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-1
Study Area Map

two lanes in each direction, on-street parking permitted in some areas, and a speed limit of 35 miles per hour. Marsh Road is a local road between Middlefield Road and Bay Road with generally one travel lane in each direction, on-street parking permitted in some areas, and a speed limit of 30 miles per hour.

Willow Road - Willow Road is an east-west street and is classified as a primary arterial between US 101 and Bayfront Expressway with two travel lanes and Class II bicycle lanes in each direction. This section is designated as SR 114 and State-controlled. On-street parking is not permitted and the speed limit is 40 miles per hour. East of US 101, Willow Road services commercial and residential areas. Willow Road at Bayfront Expressway serves as an access point for the East Campus. Between Middlefield Road and US 101, Willow Road is a two-lane street and is classified as a minor arterial. On-street parking is permitted in some areas along this segment and the speed limit is 25 miles per hour. West of US 101, Willow Road generally serves residential areas. Class II bicycle lanes exist along Willow Road between Middlefield Road and the railroad tracks south of Bayfront Expressway with an interruption at the US 101 interchange.

University Avenue - University Avenue is a two-lane street west of US 101 and a four-lane street east of US 101. The road runs in the east-west direction and is classified as a primary arterial between City limits and Bayfront Expressway. Between US 101 and Bayfront Expressway, University Avenue is State-controlled and designated as SR 109, with a speed limit of 40 miles per hour. West of US 101, University Avenue has a speed limit of 25 miles per hour. University Avenue serves residential and commercial areas east of US 101 and mainly residential areas west of US 101. On-street parking is allowed on most sections of the roadway west of US 101, and Class II bicycle lanes are present between Middlefield Road and Bayfront Expressway except for a section between O'Keefe Street and Newbridge Street.

Middlefield Road - Middlefield Road is a two- to four-lane, north-south, minor arterial roadway that runs through the City and the Town of Atherton and connects to the Cities of Palo Alto and Mountain View. Middlefield Road has two lanes north of Ringwood Avenue and four lanes south of Ringwood Avenue. Near Marsh Road in the Town of Atherton, one lane of traffic operates in each direction. On-street parking is not permitted on Middlefield Road and the speed limit is 30 mph. Middlefield Road provides access mainly to residential, office, and school areas. There are Class II bicycle lanes along Middlefield Road.

Routes of Regional Significance Roadway Network

The San Mateo County Congestion Management Program Land Use Analysis Program guidelines require that Routes of Regional Significance be evaluated to determine the impact of added Project-generated trips for projects that create more than 100 net peak hour trips. The Routes of Regional Significance that are in the study area are SR 84, SR 109, SR 114, and US 101. Access between US 101 and the Project site is via Marsh Road and Bayfront Expressway (SR 84); Willow Road (SR 114); and University Avenue (SR 109). From the East Bay, the Dumbarton Bridge (SR 84) is utilized.

These Routes of Regional Significance are currently operating at or close to their respective level of service Standard. The LOS indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance with LOS A at the low end equating to free flow of traffic LOS F at the high end equating to heavy congestion. As detailed in the 2009 Congestion Management Program Monitoring Report (CMP, Fehr and Peers, September 2009) the segments of US 101 and SR 84 operated at LOS F, and SR 109 and SR 114 operated at LOS E for the AM and PM peak hours.

Transit Facilities

Bus service in the Project vicinity is primarily provided by the San Mateo County Transit District (SamTrans). AC Transit, the Santa Clara Valley Transportation Authority (VTA), and Stanford University also have bus routes in the Project vicinity.

SamTrans provides seven routes within the study area:

- Route 270 serves the Redwood City Caltrain Station, Kaiser Hospital, Seaport Village, Harbor Village, and the City along Marsh Road. Route 270 travels along Bay Road onto Marsh Road and continues along Haven Road/Bayshore Road, within the Project area. Transfers can be made to SamTrans routes 295, KX, 390, 271, 274, 295-297, 391, 397, and onto the Redwood City Caltrain. It operates on weekdays with one hour headways with service from 6:34 a.m. until 7:23 p.m. On weekends, it operates with one hour headways from 9:35 a.m. until 6:12 p.m.
- Route 83 serves the City and Atherton. It travels along Bay Road from Marsh Road onto Willow Road, Ringwood Road, and onto Middlefield Road within the Project area. It only operates on school days with limited service.
- Route 281 provides the closest stop to the Project site, and travels along Newbridge Road and Bay Road to University Avenue. Route 281 serves the Stanford Shopping Center, the Palo Alto Caltrain Station, East Palo Alto, and the Onetta Harris Community Center. Transfers onto SamTrans routes 290, 296, 280, KX, 390, and onto the Dumbarton Express (described below) occur along this route. On weekdays, it operates with thirty minute headways until approximately 7:00 p.m. when it switches to one hour headways. Service is available from 5:41 a.m. until 10:39 p.m. in the northbound direction and from 5:53 a.m. until 10:09 p.m. in the southbound direction. Weekend service is available with thirty minute headways from 7:55 a.m. until 6:31 p.m. in the northbound direction and 8:05 a.m. until 7:04 p.m. in the southbound direction.
- Route 297 serves Redwood City and Palo Alto. The route travels along Middlefield Road onto Willow Road through Newbridge Road continuing onto University Avenue. Transfers can be made to SamTrans routes 270, 271, 274, 280, 281, 295, 296, 390, 391, and onto VTA lines. The Palo Alto Caltrain, Dumbarton Express, and Marguerite shuttle (operated by Stanford University) can also be accessed along this route. On weekdays, there are four trips for each of the northbound and southbound directions. The northbound direction operates from 10:45 a.m. until 5:21 p.m. with trips departing the Palo Alto Caltrain station at 10:45 a.m., 11:45 a.m., 3:45 p.m., and 4:45 p.m. The southbound direction operates with one hour headways from

10:43 a.m. until 2:20 p.m. On the weekends, it operates with one hour headways from 6:45 a.m. until 12:21 p.m. and from 3:45 a.m. until 8:21 p.m. in the northbound direction and from 7:43 a.m. until 2:20 p.m. and 6:43 p.m. until 9:20 p.m. in the southbound direction.

- Route 296 serves Redwood City, Atherton, the City, and East Palo Alto. In the study area, route 296 travels along Middlefield Road, onto Willow Road continuing on Bay Road. Transfer can be made to SamTrans routes 85, 270, 271, 274, 280, 281, 295, 297, 390, 391, 397, and KX. Transfers can also be made to the Redwood City and Menlo Park Caltrain. It operates on the weekdays with thirty minute headways from 5:32 a.m. until 10:58 p.m. in the northbound direction and from 6:34 a.m. until 10:09 p.m. in the southbound direction. It operates on the weekends with one hour headways from 8:51 a.m. until 6:35 p.m. in the northbound direction and from 9:58 a.m. until 7:42 p.m. in the southbound direction.
- Route 280 serves the Stanford Shopping Center, the Palo Alto Caltrain Station, East Palo Alto, and the Ravenswood Shopping Center. The route travels along University Avenue and Donohoe Street in the Project vicinity. Transfers to SamTrans routes 281, 291, 390, 391 as well as to VTA, Dumbarton Express, Palo Alto Caltrain, and Marguerite shuttle (operated by Stanford University) occur along this route. It operates with one hour headways from 6:00 a.m. until 11:07 p.m. in the northbound direction on the weekdays, from 5:25 a.m. until 11:39 p.m. in the southbound direction on the weekdays, from 8:10 a.m. until 6:47 p.m. in the northbound direction on the weekends, and 7:50 a.m. until 6:24 p.m. in the southbound direction on the weekends.
- Route 397 serves San Francisco, South San Francisco, the San Francisco Airport, Burlingame, San Mateo, Belmont San Carlos, Redwood City, and Palo Alto. Within the Project area, the route travels along Middlefield onto Willow Road through Newbridge Road and onto University Avenue. Transfers to SamTrans routes 250, 251, 270, 271, 274, 282, 292, 294, 295, 298, 359, 390, 391, and KX occur along this route. Transfers can also be made to BART, VTA, Palo Alto Caltrain, DB Express, Marguerite shuttle, Muni, AC Transit, and Golden Gate Transit. It is a late night service route that operates with one hour headways from 12:48 a.m. until 4:54 a.m. in the northbound direction and from 1:06 a.m. until 6:22 a.m. in the southbound direction.

AC Transit line U serves Stanford University, Palo Alto, Newark, Centerville District, and Fremont. Within the study area, the route travels along Willow Road and US 101. The route provides access to many VTA, SamTrans, and other AC Transit routes. The route also provides access to the Ardenwood Park and Ride facility, the ACE/Amtrak Centerville train station, and the Fremont BART station. The westbound schedule operates between 6:00 a.m. and 9:11 a.m. and between 2:50 p.m. and 7:08 p.m. in the eastbound direction.

VTA operates the Dumbarton Express routes DB/DB1/DB3, which serve Palo Alto, East Palo Alto, Menlo Park, and Union City. In the study area, the routes travel along University Avenue, US 101, and Willow Road onto SR 84, with the closest stop located at Willow Road and Hamilton Avenue. The Dumbarton Express operates between 6:32 a.m. and 8:48 p.m.in the eastbound direction and between

5:20 a.m. and 7:31 p.m.in the westbound direction. No other VTA routes travel through the study area but transfers onto VTA bus routes along SamTrans and Dumbarton Express bus routes are available.

Caltrain serves many cities along its route connecting San Francisco to Gilroy. The route also provides access to BART, the San Francisco International Airport, and the San Jose International Airport. The Project area can be accessed via the Palo Alto Station and connecting onto SamTrans routes 280, 281, 397 and VTA DB Express routes. The Project area can also be accessed via the Menlo Park Station connecting onto SamTrans routes 296 and 85. Thirty trains stop at the Menlo Park Station on weekdays in each of the northbound and southbound directions. There are four to five trains during the 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. peak periods in the northbound direction, and six trains during each of the AM and PM peak periods in the southbound direction. On weekends, there are fourteen to sixteen trains that stop at the station.

The City also operates shuttle services in the study area. The Menlo Park Caltrain Shuttle travels along Marsh Road and Middlefield Road. A second Caltrain Shuttle travels along Willow Road. The shuttle service is currently operating in the vicinity of the Project site during the morning and evening peak.

Stanford University operates the Marguerite Shuttle, a free public shuttle service which travels around campus and connects to nearby transit and common destinations.

The Stanford Menlo Park shuttle travels from campus to the Menlo Park Caltrain Station and then along Ravenswood Avenue to the Stanford clinics in Menlo Park. The shuttle operates on weekdays, except for holidays. Figure 3.5-2 details the existing transit and shuttle services in the area.

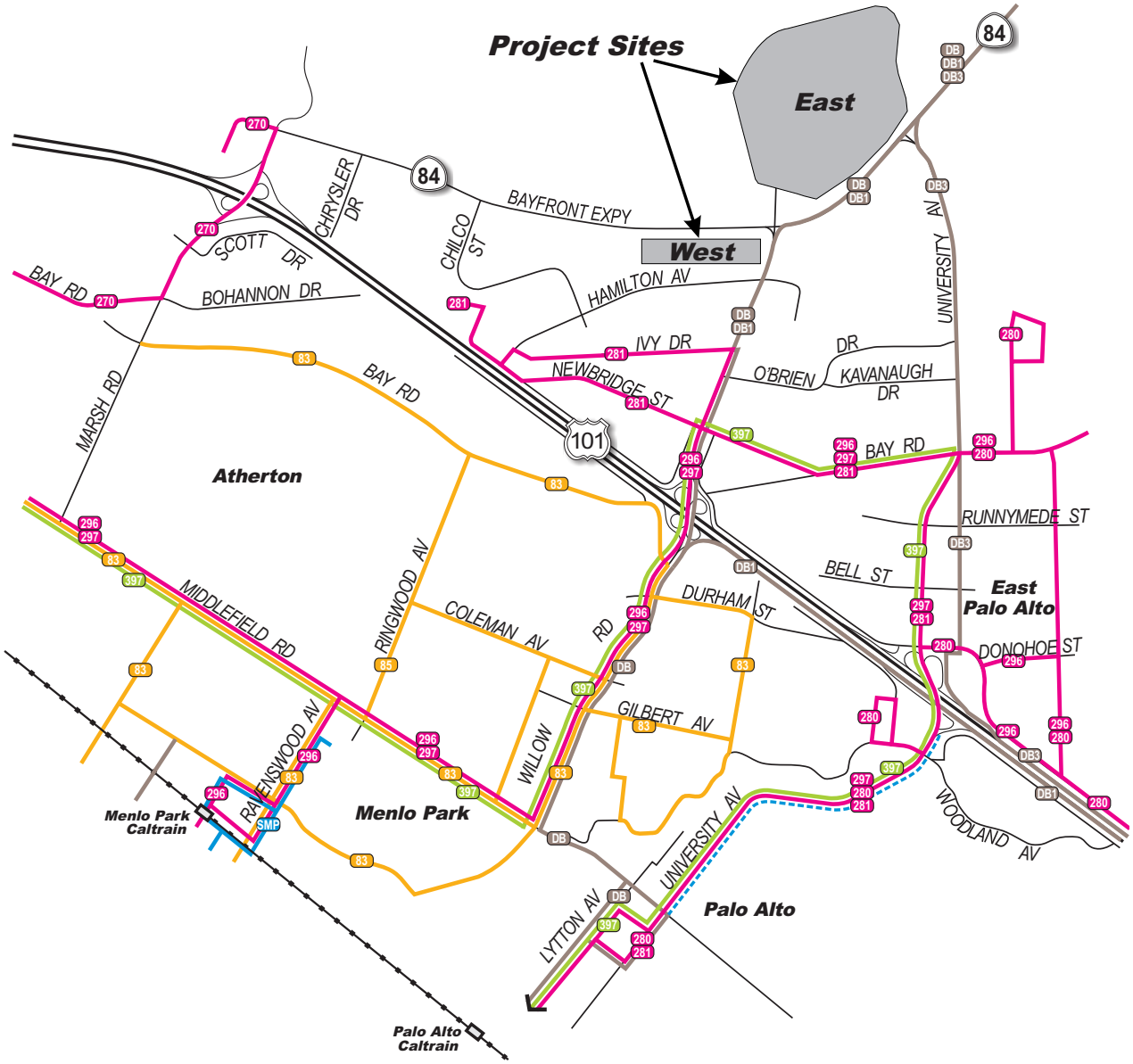
Bicycle and Pedestrian Facilities

There are three classifications of bicycle facilities:[1]

- Class I Bikeways (bike paths) are off-street facilities that are separated from motor vehicle traffic. They may be shared with pedestrians and other non-motorized users.
- Class II Bikeways (bike lanes) are on-street facilities striped to designate right-of-way to bicyclists.
- Class III Bikeways (bike routes) are streets marked with signage for bicycle travel. Bicyclists on bike routes must share travel lanes with motorists.

In the vicinity of the Project, there is a Class I bicycle facility, the Bay Trail, along Bayfront Expressway between Haven Avenue and the Dumbarton Bridge. Also, the Bay Conservation & Development Commission (BCDC) Shoreline Trail follows the perimeter of the East Campus between the site and the San Francisco Bay (Bay).

[1] Per the California Vehicle Code, bikes are allowed on all streets unless expressly prohibited, but bikeways formalize preferred routes for cyclists.



LEGEND

SamTrans Routes

- 000 - Routes Connecting to Caltrain Stations
- 000 - Community Routes
- 000 - Routes Connecting to BART & Caltrain Stations
- DB3 - Dumbarton Bridge Service
- Caltrain Line & Stations
- SMP - Stanford Menlo Park Shuttle

NORTH
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FIGURE 3.5-2
Existing Shuttle and Transit Routes

Source: DKS, 2011.

No sidewalks are present along Bayfront Expressway and Willow Road adjacent to the Project site, but the Bay Trail runs parallel to Bayfront Expressway. The Bay Trail is a multiuse trail accommodating bicycles and pedestrians and is intended to encircle the entire Bay. Currently, approximately 300 miles of trail have been completed. The Bay Trail is a vital facility for recreation and commuting needs for area residents. Near the Project site, the Bay Trail runs along the west side of the Dumbarton Bridge and Bayfront Expressway to University Avenue. At University Avenue, the trail crosses Bayfront Expressway and runs along both sides of Bayfront Expressway to the right in-right out entrance to the East Campus. There is an at-grade signalized crossing at the intersection of Bayfront Expressway and Willow Road, and an existing but closed grade-separated undercrossing. North of Willow Road, the Bay Trail is located along the east side of Bayfront Expressway towards Marsh Road.

There are Class II bicycle facilities on Willow Road with an interruption across the US 101 interchange and on Bay Road ending just north of Willow Road. There are also Class II bicycle facilities along University Avenue between O'Brien Drive and Bayfront Expressway, and along Middlefield Road between Marsh Road and Willow Road. Ringwood Road has Class II facilities between Middlefield Road and Bay Road with a pedestrian/bicycle bridge across US 101. Chilco Street has Class II facilities between Hamilton Avenue and Bayfront Expressway.

In the immediate vicinity of the Project site, there are no bicycle lanes on the local and collector streets, cyclists share the roadways with vehicular traffic.

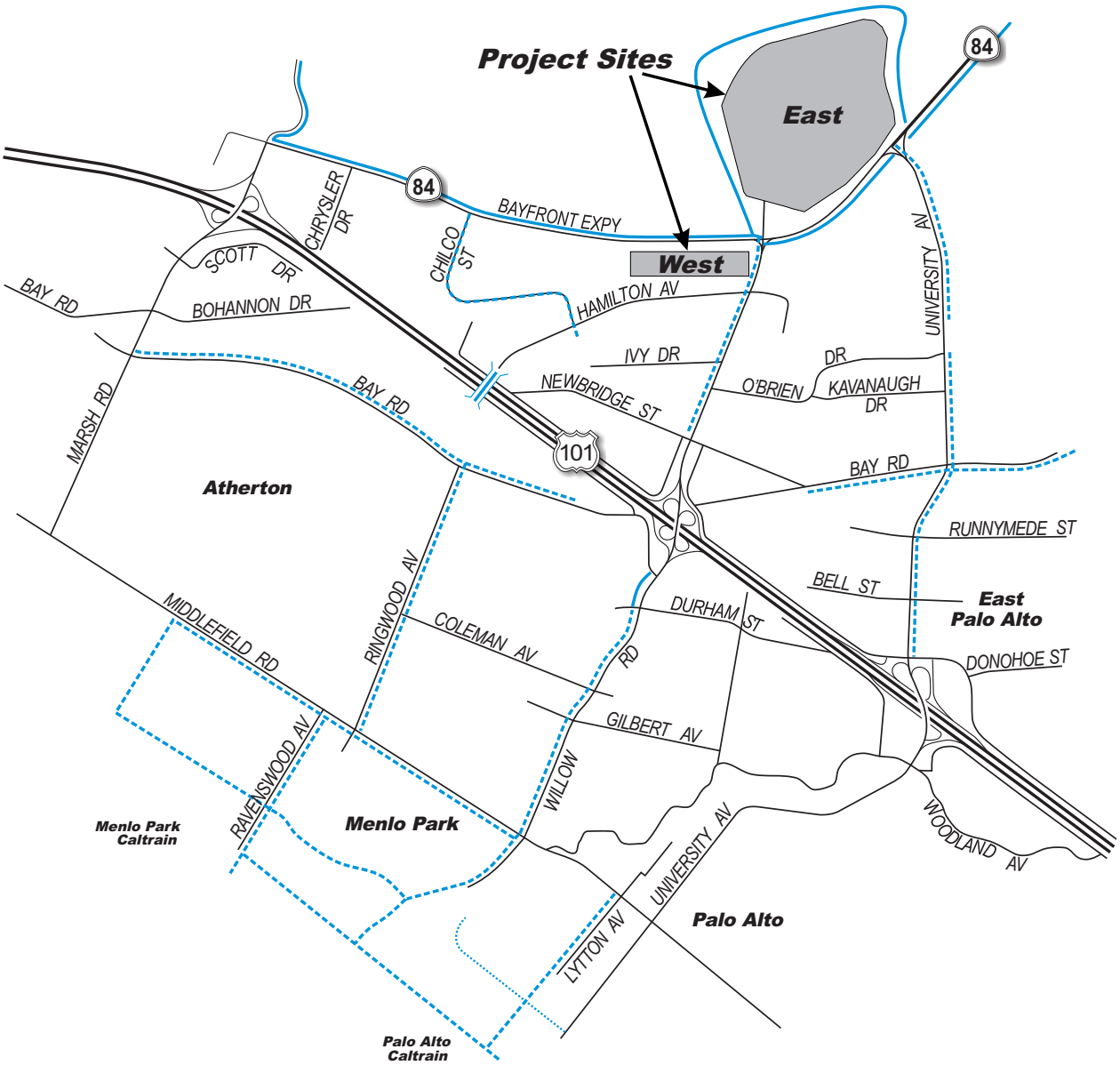
At the intersection of Willow Road and Bayfront Expressway, crosswalks with signals and push buttons exist and connect pedestrian facilities at the intersection. No sidewalk exists along the west side of Bayfront Expressway north of Willow Road or along the north side of Willow Road between Bayfront Expressway and just south of the railroad tracks north of Hamilton Avenue. Figure 3.5-3 details the existing bicycle and pedestrian facilities in the area.

Existing Traffic Demand and Levels of Service

Existing conditions at the study intersections during the AM and PM peak periods of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. were based on counts provided by City staff, collected in November 2010 for the 34 study intersections. Existing intersection lane geometrics are provided in Figure 3.5-4. Existing peak hour traffic volumes and average daily traffic (ADT) estimates for the study segments are provided in Figure 3.5-5 and Figure 3.5-6 respectively.

Existing peak hour intersection levels of service are summarized in Table 3.5-1. Detailed calculations are provided in Appendix 3.5-C. All study intersections currently operate at LOS D or better during the AM Peak hour with the exception of Willow Road and Middlefield Road, which operates at LOS E. During the PM peak hour, the intersections of Willow Road and Middlefield Road and Middlefield Road and Lytton Avenue operate at LOS E and University Avenue and Bayfront Expressway operates at LOS F.

For Palo Alto-controlled intersections, the intersection of Middlefield and Lytton Avenue operates at LOS E.



LEGEND

Bicycle Routes

- Bicycle Boulevard (Street with low traffic volumes & speeds with preferential treatments for cyclists)
- Bike Path (Class I) (Bike & ped path, separated from vehicle traffic)
- Bike Lane (Class II) (Streets with bike lanes)
- Bike/Ped Bridge

NORTH
NOT TO SCALE

Source: DKS, 2011.

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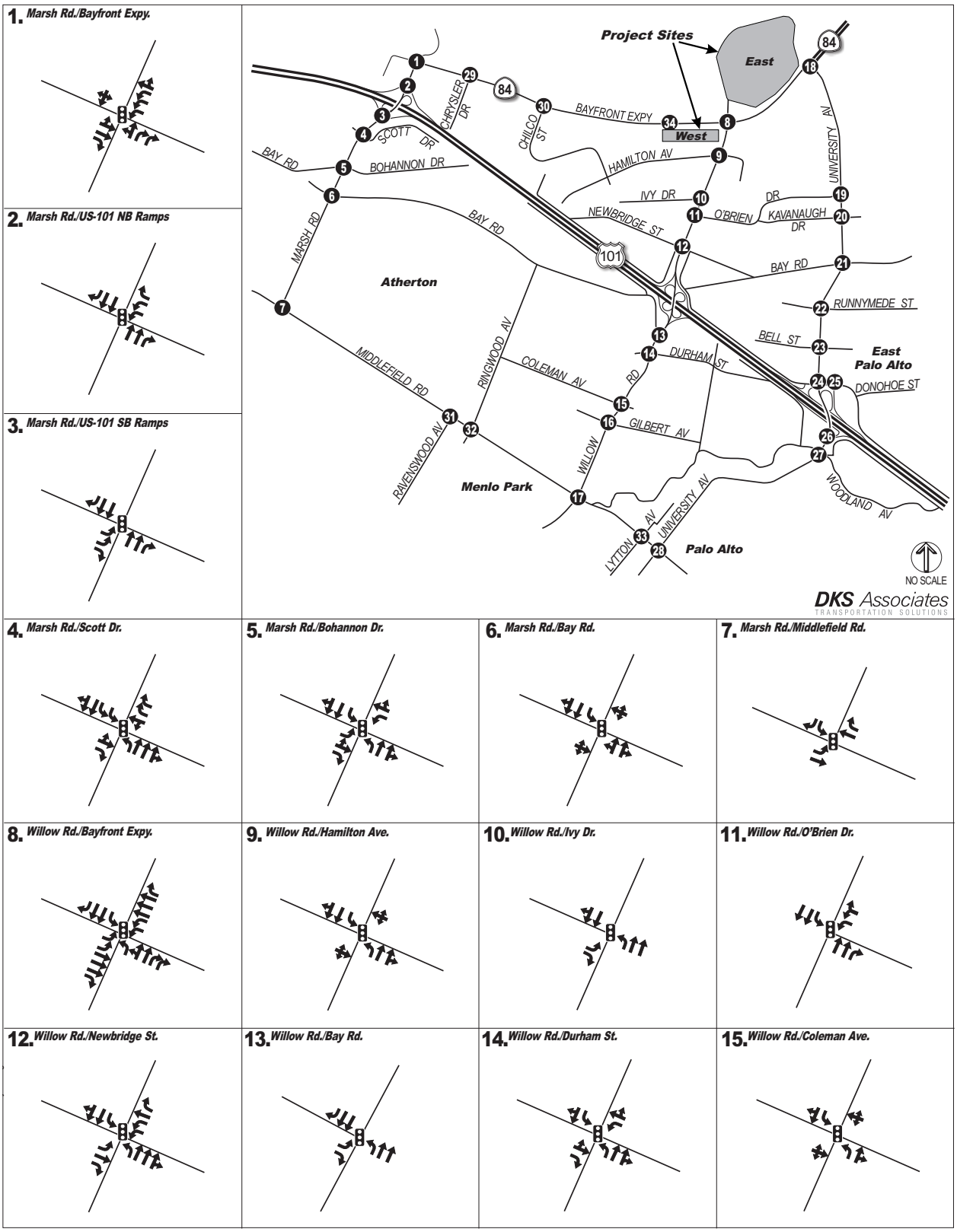
FIGURE 3.5-3
Existing Bicycle Routes



Source: DKS, 2011.

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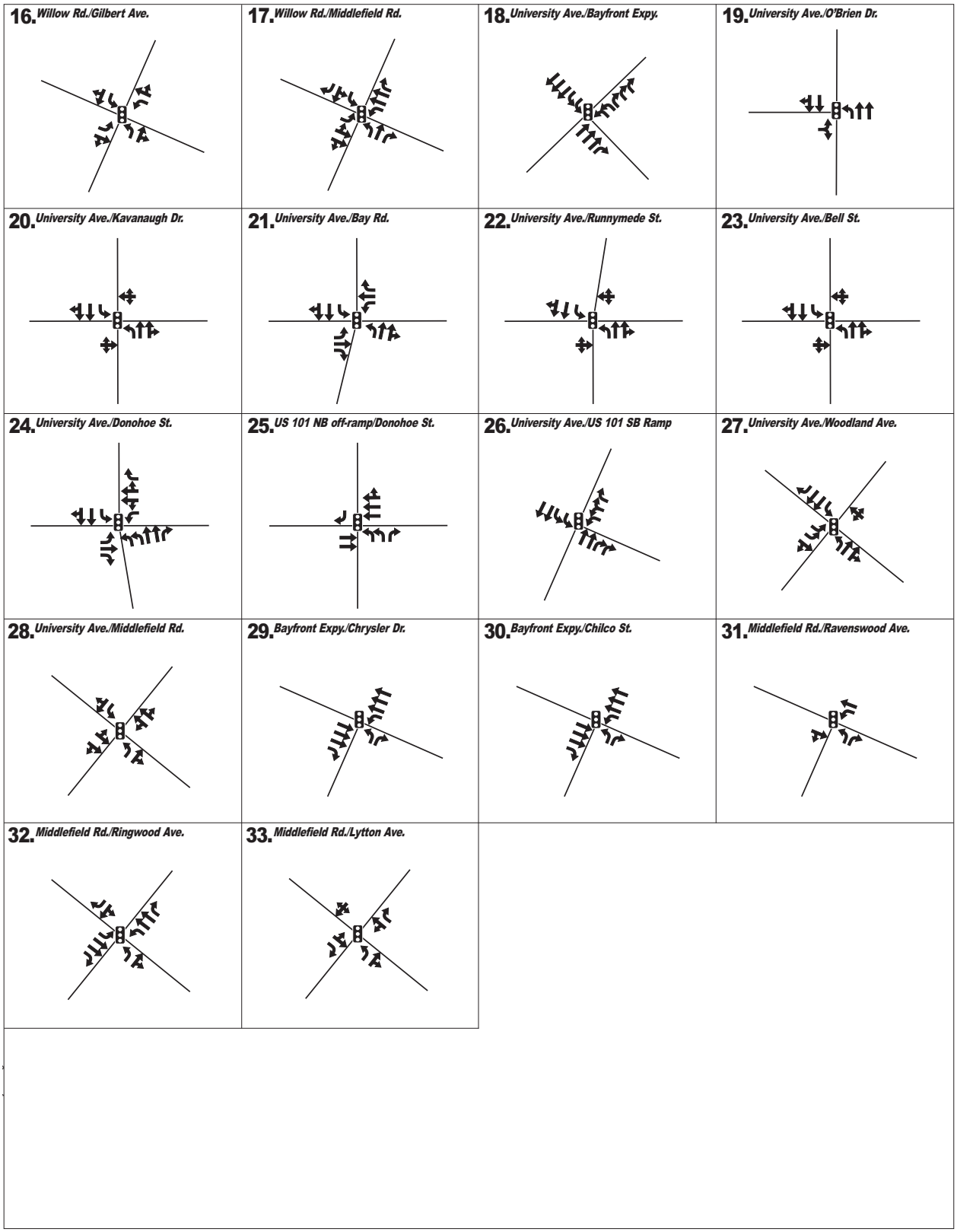
FIGURE 3.5-4a
Existing Lane Geometry



LEGEND

1 - Study Intersection
- Lane Geometry
- Traffic Signal

NORTH
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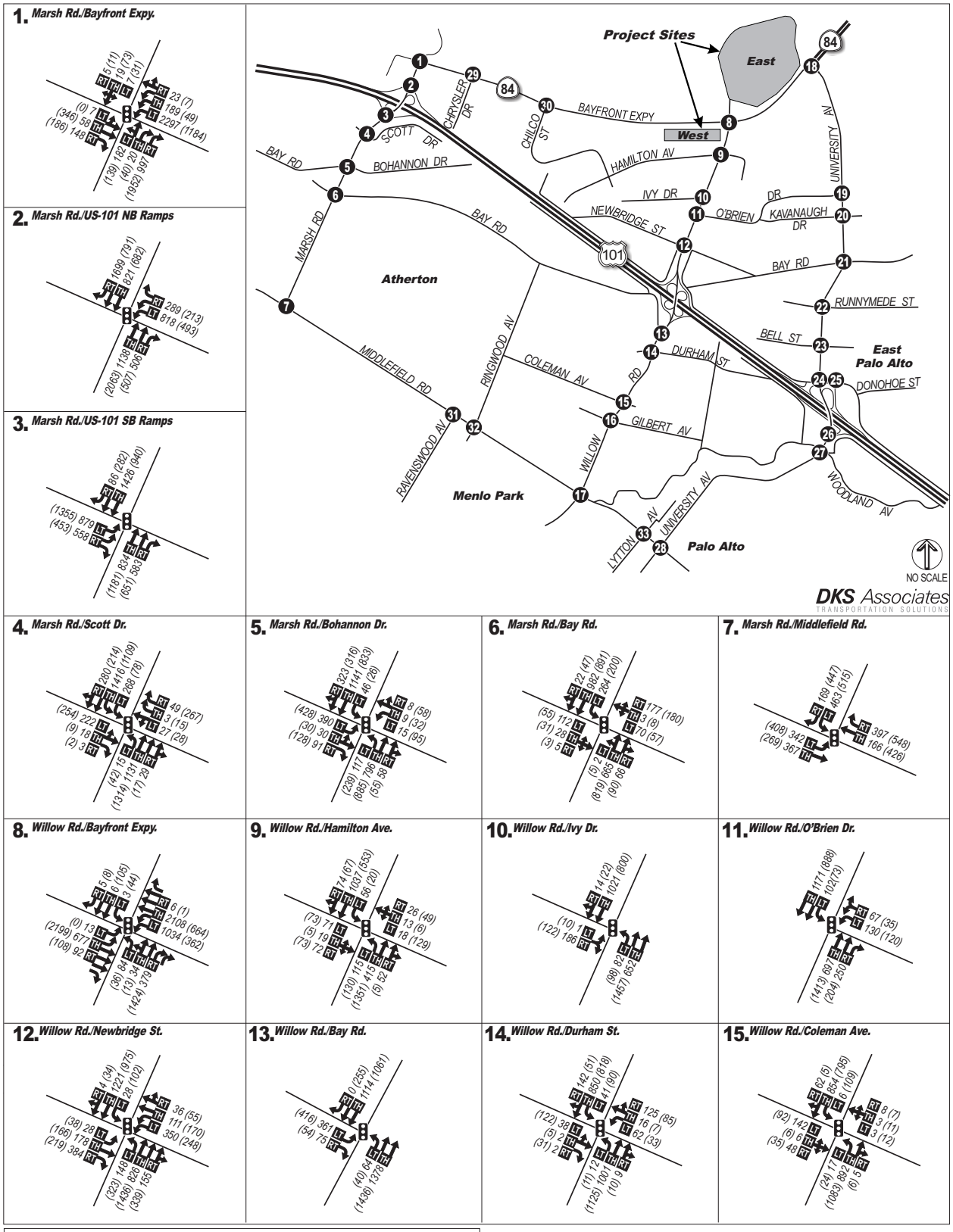
Source: DKS, 2011.

ATKINS

FIGURE 3.5-4b
Existing Lane Geometry



Source: DKS, 2011.

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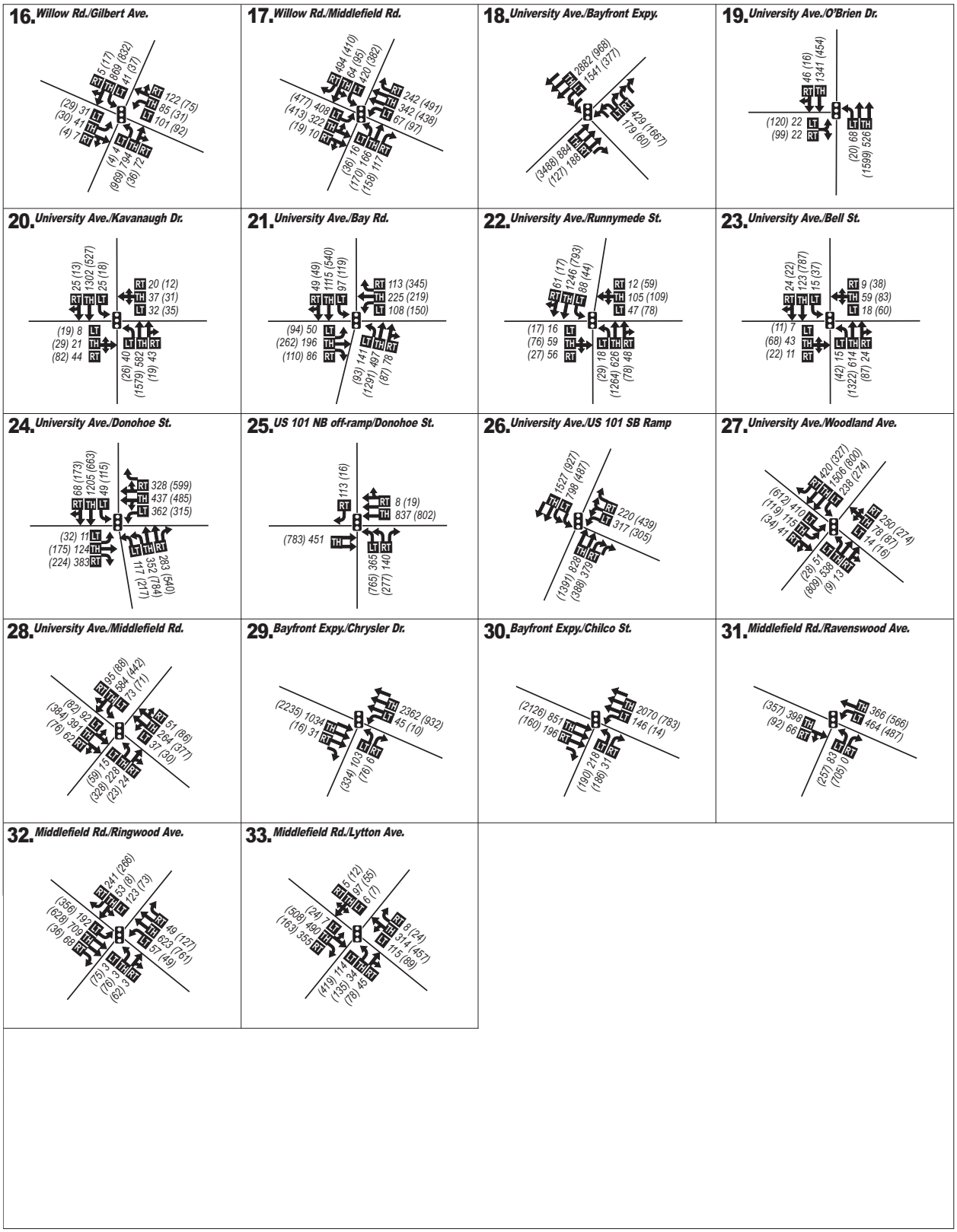
FIGURE 3.5-5a
Existing Peak Hour Volumes



Source: DKS, 2011.

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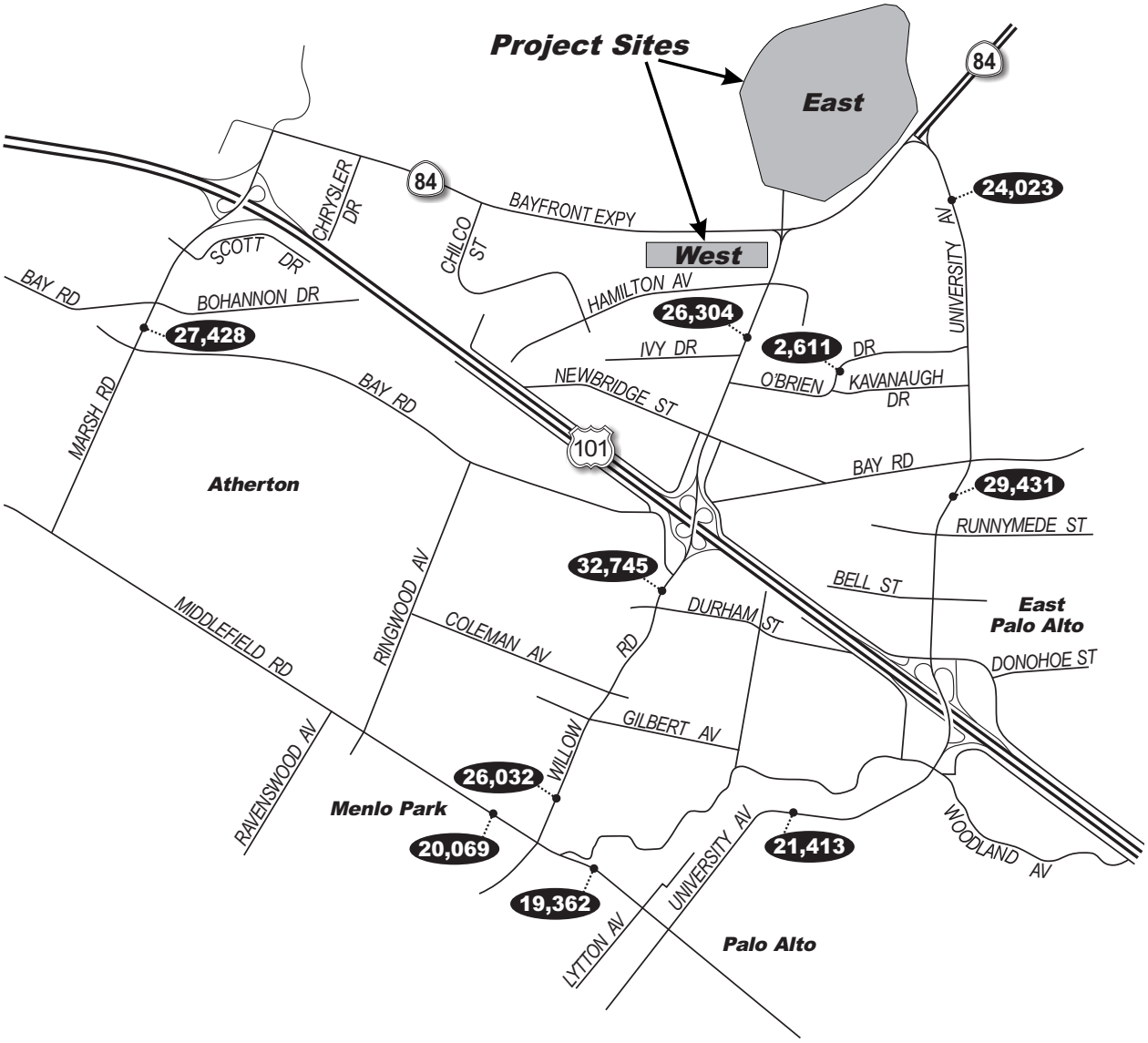
FIGURE 3.5-5b
Existing Peak Hour Volumes



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-6
Existing Average Daily Traffic

100020154

Menlo Park Facebook Campus Project

Table 3.5-1
Existing Level of Service

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. Marsh Rd and Bayfront Exp	21.5	C	45.4	D
2. Marsh Rd and US 101 NB Off-Ramp	15.6	B	12.9	B
3. Marsh Rd and US 101 SB Off-Ramp	20.0	C	17.8	B
4. Marsh Rd and Scott Dr	21.8	C	18.5	B
5. Marsh Rd and Bohannon Dr	15.7	B	21.3	C
6. Marsh Rd and Bay Rd	15.9	B	14.5	B
7. Marsh Rd and Middlefield Rd	22.6	C	28.3	C
8. Willow Rd and Bayfront Exp	27.2	C	43.1	D
9. Willow Rd and Hamilton Ave	22.6	C	21.8	C
10. Willow Rd and Ivy Dr	17.7	B	11.9	B
11. Willow Rd and O'Brien Dr	14.8	B	9.7	C
12. Willow Rd and Newbridge St	45.9	D	32.7	C
13. Willow Rd and Bay Rd	19.5	B	19.5	B
14. Willow Rd and Durham St	12.1	B	14.9	B
15. Willow Rd and Coleman Ave	12.3	B	9.5	A
16. Willow Rd and Gilbert Ave	12.9	B	9.5	A
17. Willow Rd and Middlefield Rd	56.8	E	126.8	F
18. University Ave and Bayfront Exp	28.3	C	146.2	F
19. University Ave and O'Brien Dr	6.2	A	12.7	B
20. University Ave and Kavanaugh Dr	13.6	B	15.8	B
21. University Ave and Bay Rd	26.8	C	32.5	C
22. University Ave and Runnymede St	19.9	B	22.3	C
23. University Ave and Bell St	8.1	A	7.5	A
24. University Ave and Donohoe St	36.5	D	34.9	C
25. US 101 NB and Donohoe St	13.5	B	21.0	C
26. University Ave and US 101 SB	16.8	B	21.3	C
27. University Ave and Woodland Ave	36.0	D	44.4	D
28. University Ave and Middlefield Rd	33.2	C	32.6	C
29. Bayfront Expressway and Chrysler Dr	7.2	A	18.4	B
30. Bayfront Expressway and Chilco St	16.8	B	13.7	B
31. Middlefield Rd and Ravenswood Ave	21.5	C	25.1	C
32. Middlefield Rd and Ringwood Ave	25.6	C	28.8	C
33. Middlefield Rd and Lytton Ave	33.6	C	58.5	E
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A
EB Critical Approach	N/A	N/A	N/A	N/A

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections.
Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches.

For East Palo Alto-controlled intersections, the intersection of University Avenue and Woodland Avenue operates at LOS D.

For City-controlled intersections, the intersection of Willow Road and Middlefield Road operates at LOS E and F for the respective AM and PM peak hours.

Local approaches to State-controlled intersections operating at LOS E exist at the intersections of Marsh Road and Bayfront Expressway, Willow Road and Bayfront Expressway, Willow Road and Newbridge Street, and Bayfront Expressway and Chrysler Drive during the AM peak hour.

For the PM peak hour, at least one local approach to a State-controlled intersection operates at LOS E at the intersection of Willow Road and Newbridge Street and at least one approach operates at LOS F at the intersection of Marsh Road and Bayfront Expressway and the intersection of Willow Road and Bayfront Expressway.

During the PM peak period, there is high vehicular demand traveling from Marsh Road and Willow Road to Bayfront Expressway approaching the Dumbarton Bridge (SR 84), which affects the levels of service at the intersections along Bayfront Expressway.

The City's TIA Guidelines describe the estimated ideal capacity at 20,000 vehicles per day (vpd) for minor arterials and 10,000 vpd for collector streets. It should be noted that Willow Road between Ivy Drive and Hamilton Avenue; University Avenue between the railroad tracks and Purdue Avenue; University Avenue between Bell Street and Runnymede Street; and University Avenue between Maple Street and Palm Street are classified as primary arterials and are not subject to ADT analysis or thresholds according to the City's TIA Guidelines.

Roadway segments in the City of Palo Alto will be evaluated using the Traffic Infusion on Residential Environment (TIRE) method. The TIRE method provides a way to qualitatively measure the impacts on a roadway from traffic added by new developments. This method assigns an index value based on the daily traffic volumes on roadway segments. These index values range from 0.0 to 5.0, with 3.0 or higher values representing a roadway that is "auto-dominated." According to the TIRE method, a traffic volume increase that causes at least a 0.1 increase in the TIRE index would be noticeable to street residents. Table 3.5-2 shows the average daily traffic and their corresponding TIRE index value for common index values 1.5 to 4.9.

The existing ADT for the study area roadways has been provided by the City for typical weekdays and is shown in Table 3.5-3. As shown in Table 3.5-3, the ADT on Marsh Road, Willow Road, and University Avenue increases with proximity to US 101. The existing daily traffic volumes on each of the analyzed roadway segments along Marsh Road and Willow Road are greater than estimated capacity.

Table 3.5-2
TIRE Index Values

Volume Range (Vehicles per Day)	TIRE Index	Minimum Daily Volume Increase to Produce 0.1 Change in the TIRE Index	Minimum Daily Volume Increase to Produce 0.2 Change in the TIRE Index
29-35	1.5	+6	+15
36-44	1.6	+8	+20
45-56	1.7	+10	+25
57-70	1.8	+13	+35
71-89	1.9	+17	+41
90-110	2.0	+22	+52
111-140	2.1	+29	+65
141-180	2.2	+40	+80
181-220	2.3	+52	+100
221-280	2.4	+65	+125
281-350	2.5	+79	+160
351-450	2.6	+94	+205
451-560	2.7	+114	+260
56-710	2.8	+140	+330
711-890	2.9	+170	+415
891-1,100	3.0	+220	+520
1,101-1,400	3.1	+290	+650
1,401-1,800	3.2	+380	+800
1,801-2,200	3.3	+500	+1,000
2,201-2,800	3.4	+650	+1,300
2,801-3,500	3.5	+825	+1,700
3,501-4,500	3.6	+1,025	+2,200
4,501-5,600	3.7	+1,250	+2,800
5,601-7,100	3.8	+1,500	+3,500
7,101-8,900	3.9	+,1800	+4,300
8,901-11,000	4.0	+2,300	+5,300
11,001-14,000	4.1	+3,000	+6,500
14,001-18,000	4.2	+4,000	+8,000
18,001-22,000	4.3	+5,200	+10,000
22,001-28,000	4.4	+6,600	+13,000
28,001-35,000	4.5	+8,200	+17,000
35,001-45,000	4.6	+10,000	+22,000
45,001-56,000	4.7	+12,200	+28,000
56,001-71,000	4.8	+14,800	+35,000
71,001-89,000	4.9	+18,000	+43,000

Source: Goodrich Traffic Group.

Table 3.5-3
Existing Average Daily Traffic Summary

Roadway Segment	Roadway Class	Threshold	ADT	TIRE Index
Marsh Rd (Bay Rd and Railroad Tracks)	MA	20,000	27,428	N/A
Willow Rd (Ivy Dr and Hamilton Ave)	PA	NA	26,304	N/A
Willow Rd (Durham St and Chester St)	MA	20,000	32,745	N/A
Willow Rd (Nash Ave and Blackburn Ave)	MA	20,000	26,032	N/A
University Ave (Railroad Tracks and Purdue Ave)	PA	NA	24,023	N/A
University Ave (Bell St and Runnymede St)	PA	NA	29,431	N/A
University Ave (Maple St and Palm St)	PA	NA	21,413	4.3
Middlefield Rd (Linfield Dr and Survey Ln)	MA	20,000	20,069	N/A
Middlefield Rd (Hawthorne Ave and Everett Ave)	MA	20,000	19,362	4.3
O'Brien Dr (Adams Dr and Casey Ct)	C	10,000	2,611	N/A

Source: DKS Associates, 2011.

Notes:

Roadway Capacities for each roadway classification are detailed in the City of Menlo Park Transportation Impact Analysis Guidelines. TIRE Index shown for segments within City of Palo Alto.

PA = Principle Arterial, MA = Minor Arterial, C = Collector

Existing volumes collected by the City of Menlo Park in November 2010.

Routes of Regional Significance

The Project site is accessible to regional origins and destinations by various routes including US 101, SR 84, SR 109, and SR 114. Access between US 101 and the Project site is via Marsh Road, Willow Road, and/or University Avenue. C/CAG defines Routes of Regional Significance and bi-annually monitors their operations and performance. These Routes of Regional Significance are currently operating at or close to their respective LOS standard. Per the 2009 Congestion Management Program Monitoring Report (CMP, *Fehr and Peers, September 2009*), the analysis segments of US 101 and SR 84 currently operates at either LOS E or F. Refer to Table 3.5-4.

Ramp Analysis

While a ramp analysis is not normally included in an EIR analysis, it has been analyzed in this Draft EIR for informational purposes. Caltrans requested a ramp analysis for the US 101 and Willow Road interchange following their review of the NOP and the ramp analysis has been performed to satisfy this request.

The Project site is most directly accessed from US 101 by Willow Road. The interchange of US 101 and Willow Road is approximately one mile west of the Project site. Caltrans census data from 2007 and 2010 has been compiled to determine the peak hour and daily usage of the on- and off-ramps. As shown in Table 3.5-5, the highest AM peak hour ramp demand occurs from westbound Willow Road to southbound US 101. For the PM peak hour, the highest demand occurs from northbound US 101 to

eastbound Willow Road. When analyzed with the turning movement volumes along Willow Road, the AM and PM peak hour ramp demands suggest a high number of vehicles traveling between US 101 and the Dumbarton Bridge.

Table 3.5-4
Existing Condition Routes of Regional Significance

Route	Segment	Roadway Type[a]	Estimated Capacity (vph)[b]	LOS Standard[a]	Existing LOS[a,c]
SR 84	US 101 to Willow Road (NB)	Arterial	3,300	D	E
	Willow Road to University Ave (NB)	Arterial	3,300	E	F
	University Ave to County Line (SB)	Arterial	3,300	F	F
SR 109	US 101 to Bayfront Expressway (EB)	Arterial	2,200	E	D
SR 114	US 101 to Bayfront Expressway (EB)	Arterial	2,200	E	C
US 101	North of Marsh Rd (NB)	Freeway	9,200	F	F
	Marsh Rd to Willow Rd (SB)	Freeway	9,200	F	F
	Willow Rd to University Ave (NB)	Freeway	9,200	F	F
	South of University Ave (SB)	Freeway	9,200	F	F

Source: DKS Associates, 2011.
Notes:
a. Source: 2009 San Mateo County CMP Monitoring Report.
b. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six lane segments and 2,200 vphpl for four lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl saturation flow rate (1,140 vphpl is rounded to 1,100 vphpl).
c. For peak direction of Project traffic for the AM and PM peak hours.

Table 3.5-5
Existing Condition Ramp Analysis

From	To	AM Peak Hour[a]	PM Peak Hour[a]	ADT[a]
NB US 101	EB Willow Road	687	1170	10,100
EB Willow Road	NB US 101	388	325	4,150
WB Willow Road	NB US 101	360	415	4,750
NB US 101	WB Willow Road	542	384	6,400
SB US 101	WB Willow Road	312	332	4,750
WB Willow Road	SB US 101	939	796	8,300
EB Willow Road	SB US 101	756	495	9,300
SB US 101	EB Willow Road	218	504	5,200

Source: DKS Associates, 2011.
Note:
a. Source is Caltrans data census from 2007 and 2010.

Impacts and Mitigation Measures

Traffic and Circulation Analysis Methodology

Intersection Capacity and Level of Service. The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance. LOS can range from "A" representing free-flow conditions, to "F" representing extremely long delays. LOS B and C signify stable conditions with modest delays. LOS D is typically considered tolerable for a peak hour in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity. The correlation between average delay and LOS for signalized intersections is shown in Table 3.5-6.

The LOS significance threshold for a study location is dependent on the jurisdiction in which each intersection lies. For the study intersections, jurisdictions include the State (Caltrans), Menlo Park, Atherton, Palo Alto and East Palo Alto. A detailed list of the study intersections, the corresponding jurisdiction, LOS threshold, and significance criteria is included in Table 3.5-7.

Table 3.5-6
Signalized Intersection LOS Thresholds

Level of Service	Vehicle Delay (seconds/vehicle)	Description
A	Delay ≤ 10	Free Flow/Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.
B	10 < Delay ≤ 20	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers feel somewhat restricted within platoon of vehicles.
C	20 < Delay ≤ 35	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	35 < Delay ≤ 55	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	55 < Delay ≤ 80	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues from upstream from intersection.
F	Delay > 80	Forced flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

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

Table 3.5-7
Level of Service Significance

Study Intersection	Jurisdiction	LOS Significance Threshold	Significance Threshold for Unacceptable LOS
1. Marsh Rd and Bayfront Exp	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
2. Marsh Rd and US 101 NB Off-Ramp	State	C	LOS becomes D or worse if LOS is currently C or better
3. Marsh Rd and US 101 SB Off-Ramp	State	C	LOS becomes D or worse if LOS is currently C or better
4. Marsh Rd and Scott Dr	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
5. Marsh Rd and Bohannon Dr	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
6. Marsh Rd and Bay Rd	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
7. Marsh Rd and Middlefield Rd	Town of Atherton	D	LOS becomes E or F or 4.0 second increase to critical worst approach if LOS is currently E or F
8. Willow Rd and Bayfront Exp	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
9. Willow Rd and Hamilton Ave	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
10. Willow Rd and Ivy Dr	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
11. Willow Rd and O'Brien Dr	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
12. Willow Rd and Newbridge St	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
13. Willow Rd and Bay Rd	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
14. Willow Rd and Durham St	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
15. Willow Rd and Coleman Ave	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
16. Willow Rd and Gilbert Ave	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
17. Willow Rd and Middlefield Rd	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
18. University Ave and Bayfront Exp	State	D	LOS becomes E or F <u>and</u> 4 second increase to intersection delay.

Table 3.5-7
Level of Service Significance

Study Intersection	Jurisdiction	LOS Significance Threshold	Significance Threshold for Unacceptable LOS
19. University Ave and O'Brien Dr	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
20. University Ave and Kavanaugh Dr	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
21. University Ave and Bay Rd	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
22. University Ave and Runnymede St	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
23. University Ave and Bell St	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
24. University Ave and Donohoe St	City of East Palo Alto	D	LOS becomes E or F or if critical delay increases by more than 4 seconds and increases the v/c ratio by 0.01 or more
25. US 101 NB and Donohoe St	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
26. University Ave and US 101 SB	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
27. University Ave and Woodland Ave	City of East Palo Alto	D	LOS becomes E or F or if critical delay increases by more than 4 seconds and increases the v/c ratio by 0.01 or more
28. University Ave and Middlefield Rd	City of Palo Alto	D	LOS becomes E or F or if the average control delay for the critical movements deteriorates by 4 seconds or more and the critical v/c increase by 0.01 or more if LOS is currently E or F.
29. Bayfront Expressway and Chrysler Dr	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
30. Bayfront Expressway and Chilco St	State	D	Local approaches LOS becomes E or F or if average critical delay increases by 0.8 seconds or more if LOS is currently E or F
31. Middlefield Rd and Ravenswood Ave	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
32. Middlefield Rd and Ringwood Ave	City of Menlo Park	D	LOS becomes D or worse or delay increases 23 seconds or greater OR average critical delay increases by 0.8 seconds or more if LOS is currently E or F
33. Middlefield Rd and Lytton Ave	City of Palo Alto	D	LOS becomes E or F or if the average control delay for the critical movements deteriorates by 4 seconds or more and the critical v/c increase by 0.01 or more if LOS is currently E or F.

Source: DKS Associates, 2011. City of Menlo Park, City of Palo Alto, City of East Palo Alto, Caltrans.

Project Components

As described in Section 2, Project Description, the Project includes two separate sites within the larger Project area. These sites are located in the City on the east and west side of Bayfront Expressway at Willow Road. The East Campus includes approximately 1,036,000 sf and the West Campus includes approximately 440,000 sf of office and amenities space. As of November 2010, the existing building at the East Campus was partially occupied and generated approximately 75 (60 inbound and 15 outbound) trips in the AM peak hour and 175 (17 inbound and 158 outbound) PM peak hour trips.

The current Conditional Development Permit (CDP) for the East Campus allows it to be occupied with up to 3,600 employees. As the first phase of the Project, the Project Sponsor proposes to amend the CDP to convert the existing employee density cap to a vehicular trip cap. The trip cap was developed based on bi-annual trip generation and mode choice surveys completed at Facebook's Palo Alto campus in July and December 2010, where vehicles, pedestrians, bicyclists, shuttle ridership, and vehicle occupancy were surveyed (as shown in Appendix 3.5-E). Based on this survey data, person and vehicle trip generation was projected for 6,600 employees at the East Campus for daily and peak period conditions. These vehicle trip generation estimates are proposed as the Trip Cap, whereby the Project Sponsor will limit the number of vehicle trips entering and departing the East Campus to the following levels:

- Daily trip generation of 15,000 total trips.
- Peak Period trip generation for the morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak periods of 2,600 trips.

The West Campus is proposed as a second phase to the Project, under which the Project Sponsor would construct and occupy approximately 440,000 sf of office space. Approximately 2,800 employees are expected to occupy the West Campus. A vehicle trip cap has not been proposed for the West Campus.

The Project Sponsor has proposed a comprehensive transportation demand management (TDM) program as part of the Project to minimize traffic impacts. Currently, nearly 40 percent of employees commute by alternative modes (shuttles, public transit, walking and bicycling) based on the mode choice surveys completed in 2010. This level of TDM participation would allow the Project Sponsor to meet the Trip Cap and be in compliance with the proposed CDP amendment. The proposed monitoring and enforcement strategy for Trip Cap compliance is described in Appendix 3.5-F.

Transportation Demand Management (TDM) Program

The City of Menlo Park TIA Guidelines include TDM guidelines. The intent of the TDM guidelines is to provide options for, and encourage the use of, creative ways to mitigate the traffic impacts of new development projects. Because the Project includes commercial/office development, standard TDM measures would typically be applicable to these uses. Furthermore, 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." Some measures the Project Sponsor is proposing to implement as part of the Project, include, but are not limited to:

- TDM program coordinator;
- Commute assistance center;
- New-hire transportation orientation packet;
- On-site amenities to prevent the need for mid-day trips;
- Shuttle service (both long-distance and to/from Caltrain stations);
- Vanpool program;
- Carpool matching assistance through ZimRide, an online carpooling and ridesharing service that focuses on college communities and corporate campuses;
- Preferential carpool and vanpool parking;
- Guaranteed ride home program;
- Subsidized public transit passes;
- Subsidies for employees who walk or bike to work;
- Bicycle parking (both short-term racks and long-term lockers or storage facilities);
- Bicycle-share programs;
- Showers and changing rooms; and
- Alternative and flexible work schedules.

Further descriptions and calculations of the proposed TDM program are included in Appendix 3.5-G of this document. Though there are existing shuttle services in the area and some transit service in the immediate area, the Project Sponsor has proposed employee shuttles for long distance commutes and to the nearby Caltrain station. No additional trip credits are included in the proposed TDM program for shuttle services or specific transit ticket subsidies.

Transportation Conditions

The following conditions were evaluated as part of this study:

- **Existing Conditions** – This condition represents traffic conditions that existed at the time traffic counts were conducted. Existing turning movement counts at the study intersections for the AM and PM peak hours have been obtained from counts provided by City staff. Data was collected in November 2010 by City staff. Signal timing parameters for the analysis were based on the analysis conducted for the City's 2009 Circulation System Assessment Document (2009 CSA). Daily volumes for roadway segments have been obtained from City staff and were collected during the same period as the intersection turning movement counts.

- **Near Term 2015 Condition** – This condition includes a list of approved and planned developments, including Menlo Gateway, with associated committed mitigation measures. Uncertain (e.g., under the control of other agencies) mitigation measures associated with Menlo Gateway are not included. Also included is occupancy of the East Campus with the currently permitted 3,600 employees with a 25 percent TDM plan. An ambient growth rate of 1 percent per year is added to the Existing Conditions for four years to reach the Near Term 2015 Condition.
- **Near Term 2015 East Campus Only Condition** – This condition assumes the Near Term 2015 Condition plus the full occupancy of the East Campus with 6,600 employees.
- **Near Term 2018 Condition** - This condition assumes the Near Term 2015 East Campus Only Condition with an additional three years of 1 percent per year background ambient growth.
- **Near Term 2018 East Campus and West Campus Condition** – This condition represents traffic conditions based on the Near Term 2018 Condition plus full occupancy of the West Campus. The East Campus is assumed to be occupied under Near Term 2018 conditions.
- **Cumulative 2025 Condition** – This condition includes a list of approved and planned developments, including Menlo Gateway, with associated committed mitigation measures and Stanford University Medical Campus (SUMC) project. Uncertain mitigation measures associated with Menlo Gateway and SUMC are not included. An ambient growth rate of 1 percent per year is applied for 14 years to reach the Cumulative 2025 Condition analysis year.
- **Cumulative 2025 East Campus Only Condition** – This condition assumes the Cumulative 2025 Condition plus the full occupancy of the East Campus.
- **Cumulative 2025 East Campus and West Campus Condition** - This condition represents traffic conditions based on the Cumulative 2025 Condition plus full occupancy of the East Campus and West Campus.

Near Term 2015 Condition

The Near Term 2015 Condition assumes a one-percent-per-year growth of existing traffic volumes for four years, and occupancy of 3,600 employees at the East Campus, which is permitted under the CDP. Also included is a list of near-term developments provided by City staff and includes developments that are planned (i.e., applied for a development permit) or approved in the City. The most recent list of near-term developments includes projects that were not included in the most recent CSA document (2009), but have been approved since its publication.

East Campus 3600 Employee Trip Generation

For the trip generation calculation of 3,600 employees for the East Campus, the vehicle trip equivalent of 3,600 employees has been calculated using the data for a Corporate Headquarters Building (Institute of Transportation Engineers [ITE] Land Use Code 714). A 25 percent trip reduction for the permitted use of the East Campus (as per the Sun Microsystems EIR) is also included since the reduction was

required by City at time of Sun's approval. The East Campus 3,600 employee trip generation is calculated as shown in Table 3.5-8.

Table 3.5-8
East Campus 3,600 Employee Trip Generation

Step	Description	AM In	AM Out	AM Total	PM In	PM Out	PM Total	Daily
1	Vehicle trips of 3,600 employees using ITE equation for Corporate Headquarters Building (Land Use Code 714)	**1,334**	**100**	**1,434**	**118**	**958**	**1,076**	**7,192**
2	25% reduction of vehicle trips of 3,600 employees as part of the conditions of approval for the Sun Oracle site (25% of Step 1)	**-333**	**-25**	**-358**	**-29**	**-240**	**-269**	**-1,798**
3,600 Employee Trip Generation		**1,001**	**75**	**1,076**	**89**	**718**	**807**	**5,394**

Source: DKS Associates, 2011.

ITE includes several office trip generation rates, such as Corporate Headquarters, and General Office Building. The General Office Building (Land Use Code 710) would generate 1,454 AM peak hour trips (1,280 inbound and 174 outbound) and 1,392 PM peak hour trips (237 inbound and 1,155 outbound) for 3,600 employees. The General Office Building land use is used to determine the trip generation for buildings, which house multiple tenants, while the Corporate Headquarters Building land use is generally used for buildings which house a single tenant.

By way of comparison, the Corporate Headquarters Building (Land Use Code 714) would generate 1,434 AM peak hour trips (1,334 inbound and 100 outbound) and 1,076 PM peak hour trips (118 inbound and 958 outbound), which generate fewer trips than the General Office Building (Land Use Code 710). Reliance on the Corporate Headquarters Building (Land Use Code 714) would ensure a more conservative approach because fewer trips would be credited to the Project. Moreover, City staff also indicated that the Corporate Headquarters Building land use more closely fits with the characteristics of the Project. Consequently, the Corporate Headquarters Building land use is used for this analysis.

Approved/Planned Development Projects

The list of approved and planned developments was provided by City staff and includes projects that were planned or approved as of April 2011 when the NOP was released, but had not yet been occupied. It is anticipated that these projects would be fully implemented and occupied as part of the Near Term Condition. These approved and planned developments and projects are anticipated to add traffic to the City roadway network and, in some cases, would add traffic to the roadways and intersections studied in this analysis. The peak hour trips assigned to the roadway network from these projects were provided by the City in the CSA, as part of the Near Term 2015 Conditions analysis, peak hour trips from the projects that were approved after the creation of the CSA are also included.

Table 3.5-9 summarizes projects that were not included in the CSA. Traffic from these developments was added to the study intersections and roadway segments for the Near Term 2015 Condition.

Table 3.5-9
Near Term 2015 Developments in Project Vicinity

Project/Land Use	Land Use	Size	Units
1283 Willow Road	Office/Retail	3,800/5,096	SF/SF
110 Linfield Drive	Residential	22	DU
297 Terminal Avenue	Residential	21	DU
1460 El Camino Real	Residential/Office/Commercial	16/26,800/-12,016	DU/SF/SF
2122 Santa Cruz Avenue	Residential	7	DU
580 Oak Grove	Residential/Commercial	108/3,635	DU/SF
1300 El Camino Real	Commercial	110,065	SF
1906 El Camino Real	Medical Office	9,825	SF
1706 El Camino Real	Medical Office	10,166	SF
100-155 Constitution Drive & 100-190 Independence Drive	Office/Health Club/Restaurant/Hotel	497,619/68,964/ 4,285/230	SF/SF/SF/ Rooms
2550 Sand Hill Road	Office	23,011	SF
389 El Camino Real	Residential	26	DU
100 Middlefield Road	Office	8,936	SF
2484 Sand Hill Road	Office	8,970	SF
Civic Center	Fitness	26,900	SF
1283 Willow Road	Office/Retail	3,800/5,096	SF/SF
110 Linfield Drive	Residential	22	DU
297 Terminal Avenue	Residential	21	DU
1460 El Camino Real	Residential/Office/Commercial	16/26,800/-12,016	DU/SF/SF
2122 Santa Cruz Avenue	Residential	7	DU
580 Oak Grove	Residential/Commercial	108/3,635	DU/SF
1300 El Camino Real	Commercial	110,065	SF
1906 El Camino Real	Medical Office	9,825	SF
1706 El Camino Real	Medical Office	10,166	SF

Source: City of Menlo Park, April 2011.

Notes:

a. Units are given as per square foot (SF) and single family dwelling units (DU).

b. Credits for existing land uses to be redeveloped further illustrated in Appendix 3.5-A.

Programmed/Planned Transportation Facility Improvements

Within the Project area, programmed or planned transportation facility improvements include the widening of US 101 to include the Ringwood bike bridge reconstruction. These projects are intended to increase the capacity or improve the safety of their respective facilities and are included in the Near Term 2015 Conditions analysis.

No planned/programmed intersection or local roadway improvements would be implemented by the time the near term developments are built and occupied. Intersection geometrics will remain the same as with existing conditions with the exception of one Menlo Gateway mitigation. While Menlo Gateway identifies three committed mitigation measures, only the one at the intersection of Marsh Road and Bohannon Drive is included in this analysis since it is the only one under the City's control to implement. This mitigation measure would include an additional westbound right-turn lane from Marsh Road to Florence Street. Slight changes to signal timing parameters are based on the CSA.

Traffic Volumes and Levels of Service

The Near Term 2015 Condition peak hour intersection turning movement volumes are illustrated in Figure 3.5-7. Table 3.5-10 summarizes the intersection operating conditions during the AM and PM peak hours under Near Term 2015 Conditions.

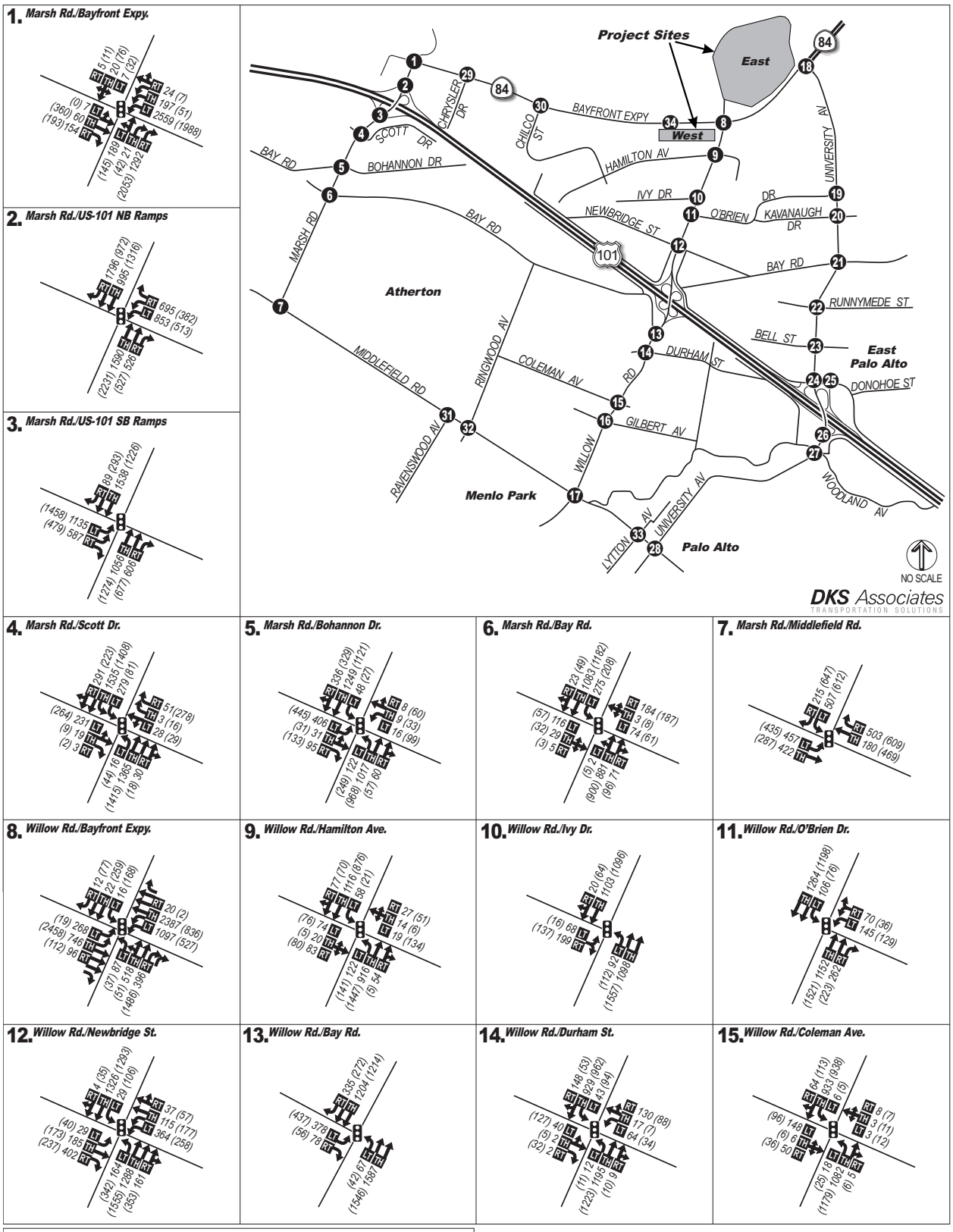
All study intersections are expected to operate at an acceptable service level under the Near Term 2015 Condition with the exception of the following:

- Willow Road and Bayfront Expressway
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Avenue
- Middlefield Road and Lytton Avenue

Also, four local approaches to State-controlled intersections would operate at unacceptable levels of service under the Near Term 2015 Conditions. These local approaches include:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Bayfront Expressway and Chrysler Avenue

The Near Term 2015 Condition ADT volumes are illustrated in Figure 3.5-8. The Near Term ADT was derived using the existing ADT and the projected traffic growth in the Near Term 2015 Condition. The Near Term 2015 Condition ADT was adjusted for the planned and approved projects provided by the City (Appendix 3.5-A).

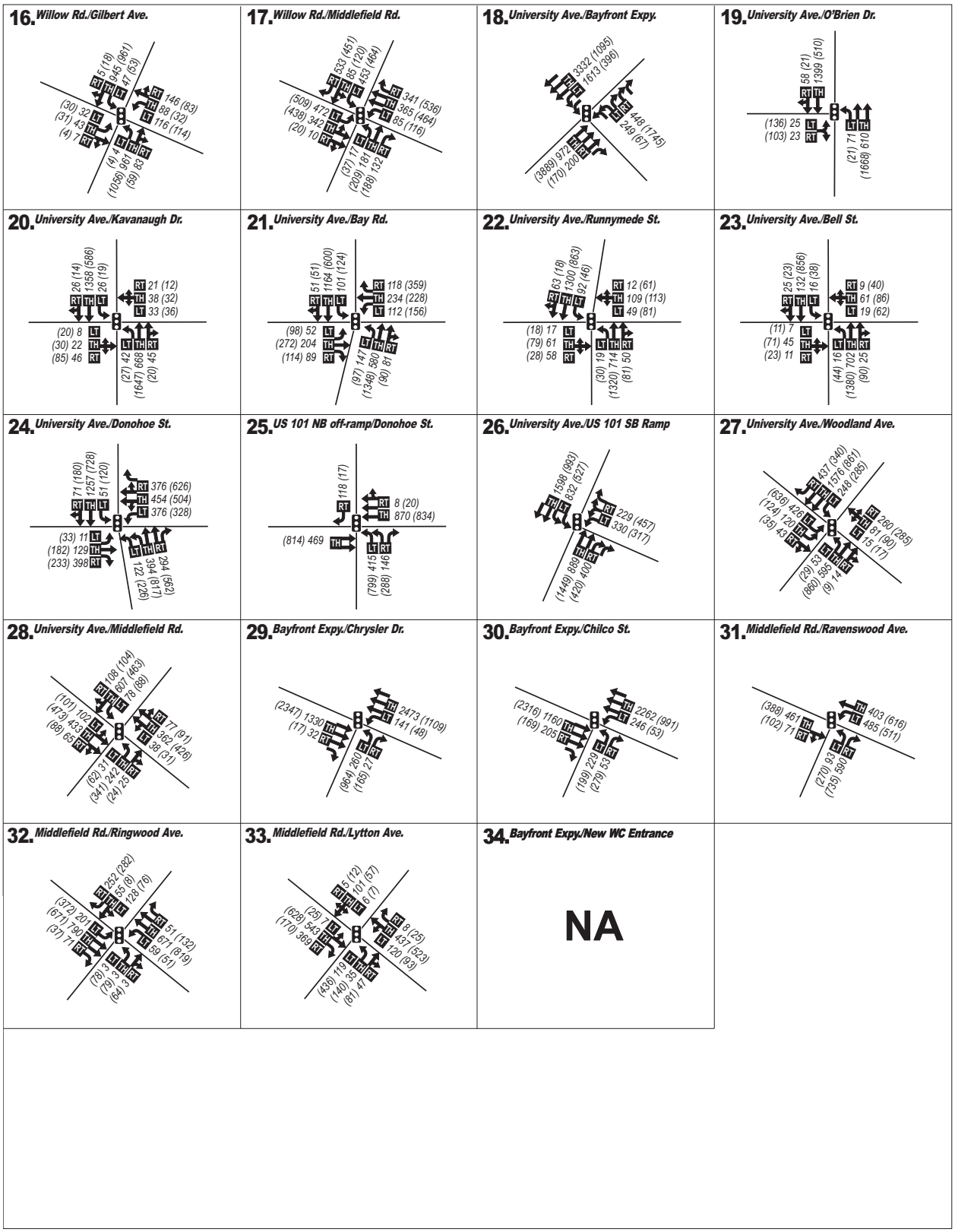


Source: DKS, 2011.

ATKINS

FIGURE 3.5-7a

Near Term 2015 Condition Peak Hour Volumes



Source: DKS, 2011.

ATKINS

FIGURE 3.5-7b

Near Term 2015 Condition Peak Hour Volumes

Table 3.5-10
Near Term 2015 Condition Level of Service

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. Marsh Rd and Bayfront Exp	22.5	C	52.1	D
2. Marsh Rd and US 101 NB Off-Ramp	33.3	C	27.7	C
3. Marsh Rd and US 101 SB Off-Ramp	23.1	C	21.5	C
4. Marsh Rd and Scott Dr	24.4	C	19.4	B
5. Marsh Rd and Bohannon Dr	15.0	B	20.8	C
6. Marsh Rd and Bay Rd	16.2	B	14.4	B
7. Marsh Rd and Middlefield Rd	24.8	C	34.0	C
8. Willow Rd and Bayfront Exp	34.4	C	72.1	E
WB Critical Local Approach	62.4	E	146.7	F
9. Willow Rd and Hamilton Ave	21.1	C	22.2	C
10. Willow Rd and Ivy Dr	20.7	C	13.2	B
11. Willow Rd and O'Brien Dr	14.1	B	9.5	A
12. Willow Rd and Newbridge St	49.0	D	35.5	D
13. Willow Rd and Bay Rd	20.0	B	20.5	C
14. Willow Rd and Durham St	12.5	B	15.8	B
15. Willow Rd and Coleman Ave	14.1	B	11.0	B
16. Willow Rd and Gilbert Ave	14.9	B	11.1	B
17. Willow Rd and Middlefield Rd	89.2	F	160.0	F
18. University Ave and Bayfront Exp	30.2	C	184.1	F
19. University Ave and O'Brien Dr	6.3	A	13.4	B
20. University Ave and Kavanaugh Dr	13.7	B	16.1	B
21. University Ave and Bay Rd	27.4	C	33.9	C
22. University Ave and Runnymede St	20.2	C	22.8	C
23. University Ave and Bell St	7.4	A	7.7	A
24. University Ave and Donohoe St	39.8	D	36.7	D
25. US 101 NB and Donohoe St	13.7	B	21.3	C
26. University Ave and US 101 SB	17.3	B	25.3	C
27. University Ave and Woodland Ave	38.9	D	47.4	D
28. University Ave and Middlefield Rd	38.1	D	33.8	C
29. Bayfront Expressway and Chrysler Dr	17.1	B	81.8	F
EB Critical Local Approach	51.8	D	106.2	F
30. Bayfront Expressway and Chilco St	19.2	B	18.6	B
31. Middlefield Rd and Ravenswood Ave	22.8	C	26.7	C
32. Middlefield Rd and Ringwood Ave	25.4	C	29.2	C
33. Middlefield Rd and Lytton Ave	38.9	D	86.1	F
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A
EB Critical Approach	N/A	N/A	N/A	N/A

Source: DKS Associates, 2011.

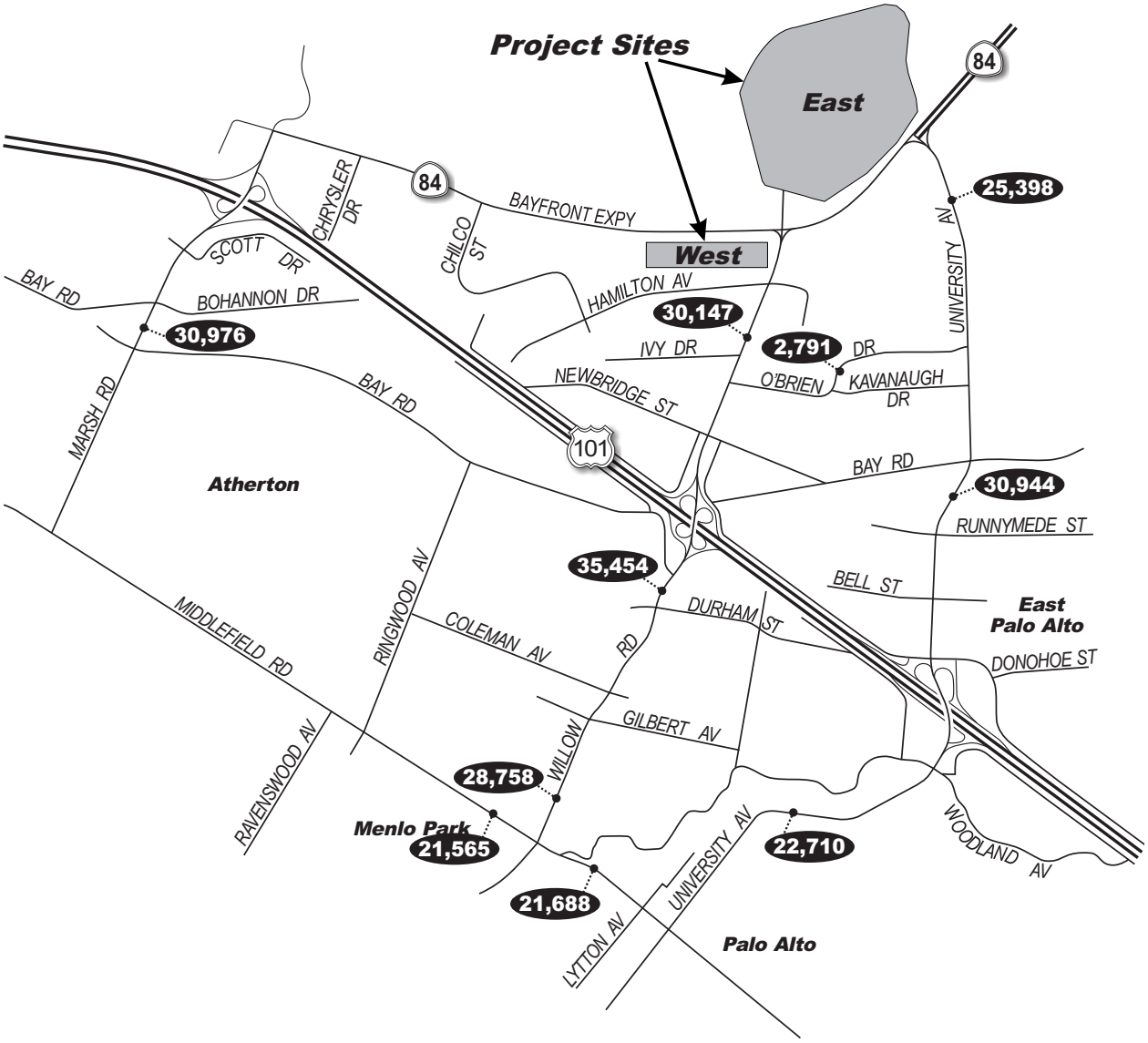
Notes:

a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.

b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.

See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections

Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-8

Near Term 2015 Condition Average Daily Traffic

Standards of Significance

Appendix G of CEQA includes significance criteria for potential transportation impacts. These include whether a project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The City of Menlo Park, Town of Atherton, City of East Palo Alto, City of Palo Alto, Caltrans, and the County of San Mateo each have traffic impact guidelines and standards of significance. The transportation items of the CEQA checklist are addressed through these local, regional and state guidelines.

The Project analysis includes City of Menlo Park, Town of Atherton, City of East Palo Alto, City of Palo Alto, and Caltrans facilities. As such, the appropriate standard of significance is applied to respective intersections, roadway segments, or Routes of Regional Significance. The following standards of significance are prescribed by the City of Menlo Park, Town of Atherton, City of East Palo Alto, City of Palo Alto, and Caltrans.

City Arterial Intersections. Project traffic increment causes an intersection operating at LOS D or better to reach LOS E or F; or to have an increase greater than 23 seconds in average vehicle delay; or an increase of more than 0.8 seconds of delay to vehicles on the most critical movements of an arterial intersections operating at LOS E or F prior to the addition of Project traffic.

Local Approaches to State-Controlled Intersections. Project traffic increment causes an intersection operating at LOS D or better to reach LOS E or F; or to have an increase greater than 23 seconds in average vehicle delay; or an increase of more than 0.8 seconds of delay to vehicles on the most critical movements of an arterial intersections operating at LOS E or F prior to the addition of Project traffic.

Other City Intersections (Collector and Local streets). Project traffic increment causes an intersection operating at LOS C or better to reach LOS D, E, or F; or to have an increase greater than 23 seconds in average vehicle delay; or an increase of more than 0.8 seconds of delay to vehicles on the most critical movements of a collector or local street intersection operating at LOS D, E, or F prior to the addition of Project traffic.

State (Caltrans) Controlled Intersections. At State-controlled intersections currently operating at LOS D or better, the Project would have an impact if the cumulative analysis indicates that the combination of the Project and future cumulative traffic demand would result in the intersection operating at a LOS that violates the standard adopted and the Project increases control delay at the intersection by four seconds or more. For intersections operating at LOS E or F, the Project would have an impact if the cumulative analysis indicates that the combination of the Project and future cumulative traffic demand would result in increasing the average control delay at the intersection by four seconds or more.

Atherton Intersections. At Town of Atherton-controlled intersections currently operating at LOS D or better, the Project would have an impact if the Project traffic increment results in an intersection LOS of E or F or increases the critical worst approach delay by 4.0 seconds or more if the LOS is E or F.

Palo Alto and East Palo Alto Intersections. At City of Palo Alto and East Palo Alto-controlled intersections currently operating at LOS D or better, the Project would have an impact if the LOS becomes E or F or the average control delay for the critical movements deteriorates by 4.0 seconds or more and the critical v/c value increases by 0.01 or more if the LOS is currently E or F.

Routes of Regional Significance. LOS for freeways segments is based on the C/CAG impact criteria from the 2009 CMP. According to the 2009 CMP, for freeway segments currently in compliance with the adopted LOS standard, a project is considered to have an impact if the project will cause the freeway segments to operate at an LOS that violates the standard adopted. Additionally, a project would have an impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand would result in the freeway segment to operate at an LOS that violates the adopted standard. An impact could also occur if the project increased traffic demand on the freeway segment by an amount equal to one percent or more of the segment capacity, or would cause the freeway segment v/c ratio to increase by one percent.

If the freeway segment is not in compliance with the adopted LOS standard, the project is considered to have an impact if the project will add traffic demand equal to one percent or more of the segment capacity of causes the freeway segment v/c ratio to increase by one percent.

City Arterials. The existing ADT is: (1) greater than 18,000 (90 percent of capacity) and there is a net increase of 100 trips or more in ADT due to Project-related traffic; (2) the ADT is greater than 10,000 (50 percent of capacity) but less than 18,000, and the Project-related traffic increases the ADT by 12.5 percent or the ADT becomes 18,000 or more; or (3) the ADT is less than 10,000 and the Project-related traffic increases the ADT by 25 percent.

City Collectors. The existing ADT is: (1) greater than 9,000 (90 percent of capacity) and there is a net increase of 50 trips or more in ADT due to Project-related traffic; (2) the ADT is greater than 5,000 (50 percent of capacity) but less than 9,000, and the Project-related traffic increases the ADT by 12.5 percent or the ADT becomes 9,000 or more; or (3) the ADT is less than 5,000 and the Project-related traffic increases the ADT by 25 percent.

Local Streets. The existing ADT is: (1) greater than 1,350 (90 percent of capacity) and there is a net increase of 25 trips or more in ADT due to Project-related traffic; (2) the ADT is greater than 750 (50 percent of capacity) but less than 1,350, and the Project-related traffic increases the ADT by 12.5 percent or the ADT becomes 1,350; or (3) the ADT is less than 750 and the Project-related traffic increases the ADT by 25 percent. For City of Palo Alto-controlled local streets, the Project-related traffic increases the Traffic Infusion on Residential Environment (TIRE) index by 0.1 or more.

Pedestrian and Bicycle Facilities. The Project would not provide adequate pedestrian or bicycle facilities to connect to the area circulation system, or vehicles would cross pedestrian facilities on a regular basis without adequate design and/or warning systems, causing safety hazards, or project design would cause increased potential for bicycle/vehicle conflicts. The Project would include elements that conflict with applicable pedestrian and bicycle polices.

Transit. The Project would generate a substantial increase in transit riders that cannot be adequately serviced by the existing transit services; or the Project would generate demand for transit services in an area that is more than one quarter mile from existing transit routes. The Project would include elements that conflict with applicable transit polices.

Near Term 2015 East Campus Only Condition

Trip Generation and Distribution. The current Conditional Development Permit (CDP) for the East Campus allows the campus to be occupied with up to 3,600 employees. As described in Section 2, Project Description, the Project Sponsor has proposed to amend the CDP to convert the employee density cap to a vehicle trip cap for the East Campus as follow:

- Daily trip generation of 15,000 total trips
- Peak Period trip generation for the morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak periods of 2,600 trips

Traffic analyses are typically conducted for a peak one-hour period not peak period as proposed as part of the trip cap. Therefore, for purposes of this Draft EIR, it is necessary to estimate the maximum trip generation anticipated to occur during the am and pm peak hours to estimate the Project's worst-case impact to the transportation system. Based on trip generation and mode share surveys conducted at the Project Sponsor's existing campus, 70 percent of peak period traffic arrives during a single peak hour. Therefore, 70 percent of the 2,600 peak period vehicle trips, or 1,820 vehicle trips, are assigned to the peak hour trip generation during the AM and PM peak hours. This calculation is more conservative than a traditional office use, as the traffic data from the ITE Trip Generation Manual (8th Edition, 2008) indicates only 55 percent of peak period traffic occurring during the peak hour.

To determine the proportion of inbound and outbound traffic during the morning and evening peak hours, trip generation data from the ITE Trip Generation Manual (8th Edition, 2008) was applied to the Project's total trip generation estimates. Thus, the Project would generate a maximum of 1,820 AM peak hour trips (1,693 inbound trips and 127 outbound trips) and 1,820 PM peak hour trips (200 inbound trips and 1,620 outbound trips).

Table 3.5-11 demonstrates the net Project-generated trip increment between the Near Term 2015 Condition and Near Term 2015 East Campus Only Condition. At the East Campus, 3,600 employees with at 25 percent TDM rate are permitted as part of the existing CDP, as discussed under Near Term 2015 Conditions. Thus, the vehicle trips associated with approximately 3,000 additional employees at the East Campus site are considered the Near Term 2015 East Campus Only Project-generated trip increment.

Table 3.5-11
Near Term 2015 East Campus Only Condition Trip Generation

Step	Description	AM In	AM Out	AM Total	PM In	PM Out	PM Total	Daily
1	Vehicle trips of 6,600 employees based on trip cap	**1,693**	**127**	**1,820**	**200**	**1,620**	**1,820**	**15,000**
2	3,600 Employee Trip Generation from Table 3.5-8	**-1,002**	**-75**	**-1,076**	**-89**	**-718**	**-807**	**-5,394**
East Campus Only Condition Increment		**692**	**52**	**744**	**111**	**902**	**1,013**	**9,606**

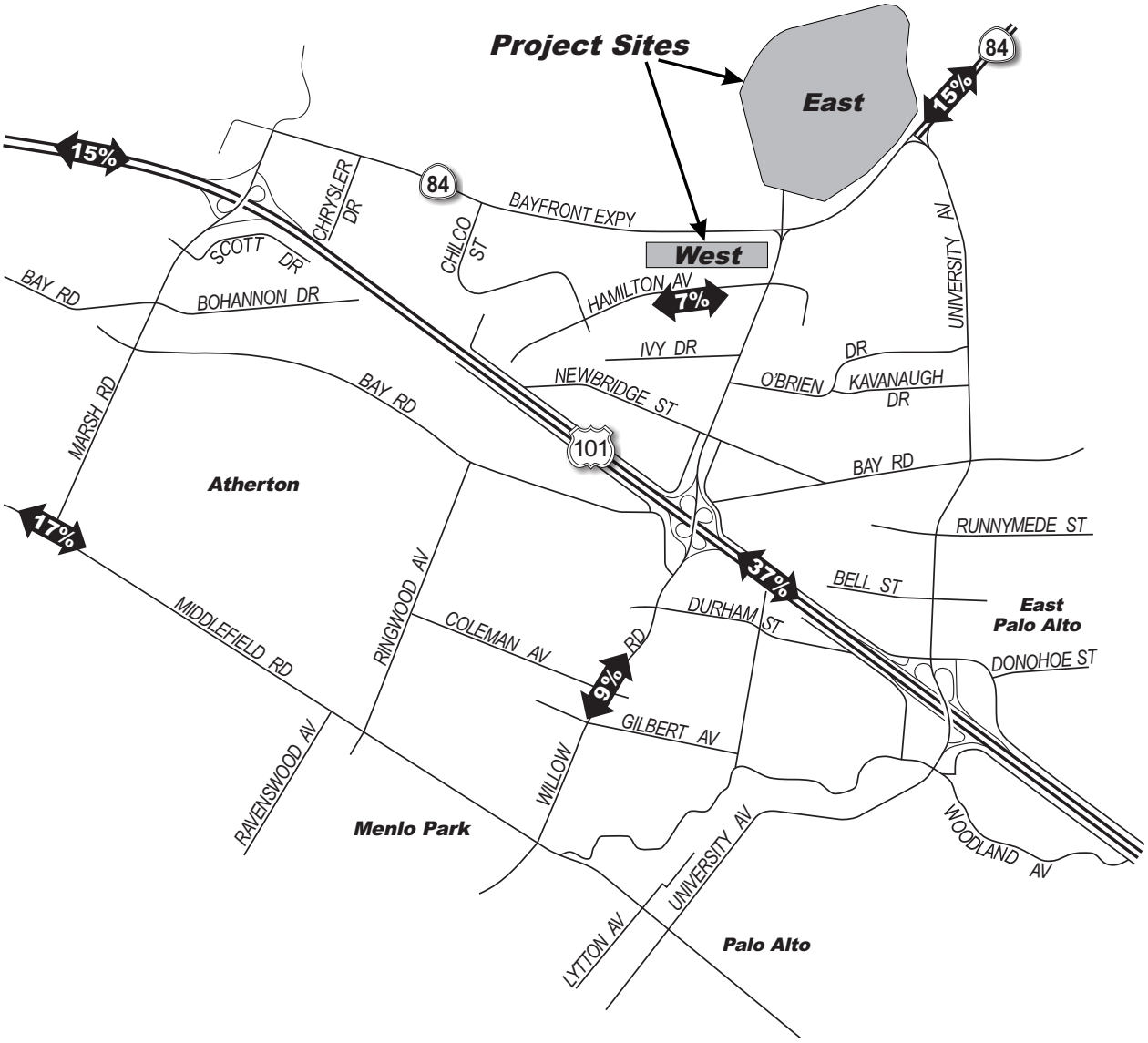
Source: DKS Associates, 2011.

Trips generated by the existing land uses and Project were assumed to have distribution patterns consistent with the employment patterns outlined in Table 6 of the City's Circulation and System Assessment Document (See Appendix 3.5-H). Figure 3.5-9 illustrates the trip distribution patterns, which are based on the City CSA document, for the existing and proposed land uses while Figure 3.5-10 illustrates the Project trip assignment and Figure 3.5-11 details the Near Term 2015 East Campus Only peak hour volumes. The resulting LOS is shown in Table 3.5-12.

TR-1 ***Impacts to Intersections in the Near Term 2015 East Campus Only Condition.*** *Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of several of the study intersections. (PS)*

AM Peak Hour

As shown in Table 3.5-12, the net-new Project traffic would have little effect on the average delay at most of the study intersections when compared to the Near Term 2015 Condition during the AM peak hour. Several intersections that operate with little delay would experience



LEGEND

0% - Trip Distribution Percentage

NORTH
NOT TO SCALE

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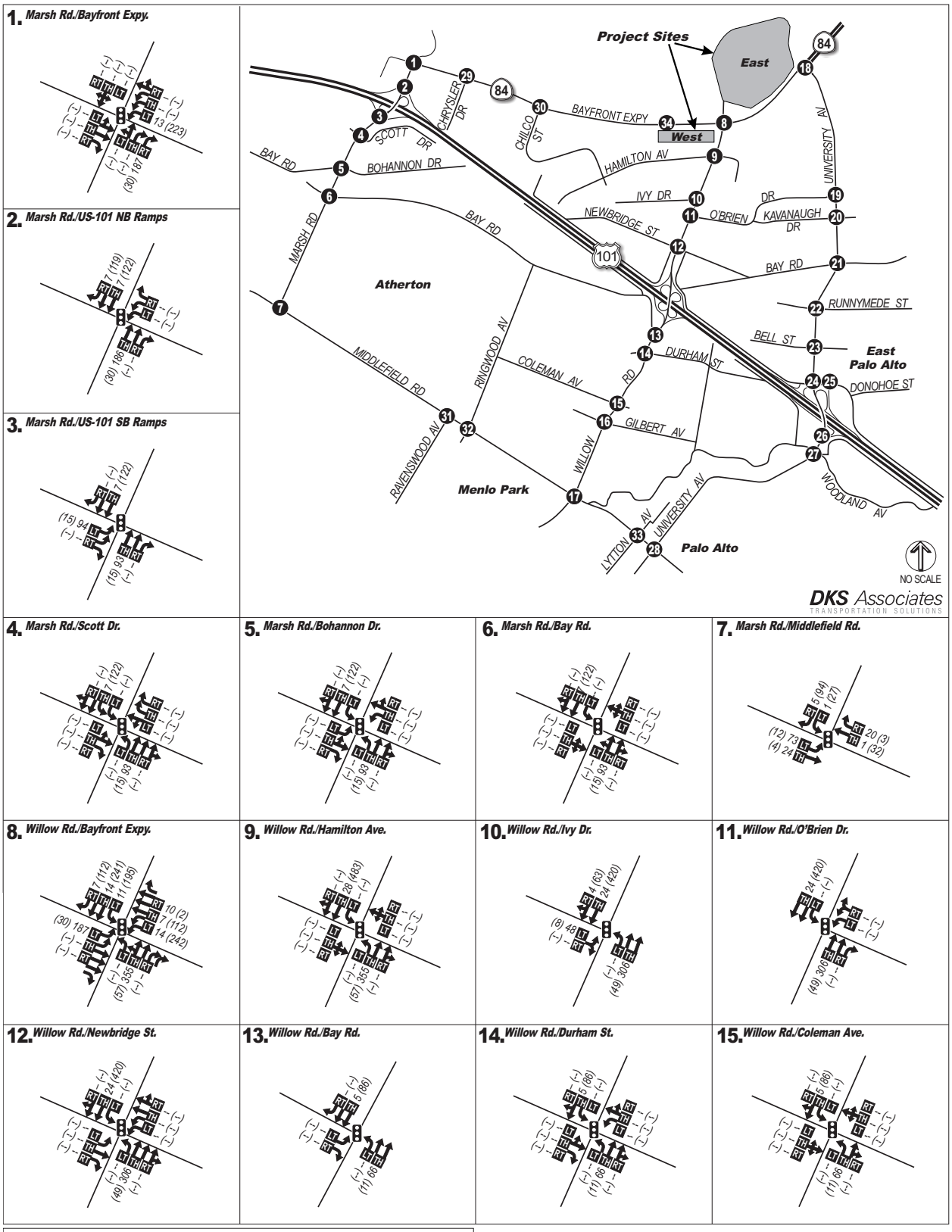
FIGURE 3.5-9
Trip Distribution Percentages

Source: DKS, 2011.



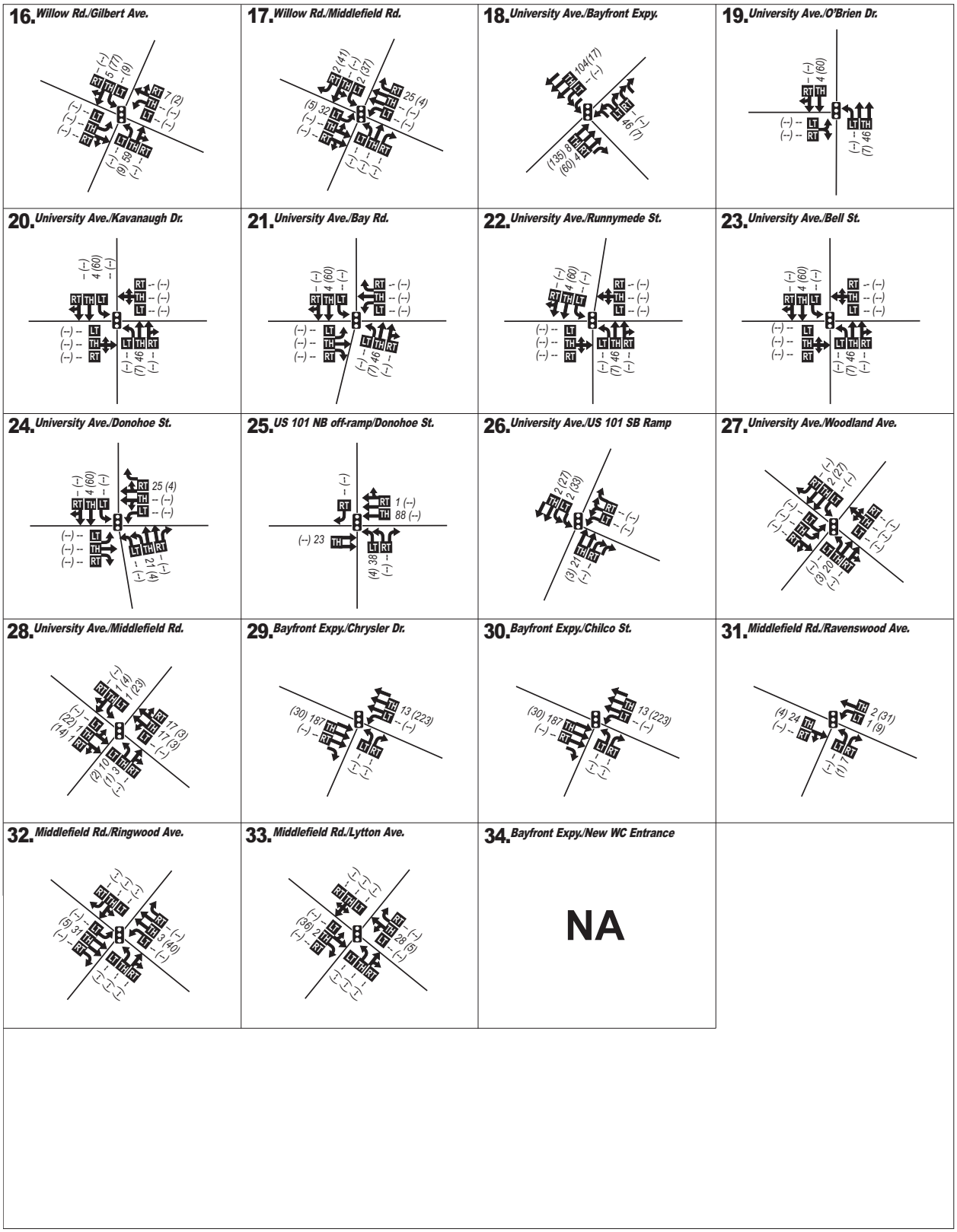
Source: DKS, 2011.

ATKINS

FIGURE 3.5-10a
East Campus Only Generated Trips

100020154

Menlo Park Facebook Campus Project



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

NORTH
NOT TO SCALE

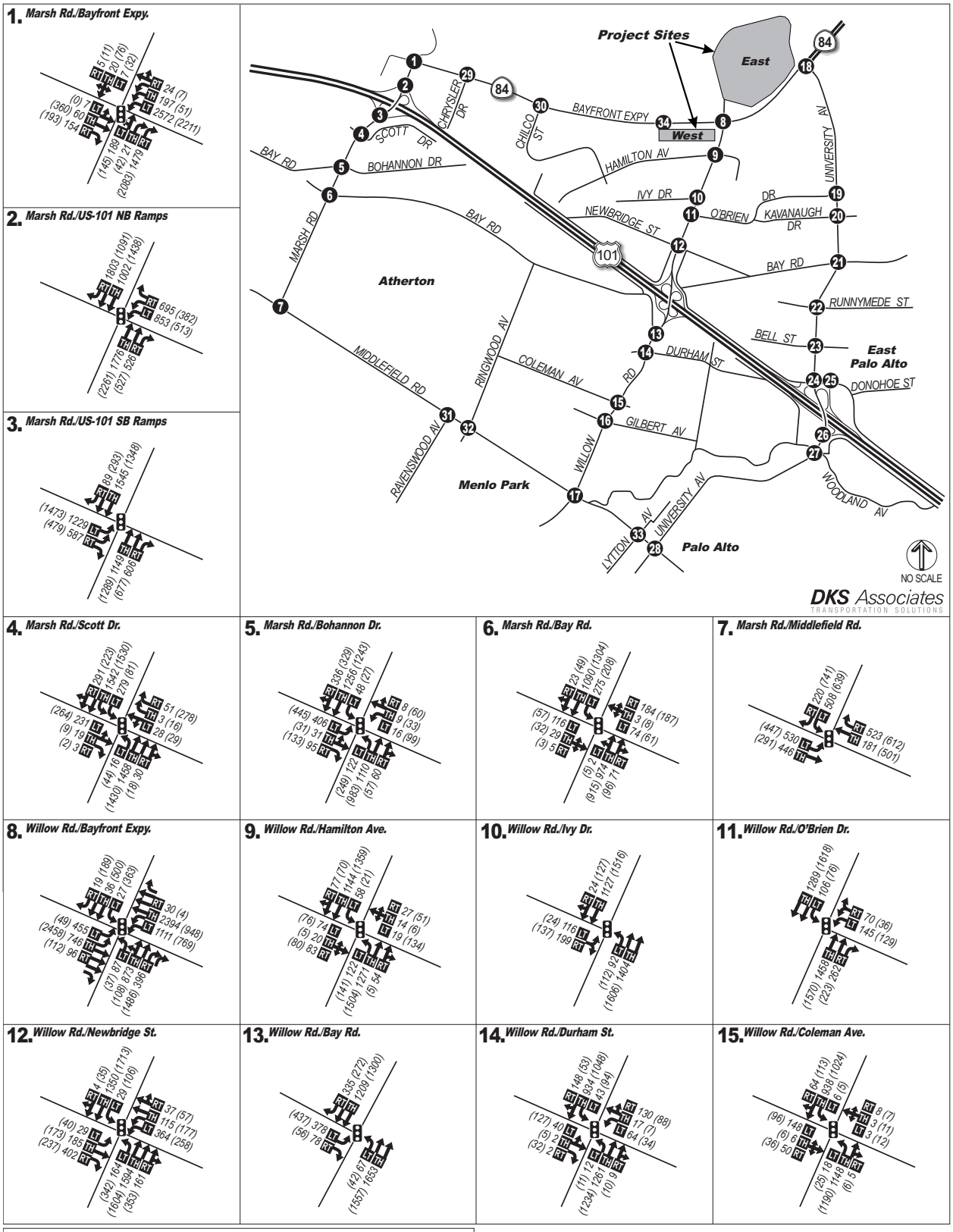
Source: DKS, 2011.

ATKINS

FIGURE 3.5-10b
East Campus Only Generated Trips

100020154

Menlo Park Facebook Campus Project

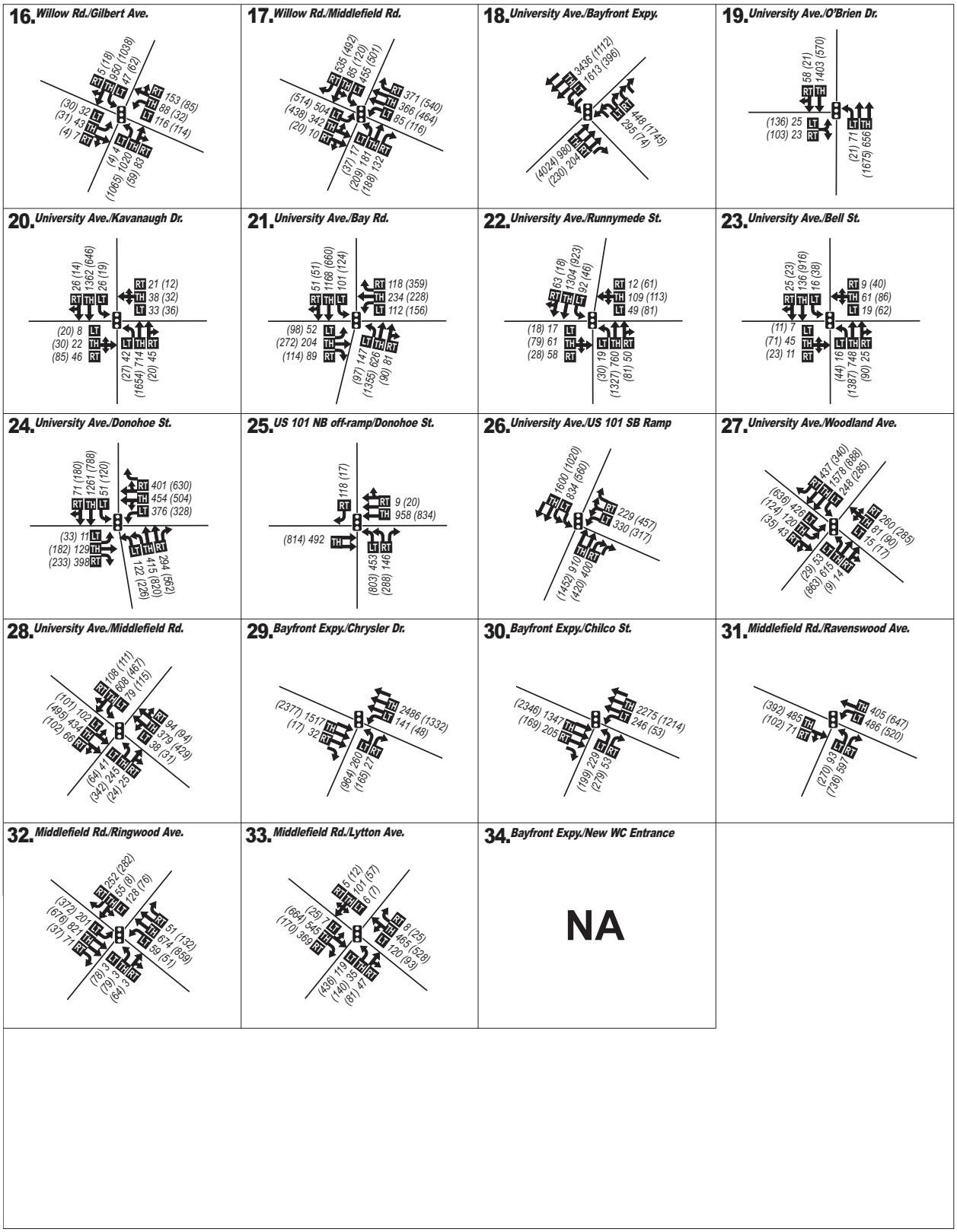


Source: DKS, 2011.

ATKINS

FIGURE 3.5-11a

Near Term 2015 East Campus Only Condition Peak Hour Volumes



Source: DKS, 2011.

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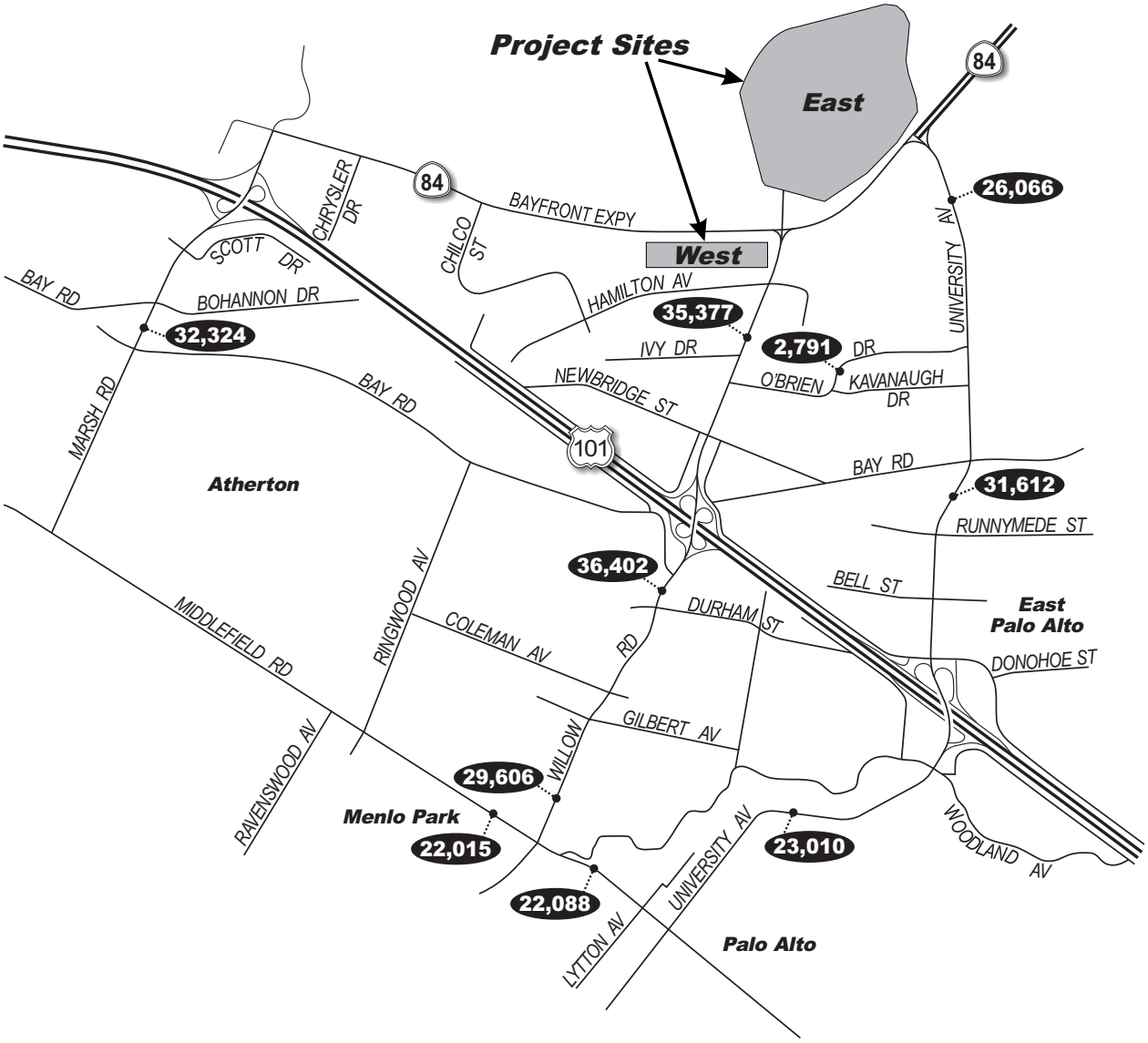
FIGURE 3.5-11b

Near Term 2015 East Campus Only Condition Peak Hour Volumes



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-12

Near Term 2015 East Campus Only Condition Average Daily Traffic

100020154

Menlo Park Facebook Campus Project

Table 3.5-12
Near Term 2015 East Campus Only Condition Level of Service

	Near Term 2015 Condition				Near Term 2015 East Campus Only Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
1. Marsh Rd and Bayfront Exp	22.5	C	52.1	D	22.5	C	53.9	D
2. Marsh Rd and US 101 NB Off-Ramp	33.3	C	27.7	C	43.3	D	28.0	C
3. Marsh Rd and US 101 SB Off-Ramp	23.1	C	21.5	C	24.1	C	23.3	C
4. Marsh Rd and Scott Dr	24.4	C	19.4	B	24.4	C	20.2	C
5. Marsh Rd and Bohannon Dr	15.0	B	20.8	C	14.9	B	20.9	C
6. Marsh Rd and Bay Rd	16.2	B	14.4	B	16.3	B	14.3	B
7. Marsh Rd and Middlefield Rd	24.8	C	34.0	C	26.3	C	38.5	D
8. Willow Rd and Bayfront Exp	34.4	C	72.1	E	45.2	D	**107.1**	**F**
WB Critical Local Approach	62.4	E	146.7	F	**64.8**	**E**	**162.7**	**F**
9. Willow Rd and Hamilton Ave	21.1	C	22.2	C	20.4	C	23.1	C
10. Willow Rd and Ivy Dr	20.7	C	13.2	B	22.5	C	13.6	B
11. Willow Rd and O'Brien Dr	14.1	B	9.5	A	13.2	B	9.1	A
12. Willow Rd and Newbridge St	49.0	D	35.5	D	49.2	D	44.9	D
13. Willow Rd and Bay Rd	20.0	B	20.5	C	20.0	C	20.8	C
14. Willow Rd and Durham St	12.5	B	15.8	B	12.4	B	16.5	B
15. Willow Rd and Coleman Ave	14.1	B	11.0	B	14.9	B	11.6	B
16. Willow Rd and Gilbert Ave	14.9	B	11.1	B	15.8	B	11.3	B
17. Willow Rd and Middlefield Rd	89.2	F	160.0	F	**100.7**	**F**	**169.2**	**F**
18. University Ave and Bayfront Exp	30.2	C	184.1	F	30.7	C	**192.8**	**F**
19. University Ave and O'Brien Dr	6.3	A	13.4	B	6.2	A	13.3	B
20. University Ave and Kavanaugh Dr	13.7	B	16.1	B	13.6	B	16.0	B
21. University Ave and Bay Rd	27.4	C	33.9	C	27.2	C	33.8	C
22. University Ave and Runnymede St	20.2	C	22.8	C	20.1	C	22.7	C
23. University Ave and Bell St	7.4	A	7.7	A	7.2	A	7.6	A
24. University Ave and Donohoe St	39.8	D	36.7	D	40.3	D	37.1	D
25. US 101 NB and Donohoe St	13.7	B	21.3	C	9.1	B	21.3	C
26. University Ave and US 101 SB	17.3	B	25.3	C	17.5	B	25.3	C

Table 3.5-12
Near Term 2015 East Campus Only Condition Level of Service

	Near Term 2015 Condition				Near Term 2015 East Campus Only Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
27. University Ave and Woodland Ave	38.9	D	47.4	D	38.9	D	47.3	D
28. University Ave and Middlefield Rd	38.1	D	33.8	C	39.2	D	34.4	C
29. Bayfront Expressway and Chrysler Dr	17.1	B	81.8	F	17.1	B	**81.6**	**F**
EB Critical Local Approach	51.8	D	106.2	F	52.0	D	**109.0**	**F**
30. Bayfront Expressway and Chilco St	19.2	B	18.6	B	19.2	B	18.1	B
31. Middlefield Rd and Ravenswood Ave	22.8	C	26.7	C	23.1	C	26.7	C
32. Middlefield Rd and Ringwood Ave	25.4	C	29.2	C	25.3	C	29.2	C
33. Middlefield Rd and Lytton Ave	38.9	D	86.1	F	40.1	D	**92.8**	**F**
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections
Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches
BOLD indicated potentially significant impact

decreases in average delay due to the addition of trips to movements with delays less than the intersection average. Most other intersections would experience increases in average delay of between zero and eleven seconds. At the intersection of Willow Road and Middlefield Road, the critical movements delay would increase by more than 0.8 seconds, a potentially significant impact. Increases in delay at all other intersections would be considered ***less than significant*** according to each jurisdiction's criteria during the AM peak hour.

PM Peak Hour

During the Near Term 2015 East Campus Only Condition PM peak hour, the net-new Project traffic would result in increased average delay at several intersections, creating ***potentially significant*** impacts at the following intersections:

- Willow Road and Bayfront Expressway
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Avenue
- Middlefield Road and Lytton Avenue

For City-controlled intersections that contain two arterial roadways and operate at LOS E or F: the intersection of Willow Road and Middlefield Road has an increase in delay of greater than 0.8 seconds at the critical approaches resulting in a ***potentially significant*** impact at this location.

The State-controlled intersections of University Avenue and Bayfront Expressway and Willow Road and Bayfront Expressway would experience an increase in delay resulting in a ***potentially significant*** impact.

The local approach to the state intersection of Bayfront Expressway and Chrysler Drive would experience an increase in delay resulting in a ***potentially significant*** impact.

The Palo Alto intersection of Middlefield Road and Lytton Avenue would experience an increase in delay resulting in a ***potentially significant*** impact.

MITIGATION MEASURE. Mitigation Measure TR-1.1 involves intersection improvements to mitigate or reduce the impacts of the Project under the Near Term 2015 East Campus Only Condition. However, intersection impacts would remain ***significant and unavoidable*** since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. (SU)

TR-1.1 *Intersection Improvements*. The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way when travel lanes are added.

See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures.

a. Willow Road and Bayfront Expressway

The proposed partial mitigation measures for the intersection of Willow Road and Bayfront Expressway include an additional eastbound right turn lane with a right turn overlap phase from Willow Road to Bayfront Expressway, a new Class I bikeway between the railroad tracks and the existing Bay Trail, closing the outbound direction of the driveway at Building 10 to simplify maneuvering through the Hacker Way stop-controlled intersection (inbound access would still be provided), lengthening the existing right-turn pocket at the westbound approach to a full lane between Bayfront Expressway and Hacker Way, and ensuring the crosswalk across Hacker Way is accommodated safely.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Willow Road and Bayfront Expressway for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way and on the East Campus egress approach, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, signage and striping modifications further west on Willow Road, and the design of the eastbound direction Class I bikeway from the railroad tracks to the intersection of Willow Road and Bayfront Expressway. The plans shall be subject to review and approval of the Public Works Department prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the on-site improvements within 180 days of City approval of the plans. The Project Sponsor shall construct the off-site improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval

to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City. Construction of this improvement by the Project Sponsor shall count as a future credit toward payment of the Transportation Impact Fee (TIF) pursuant to the TIF Ordinance. In the event any portion of the intersection improvements is eligible for funding in whole or in part by C/CAG, such improvements may be deferred by the City in its sole discretion to pursue such funding and the Project Sponsor may be relieved of its responsibility to construct such portion of the intersection improvements as may be funded by C/CAG, or such responsibility may be deferred until eligibility for funding is determined. Because the proposed mitigation would not fully mitigate the impact, it remains ***significant and unavoidable***.

b. Willow Road and Middlefield Road

The proposed mitigation measure for the intersection of Willow Road and Middlefield Road includes restriping an existing northbound through lane to a shared through a right-turn lane. Implementing this improvement would require traffic signal modifications, removal of the existing triangular median on the southeast corner of the intersection, along with realignment of the crosswalks on the south and east side of the intersection.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measure at the intersection of Willow Road and Middlefield Road for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director. Upon obtaining approval from the City, the Project Sponsor shall construct the improvements within 180 days of the encroachment permit approval date by the City. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. With the implementation

of this mitigation measure, the impact would be reduced to a ***less–than-significant*** level.

c. University Avenue and Bayfront Expressway

The proposed mitigation measure for the intersection of University Avenue and Bayfront Expressway includes an additional southbound through lane and receiving lane. A revised signal timing plan would also be needed. The additional southbound through lane and southbound receiving lane are not feasible due to the right-of-way acquisition from multiple property owners, potential wetlands, relocation of the Bay Trail, and significant intersection modifications, which are under Caltrans jurisdiction. However, the installation of a Class I bikeway (portion of the Bay Trail from west of the railroad tracks to the intersection of University Avenue and Bayfront Expressway) is a feasible, partial mitigation measure for the impact. This partial mitigation measure would require paving, grading, drainage and signing and striping improvements.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed partial mitigation measure along University Avenue between Bayfront Expressway and the railroad tracks for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, and signage and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of Menlo Park and East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the proposed improvements within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the

Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, and transit improvements, and TDM programs throughout the City, with priority given to portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Because the proposed mitigation would not fully mitigate the impact, it remains ***significant and unavoidable***.

d. Bayfront Expressway and Chrysler Drive

The proposed mitigation measures for the intersection of Bayfront Expressway and Chrysler Drive include restriping the existing eastbound right turn lane to a shared left-right-turn lane.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Bayfront Expressway and Chrysler Drive for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not

limited to, bicycle, pedestrian, and transit improvements and TDM programs, throughout the City with priority given to portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, it remains ***significant and unavoidable*** because the intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented.

e. Middlefield Road and Lytton Avenue

The proposed mitigation measures for the intersection of Middlefield Road and Lytton Avenue include adding an additional eastbound left-turn lane. The additional eastbound left-turn lane is not feasible due to the additional right-of-way acquisition from multiple owners, and significant intersection modifications, which are under City of Palo Alto jurisdiction. Because the improvement is under the City of Palo Alto jurisdiction and is infeasible and the City cannot guarantee it would be implemented, the impact remains ***significant and unavoidable***.

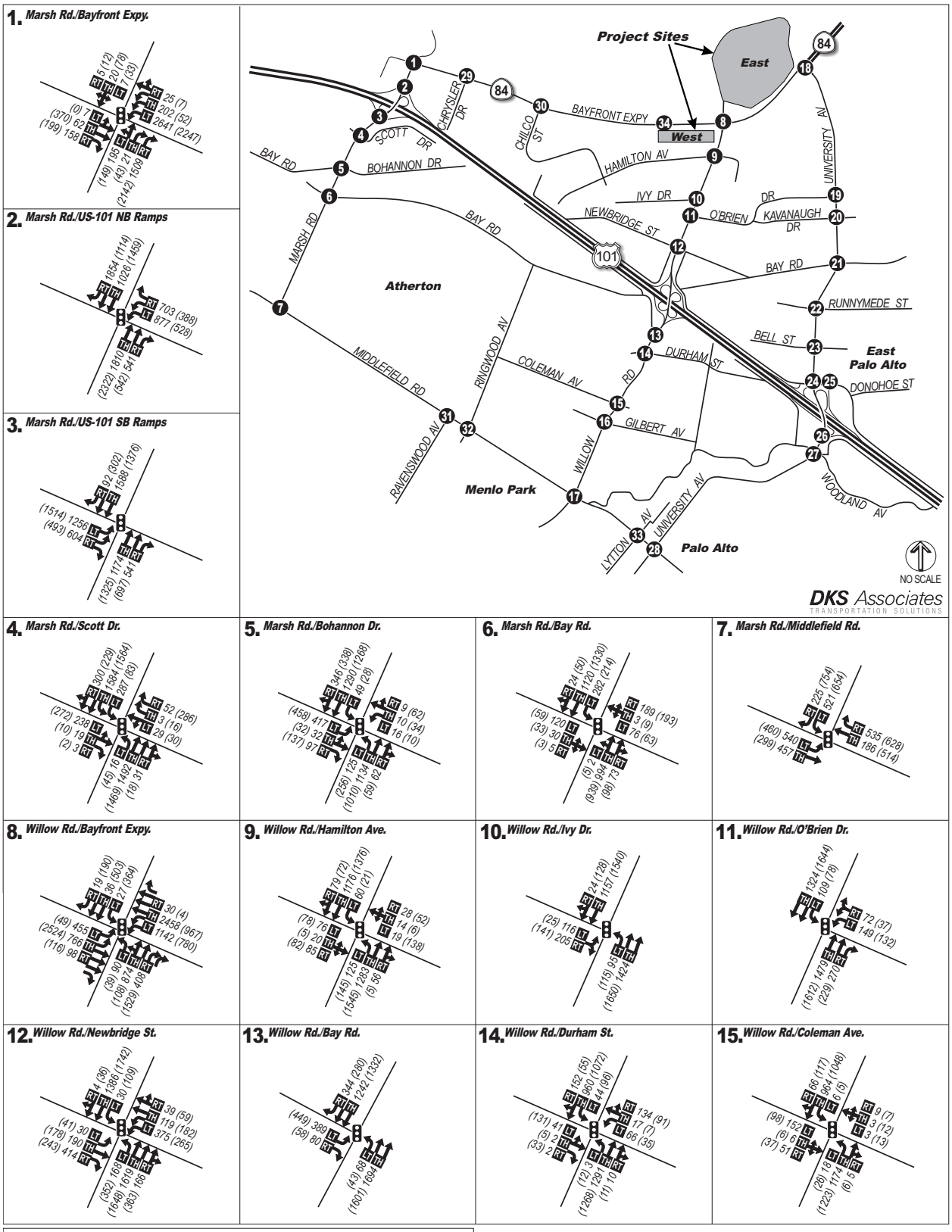
TR-2 ***Impacts on Roadway Segments in the Near Term 2015 East Campus Only Condition.*** *Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased ADT volumes on Project area roadway segments resulting in a potentially significant impact. (PS)*

The Project would generate approximately 9,606 net new daily trips during a typical weekday. Based on the criteria described in the Significance Criteria section, five of the roadway study segments would experience potentially significant impacts for the Near Term 2015 with East Campus Only Condition. It should be noted that Willow Road between Bay Road and the railroad tracks, and University Avenue between the railroad tracks and Palm Street are classified as primary arterials and are not subject to ADT analysis or thresholds. Figure 3.5-13 shows the Near Term 2015 East Campus Only Condition ADT. Table 3.5-13 shows the comparison between the Existing, Near Term 2015 Condition, and Near Term 2015 East Campus Only Condition and the corresponding ADT increases between each scenario.

The net volume added by the Project on the following Minor Arterial segments is higher than the corresponding 100 vehicle threshold, resulting in ***potentially significant*** impacts.

- Marsh Road (between Bay Road and the railroad tracks)
- Willow Road (between Durham Street and Chester Street)
- Willow Road (between Nash Avenue and Blackburn Avenue)
- Middlefield Road (between Linfield Drive and Survey Lane)

O'Brien Drive (classified as a collector street) would not be impacted.

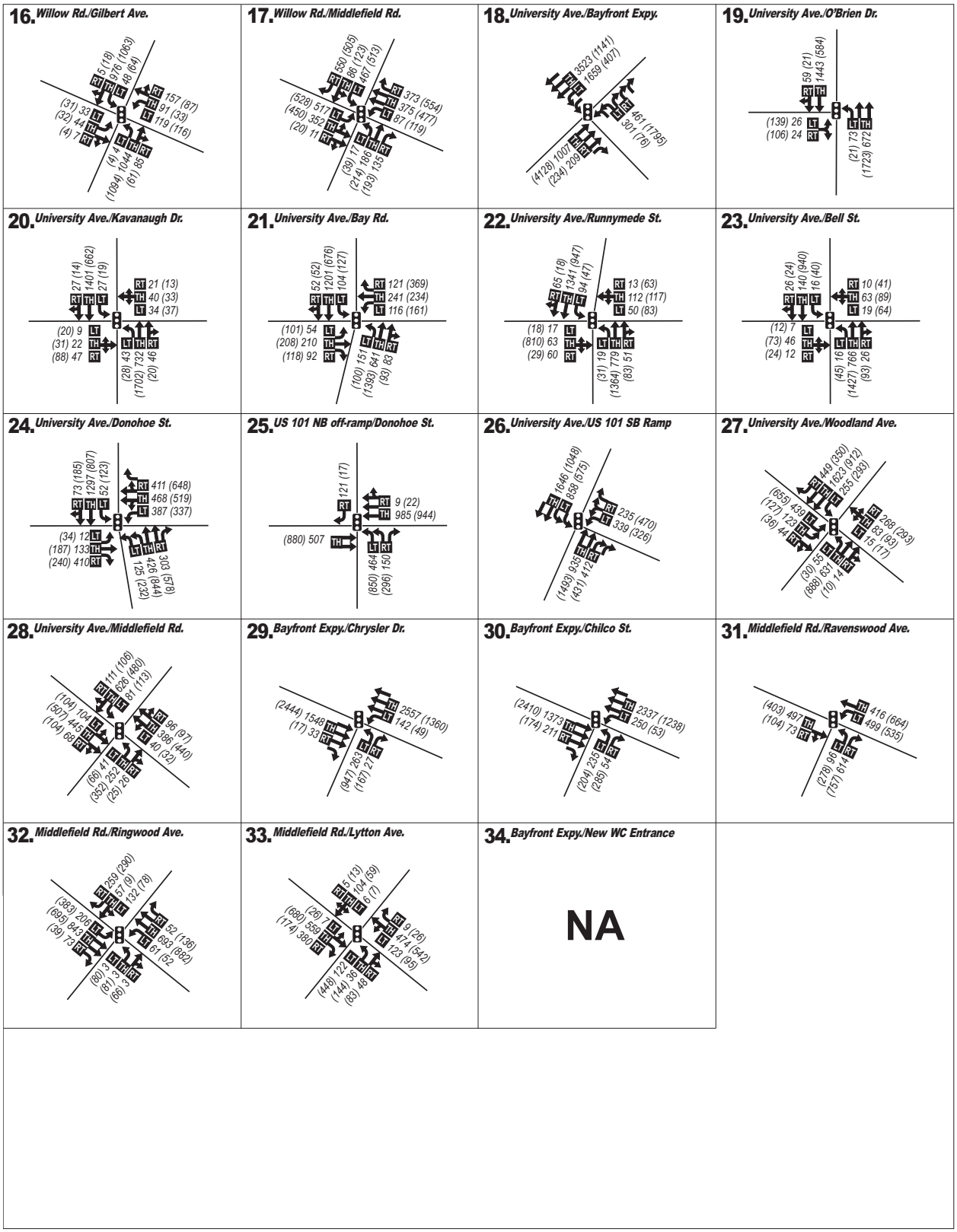


Source: DKS, 2011.

ATKINS

FIGURE 3.5-13a

Near Term 2015 East Campus Only Condition Peak Hour Volumes



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-13b

Near Term 2015 East Campus Only Condition Peak Hour Volumes

Table 3.5-13
Near Term 2015 East Campus Only Condition Average Daily Traffic Summary

			Existing	Near Term 2015 Condition	Near Term 2015 East Campus Only Condition				
Roadway Segment	**Roadway Class**	**Threshold**	**Volume**	**ADT**	**ADT**	**Net Volume Added for Project**	**% Change from Near Term 2015 Condition**	**Change in TIRE index > 0.1 from Near Term 2015 Condition**	**Potentially significant impact?**
Marsh Rd (Bay Rd and Railroad Tracks)	MA	20,000	27,428	30,976	32,272	1,296	4.2%	N/A	**Y**
Willow Rd (Ivy Dr and Hamilton Ave)	PA	NA	26,304	30,147	35,183	5,036	16.7%	N/A	exempt
Willow Rd (Durham St and Chester St)	MA	20,000	32,745	35,454	36,366	912	2.6%	N/A	**Y**
Willow Rd (Nash Ave and Blackburn Ave)	MA	20,000	26,032	28,758	29,574	816	2.8%	N/A	**Y**
University Ave (Railroad Tracks and Purdue Ave)	PA	NA	24,023	25,398	26,042	644	2.5%	N/A	exempt
University Ave (Bell St and Runnymede St)	PA	NA	29,431	30,944	31,588	644	2.1%	N/A	exempt
Middlefield Rd (Linfield Dr and Survey Ln)	MA	20,000	20,069	21,565	21,997	432	2.0%	N/A	**Y**
O'Brien Dr (Adams Dr and Casey Ct)	C	10,000	2,611	2,791	2,791	0	0.0%	N/A	N
University Ave (Maple St and Palm St)	PA	NA	21,413	22,710	22,998	288	1.3%	N	N
Middlefield Rd (Hawthorne Ave and Everett Ave)	MA	20,000	19,362	21,688	21,872	184	0.8%	N	N

Source: DKS Associates, 2011.

Notes:

City of Menlo Park Segment Criteria:

L = Local Street. Impact if ADT is >1,350 vehicles and project adds >25 trips, or ADT is >750 and project increases ADT by 12.5%, or ADT is <750 and project increases ADT by 25%.

C = Collector Street. Impact if ADT is >9,000 vehicles and project adds >50 trips, or ADT is >5,000 and project increases ADT by 12.5%, or ADT is <5,000 and project increases ADT by 25%.

MA = Minor Arterial. Impact if ADT is >18,000 vehicles and project adds >100 trips, or ADT is >10,000 and project increases ADT by 12.5%, or ADT is <10,000 and project increases ADT by 25%.

PA = Primary Arterial. Primary arterials are exempt from ADT thresholds but are included in the report for informational purposes.

For City of Palo Alto, roadway segments would experience a potentially significant impact if TIRE increases by 0.1 or greater.

BOLD indicates potentially significant impact.

It should be noted that some net-new Project-related trips would travel to destinations in the Belle Haven neighborhood. However, the problem of cut-through traffic through the Belle Haven neighborhood is anticipated to be minimal due to the projected average delays at intersections on Bayfront Expressway and on Willow Road, implemented traffic calming, and improvements along Bayfront Expressway. Existing turning movement restrictions include no left turns from Chilco Street onto Hamilton Avenue between 3:30 and 7:00 p.m. While no other turn restrictions are anticipated for the Belle Haven neighborhood, intersection improvements near the Project site, including intersection improvements at Chrysler Drive and Bayfront Expressway, and Chilco Street and Bayfront Expressway, would improve traffic flow and keep queues to a minimum. With these improvements, traffic would access Bayfront Expressway and US 101 closer to the Project site, thereby minimizing cut-through traffic through the Belle Haven neighborhood.

MITIGATION MEASURE. Mitigation Measure TR-2.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2015 East Campus Only Condition on daily roadway segment operations. However, to improve daily roadway operations a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway segments would still have ***significant and unavoidable*** impacts because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners. (SU)

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it can viewed as more than an LOS or traffic operation issue.

TR-2.1 *Roadway Segment Improvements*. Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way, which can impact local property owners.

a. Marsh Road between Bay Road and the railroad tracks

An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct

the improvements. Therefore, the impacts to the roadway segment would remain ***significant and unavoidable***.

b. Willow Road between Durham Street and Chester Street

An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain ***significant and unavoidable***.

c. Willow Road between Nash Avenue and Blackburn Avenue

An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain ***significant and unavoidable***.

d. Middlefield Road between Linfield Drive and Survey Lane

An additional lane of travel would provide an increase in capacity and would mitigate the impacts to the roadway segment; however, the mitigation is not feasible because there is a lack of sufficient available right-of-way to construct the improvements. Therefore, the impacts to the roadway segment would remain ***significant and unavoidable***.

TR-3 ***Impacts to Routes of Regional Significance in the Near Term 2015 East Campus Only Condition.*** *Increases in traffic associated with the Project under Near Term 2015 East Campus Only Condition would potentially result in significant impacts to several Routes of Regional Significance. (PS)*

Nine selected roadway segments within the Project vicinity are considered Routes of Regional Significance by the San Mateo County CMP (i.e., SR 84, SR 109, SR 114, and US 101). The Project would add traffic to Routes of Regional Significance in the study area by increasing the delay and possibly the LOS. However, because several of these freeway segments are already operating at their respective LOS standards, the traffic increase for these segments would be considered a potentially significant impact. The arterials, however, are operating at less than their LOS standard and the traffic increase will not result in a potentially significant impact. Table 3.5-14 summarizes the estimated percent of capacity added to the Routes of Regional Significance. For Routes of Regional Significance, the C/CAG threshold significance criteria threshold is indicated as one percent of the respective roadway segment's existing capacity. If the Project-related trips added to a roadway segment meets or exceeds one percent of the existing roadway capacity, then a ***potentially significant*** impact has occurred.

Table 3.5-14
Near Term 2015 East Campus Only Condition Routes of Regional Significance

Route	Segment	Condition LOS[a]	LOS Standard[a]	Estimated Capacity[b] (vph)	Net-new Project Trips[c]	Percent of Capacity	Significant Impact?
SR 84	NB US 101 to Willow Road	E	D	3,300	362	11.8%	**Y**
SR 84	NB Willow Road to University Avenue	F	E	3,300	554	16.8%	**Y**
SR 84	SB University Avenue to County Line	F	F	3,300	317	9.6%	**Y**
SR 109	EB US 101 to Bayfront Expressway	D	E	2,200	109	5.0%	N
SR 114	EB US 101 to Bayfront Expressway	C	E	2,200	723	32.9%	N
US 101	NB North of Marsh Road	F	F	9,200	219	2.4%	**Y**
US 101	SB Marsh Road to Willow Road	F	F	9,200	24	0.3%	N
US 101	NB Willow Road to University Avenue	F	F	9,200	544	5.9%	**Y**
US 101	SB South of University Avenue	F	F	9,200	541	5.9%	**Y**

Source: DKS Associates, 2011; San Mateo County CMP Monitoring Report, 2009.

Notes:

a. Source: 2009 San Mateo County CMP Monitoring Report.

b. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six lane segments and 2,200 vphpl for four lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl saturation flow rate (1,140 vphpl is rounded to 1,100 vphpl).

c. For peak hour of Project traffic.

BOLD indicates potentially significant impact

Under Near Term 2015 East Campus Only Condition, the following Routes of Regional Significance would be impacted by the Project.

- NB SR 84 between US 101 to Willow Road
- NB SR 84 between Willow Road and University Avenue
- SB SR 84 between University Avenue and County Line
- NB US 101 North of Marsh Road
- NB US 101 between Willow Road and University Avenue
- SB US 101 South of University Avenue

The Project would increase traffic that would exceed the allowable one percent thresholds resulting in ***potentially significant*** impacts.

MITIGATION MEASURE. Mitigation Measure TR-3.1 involves roadway improvements to mitigate impacts of the Project under the Near Term 2015 East Campus Only Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would

remain ***significant and unavoidable*** because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are planned and funded on a regional scale and would be too costly for a single project to be expected to fund. (SU)

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it can viewed as more than an LOS or traffic operation issue.

TR-3.1 *Routes of Regional Significance Improvements.* Routes of Regional Significance could be improved with additional travel lanes, but the routes are under the jurisdiction of Caltrans.

a. SR 84 between US 101 and Willow Road

Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

b. SR 84 between Willow Road and University Avenue

Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

c. SR 84 between University Avenue and County Line

Adding a travel lane would increase capacity, but adding an additional lane to the roadway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

d. US 101 North of Marsh Road

Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

e. US 101 between Willow Road and University Avenue

Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

f. US 101 between South of University Avenue

Adding a travel lane would increase capacity, but adding an additional lane to the freeway is not a feasible mitigation due to right-of-way constraints and because it is under Caltrans' jurisdiction. Therefore, the impact is ***significant and unavoidable***.

TR-4 ***Impacts to Local Transit Systems in the Near Term 2015 East Campus Only Condition.*** *The Project under Near Term 2015 East Campus Only Condition would not result in any impacts to the local transit system. This impact is less than significant. (LTS)*

Current public bus service in the Project vicinity is limited, with the Dumbarton Express the only route providing direct service to the site. The closest SamTrans line stop (Route 281) is located several blocks away at Ivy Drive and Willow Road. The proposed Dumbarton Rail Corridor Project, when completed, would place a station within a 0.5-mile walking distance of the East Campus and West Campus. The Project Sponsor plans to operate private shuttles to and from transit centers, including the Menlo Park and Redwood City Caltrain Stations and residential centers for employees. With the implementation of the Project's TDM program, additional shuttles to meet the increase in rider demand would be provided. Therefore, the Project is not anticipated to add substantial demand to the existing transit services and, therefore, the impact is ***less than significant***.

TR-5 ***Impacts to Local Bicycle and Pedestrian Facilities in the Near Term 2015 East Campus Only Condition.*** *The Project under Near Term 2015 East Campus Only Condition would not result in any impacts to local bicycle and pedestrian facilities. This impact is less than significant. (LTS)*

While there are existing bicycle facilities on several major routes to access the East Campus, there are several gaps in the Citywide network, including Willow Road at the US 101 interchange, and the Willow Road approach to the Bayfront Expressway/Willow Road intersection. With occupancy of the proposed East Campus, it is expected that bicycle demand

on the roadways and paths leading to the campus will increase as employees choose to bicycle commute to the new campus. The Project Sponsor has proposed to incorporate bicycle improvements as part of the Project, to encourage employee ridership to the Campus, and to improve the Citywide bicycle network. These improvements, which are consistent with the City of Menlo Park's Comprehensive Bicycle Development Plan, are described below.

The existing undercrossing of Bayfront Expressway at Willow Road is proposed to be improved to provide a connection from the City to the Bay Trail as part of the Project. This connection would provide bicyclists and pedestrians a grade-separated route to cross Bayfront Expressway. The undercrossing would be opened during initial occupancy of the East Campus, and would be improved with later construction and development of the West Campus to provide a people mover system to link the East Campus and West Campus. Additionally, pathways to connect from the Willow Road frontage (from the existing sidewalk that ends between Hamilton Avenue and the railroad crossing) to the undercrossing and from the undercrossing to the BCDC Shoreline Trail, to link to the Bay Trail, would be constructed. These improvements are both identified as tong-term needs in the City's Bike Plan. When constructed, they will reduce bicycle and pedestrian exposure crossing the existing at-grade signalized intersection at Willow Road and provide improved access and connectivity to the Bay Trail. Separate from the Project, the Project Sponsor is also working with the City and Caltrans to restripe the existing bicycle lanes on Willow Road between US 101 and Bayfront Expressway. The striping has worn away over time; thus, this needed maintenance will refresh the bicycle lanes and make them more visible to motorists and cyclists on Willow Road in the near term.

The Project also includes a comprehensive TDM program. The TDM program would promote bicycle use through provision of secured bicycle parking, bicycle racks, showers and changing rooms, and a bicycle share program. The East Campus central courtyard has been redesigned to incorporate small plazas and public gathering spaces that would encourage bicycle and pedestrian use. New sidewalks and crosswalks to connect the proposed undercrossing with the front door of the East Campus are planned, and encircle the site to provide connections for employees to access the buildings. Additionally, as part of the Project, design features, such as access points, pedestrian-scale design and lighting features, and landscaping would be provided to encourage pedestrian and bicycle travel to and around the Campus.

The City has several planned projects listed in the City's Comprehensive Bicycle Development Plan:

- Class I along Willow Road between Hamilton Avenue and Bayfront Expressway
- Class I Connector Path along Independence Drive - a combined bike and pedestrian path from Constitution Drive to the corner of Marsh Road and Bayfront Expressway
- Class II along O'Brien Drive between University Avenue and Willow Road
- Class II on Marsh Road between Bay Road and Bayfront Expressway

- Class II on Willow Road between Newbridge Street and Durham Street
- Class III on Constitution Drive between Marsh Road and Chilco Street
- Class III on Hamilton Avenue between Bay Road and Willow Road

The Project does not conflict with any of the planned improvements identified in the City's Bike Plan. Additionally, the bike improvements incorporated as part of the Project are expected to significantly improve bicycle access to the East Campus, thus, impacts to bicycle and pedestrian access, safety and facilities are considered ***less than significant***.

Ramp Analysis

While a ramp analysis is not normally included in an EIR analysis, it has been analyzed in this Draft EIR for informational purposes. Caltrans requested a ramp analysis for the US 101 and Willow Road interchange following their review of the NOP and the ramp analysis has been performed to satisfy this request. An analysis of ramps at Willow Road and US 101 is shown in Table 3.5-15. The highest AM peak hour ramp demand for the Near Term 2015 Condition occurs from northbound US 101 to eastbound Willow Road. For the PM peak hour, the highest demand occurs from northbound US 101 to eastbound Willow Road as well.

Table 3.5-15
Near Term 2015 Conditions Ramp Analysis

		Near Term 2015 Condition			Near Term 2015 East Campus Only Condition		
From	**To**	**AM Peak Hour**	**PM Peak Hour**	**ADT**	**AM Peak Hour**	**PM Peak Hour**	**ADT**
NB US 101	EB Willow Road	1,031	1,249	11,406	1,262	1,286	13,005
EB Willow Road	NB US 101	451	357	4,594	451	357	4,594
WB Willow Road	NB US 101	377	454	5,046	379	488	5,226
NB US 101	WB Willow Road	572	401	6,739	572	401	6,739
SB US 101	WB Willow Road	334	388	5,218	334	388	5,218
WB Willow Road	SB US 101	1,004	1,021	9,534	1,021	1,321	11,133
EB Willow Road	SB US 101	789	519	9,755	789	519	9,755
SB US 101	EB Willow Road	242	526	5,457	252	528	5,529

Source: DKS Associates and Caltrans Census, 2011.

For the Near Term 2015 East Campus Only Condition, the highest AM peak hour ramp volumes would occur from northbound US 101 to eastbound Willow Road while the ramp from westbound Willow Road to southbound US 101 would experience the highest number of vehicles in the PM peak hour.

Near Term 2018 Condition

The Near Term 2018 Condition consists of the Near Term 2015 Condition plus three more years of one percent ambient growth (for a total of 7 years ambient growth). Full occupancy of the East Campus as detailed in the Near Term 2015 East Campus Only Condition trip generation is assumed.

Programmed/Planned Transportation Facility Improvements

Within the Project area, programmed or planned transportation facility improvements are the same as those assumed as part of Near Term 2015 Condition.

No planned/programmed improvements would be implemented by the time the near term developments are built and occupied. Intersection geometrics will remain the same as with existing conditions with the exception of one Menlo Gaeteway. While Menlo Gateway identifies three committed mitigation measures, only the one at the intersection of Marsh Road and Bohannon Drive is included in this analysis since it is the only one under the City's control to implement. This mitigation measure would include an additional westbound right-turn lane from Marsh Road to Florence Street. Slight changes to signal timing parameters are based on the CSA.

Traffic Volumes and Levels of Service

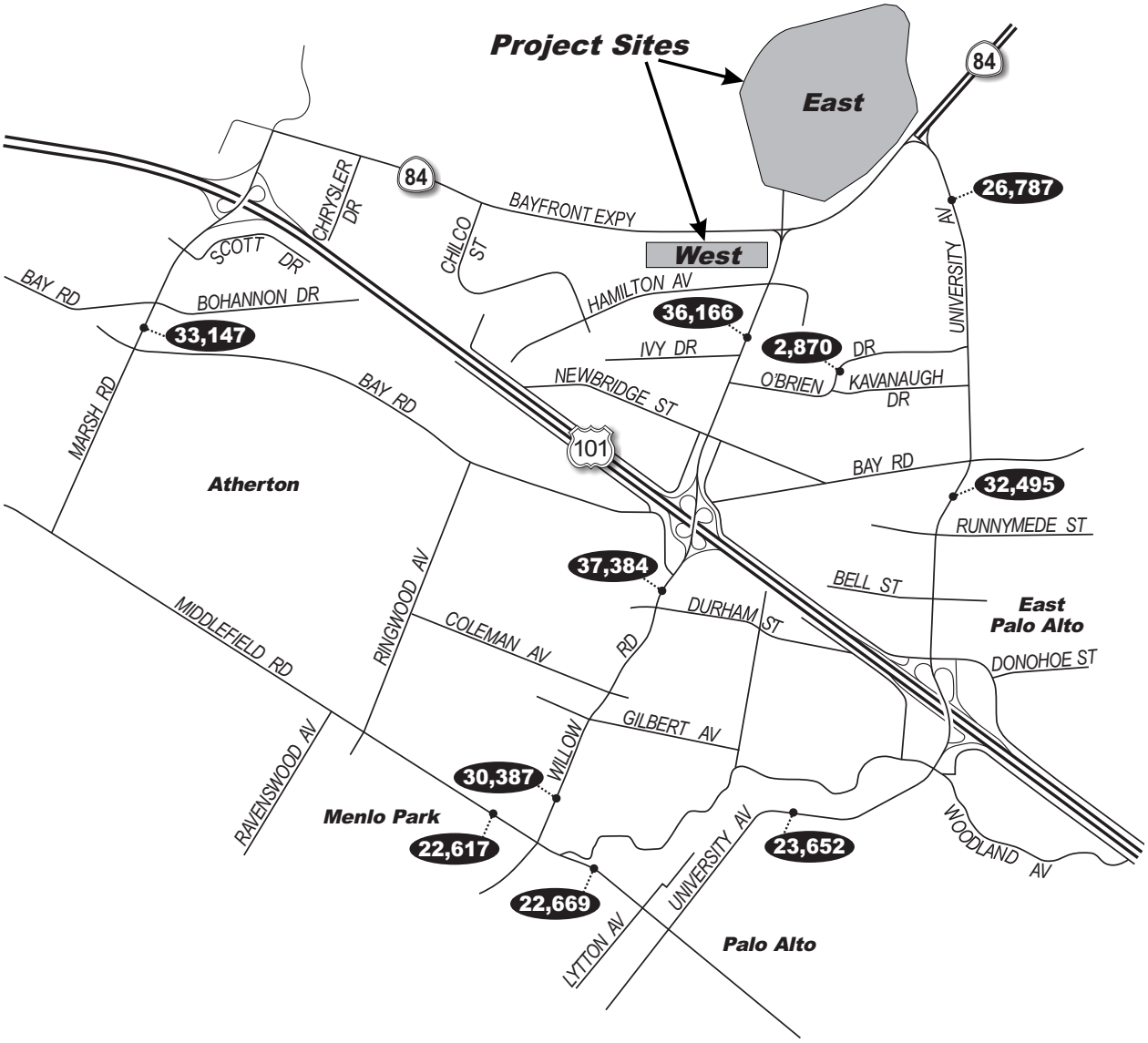
The Near Term 2018 Conditions peak hour intersection turning movement volumes are illustrated in Figure 3.5-14. Table 3.5-16 summarizes the intersection operating conditions during the near-term AM and PM peak hours.

As shown, all study intersections are expected to operate at acceptable LOS under the Near Term 2018 Condition with the exception of the following:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Avenue
- Middlefield Road and Lytton Avenue

Also, four local approaches to State-controlled intersections would operate at unacceptable LOS during the Near Term 2018 Condition. These local approaches include:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Bayfront Expressway and Chrysler Avenue



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-14
Near Term 2018 Condition Average Daily Traffic

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Menlo Park Facebook Campus Project

Table 3.5-16
Near Term 2018 Condition Level of Service

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. Marsh Rd and Bayfront Exp	23.4	C	61.1	E
SB Critical Local Approach	84.2	F	118.0	F
WB Critical Local Approach	66.4	E	155.8	F
2. Marsh Rd and US 101 NB Off-Ramp	46.7	D	33.4	C
3. Marsh Rd and US 101 SB Off-Ramp	25.6	C	25.4	C
4. Marsh Rd and Scott Dr	26.6	C	21.1	C
5. Marsh Rd and Bohannon Dr	15.1	B	21.4	C
6. Marsh Rd and Bay Rd	16.7	B	14.5	B
7. Marsh Rd and Middlefield Rd	26.9	C	41.6	D
8. Willow Rd and Bayfront Exp	46.1	D	115.6	F
WB Critical Local Approach	64.9	E	173.7	F
9. Willow Rd and Hamilton Ave	20.7	C	23.7	C
10. Willow Rd and Ivy Dr	22.9	C	14.0	B
11. Willow Rd and O'Brien Dr	13.4	B	9.3	A
12. Willow Rd and Newbridge St	52.2	D	48.0	D
13. Willow Rd and Bay Rd	20.5	C	21.4	C
14. Willow Rd and Durham St	12.9	B	17.3	B
15. Willow Rd and Coleman Ave	15.9	B	12.4	B
16. Willow Rd and Gilbert Ave	16.5	B	11.8	B
17. Willow Rd and Middlefield Rd	107.5	F	179.8	F
18. University Ave and Bayfront Exp	31.8	C	206.8	F
19. University Ave and O'Brien Dr	6.4	A	13.7	B
20. University Ave and Kavanaugh Dr	13.7	B	16.4	B
21. University Ave and Bay Rd	27.4	C	35.1	D
22. University Ave and Runnymede St	20.5	C	23.2	C
23. University Ave and Bell St	7.2	A	7.8	A
24. University Ave and Donohoe St	43.4	D	38.7	D
25. US 101 NB and Donohoe St	9.2	B	13.9	B
26. University Ave and US 101 SB	17.7	B	27.0	C
27. University Ave and Woodland Ave	41.5	D	50.0	D
28. University Ave and Middlefield Rd	40.7	D	34.8	C
29. Bayfront Expressway and Chrysler Dr	17.2	B	87.4	F
EB Critical Local Approach	53.2	D	117.6	F
30. Bayfront Expressway and Chilco St	19.4	B	18.4	B
31. Middlefield Rd and Ravenswood Ave	23.6	C	27.6	C
32. Middlefield Rd and Ringwood Ave	25.4	C	29.5	C
33. Middlefield Rd and Lytton Ave	41.8	D	100.9	F
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections.
Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches.

The Near Term 2018 Condition ADT volumes are illustrated in Figure 3.5-14. The Near Term 2018 Condition ADT was derived using the existing ADT and the projected traffic growth in the Near Term 2018 Condition. The Near Term 2018 Condition ADT was adjusted for the planned and approved projects provided by the City (Appendix 3.5-A).

Near Term 2018 East Campus and West Campus Condition

This section analyzes the potential transportation impacts related to the Near Term 2018 East Campus and West Campus Condition. The Near Term 2018 East Campus and West Campus Condition includes the Near Term 2015 East Campus Only Condition with an additional three years of one percent per year ambient growth. The Project increment would be the occupancy of the West Campus. Additionally, a signalized intersection at the West Campus and Bayfront Expressway would be included. This new, signalized intersection would be located slightly north of the existing, unsignalized access point to the West Campus site.

Trip Generation and Distribution

The West Campus is proposed as a second phase of the Project, under which the Project Sponsor would construct and occupy approximately 440,000 sf of office space. Approximately 2,800 employees are expected to occupy the West Campus.

The peak hour trip generation for the West Campus is calculated based on trip rates for Corporate Headquarters as defined in the ITE Trip Generation Manual (8th Edition, 2008). Based on these rates, occupancy of the West Campus would generate approximately 1,146 net AM peak hour trips (1,066 inbound trips and 80 outbound trips) and 880 net PM peak hour trips (97 inbound trips and 783 outbound trips). Based on peak hour trip generation data collected by the Project Sponsor for the East Campus, these trip generation rates are conservative, since they do not account for the Project Sponsor's TDM program. Therefore, the analysis in this Draft EIR represents a worst-case condition of the potential impacts to the transportation system.

Similarly, the daily trip generation for the West Campus was prepared to represent worst-case conditions. Using the "Fitted Curve Equation" methodology for the daily trip rates for Corporate Headquarters land use from the ITE Trip Generation Manual, would be 5,648 daily trips. This is slightly lower than the traffic levels anticipated to be generated by the West Campus based on data collected by the Project Sponsor (6,350 daily trips).[2] Using the "Average Trip" rate from the ITE Trip Generation Manual, the daily traffic would be 6,524 daily trips, which is slightly higher than the levels based on the data collected by the Project Sponsor. Since the daily traffic levels estimated by the Project Sponsor falls between the "Fitted Curve" and average rates from the ITE Trip Generation Manual, the daily trips was set at 6,350 daily trips.

[2] Data collected by the Project Sponsor was used to estimate the vehicle trip caps proposed for the East Campus.

Table 3.5-17 details the net-new trip generation for the daily and peak hour conditions. The occupancy of the East Campus is assumed to be in place for the Near Term 2018 Condition, using the same assumptions as detailed in the Near Term 2015 East Campus Only Condition. The trip distribution for the West Campus is detailed in Figure 3.5-9; the same patterns are applied for the East Campus trip distribution.

Table 3.5-17
West Campus Trip Generation

Proposed Use	Land Use Code	AM Peak Hour[a]			PM Peak Hour[a]			Daily
		In	Out	Total	In	Out	Total	
West Campus Office (2,800 Employees)	714	1,066	80	1,146	97	783	880	6,350
Total Net New Increment Trips		**1,066**	**80**	**1,146**	**97**	**783**	**880**	**6,350**

Source: DKS Associates, 2011.

Note:

a. Per ITE Trip Generation (8th Edition, 2008).

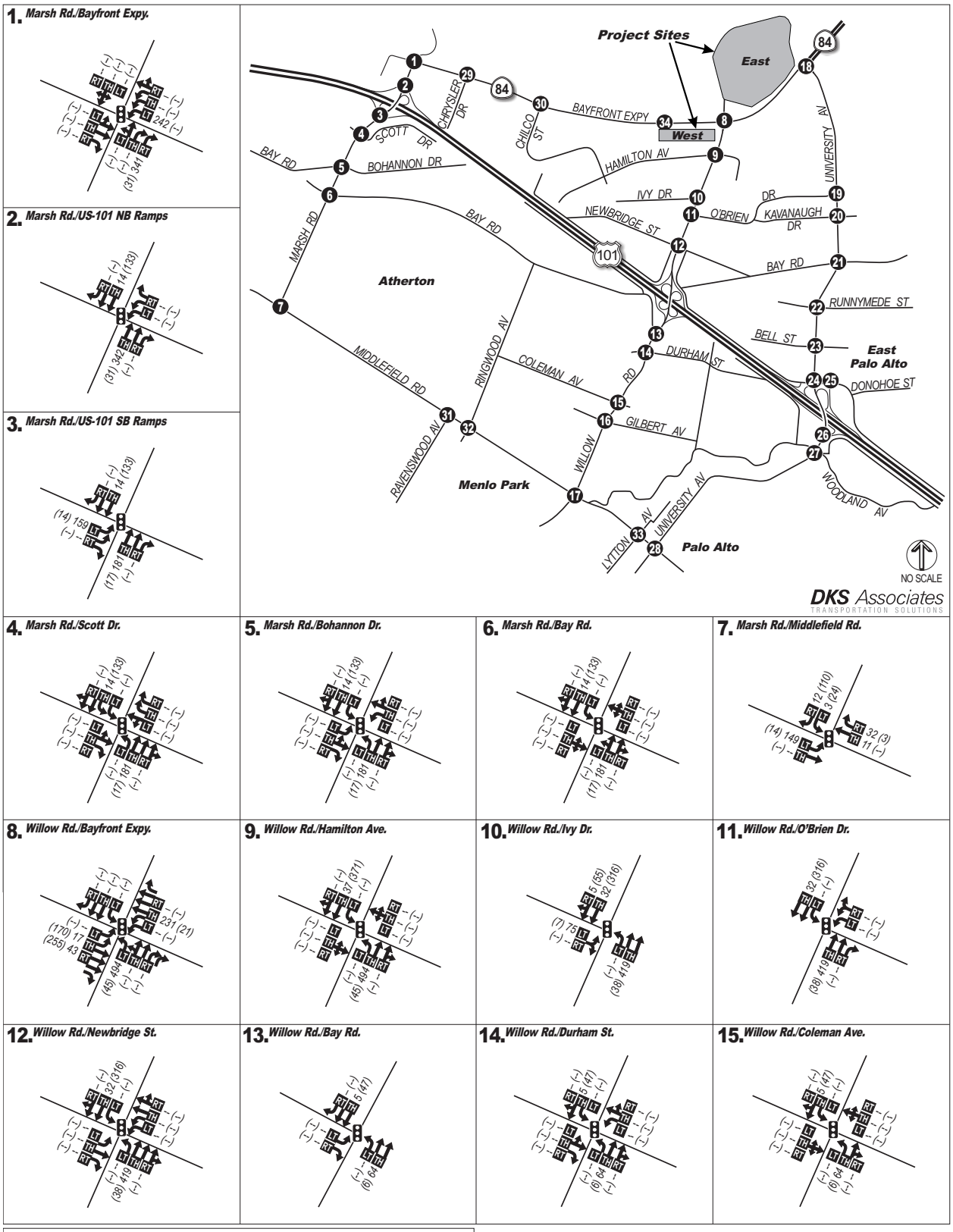
Figure 3.5-15 illustrates the Project trip assignment while Figure 3.5-16 shows the Near Term 2018 East Campus and West Campus Condition peak hour volumes. Table 3.5-18 details the corresponding LOS.

TR-6 ***Impacts on Intersections in the Near Term 2018 East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of the several study intersections. (PS)*

AM Peak Hour

As shown in Table 3.5-18, the net-new Project traffic would have little effect on the average delay at many of the study intersections when compared to the Near Term 2018 Condition during the AM peak hour. Several intersections would experience decreases in average delay due to the addition of trips to movements with delays less than the intersection average. Several intersections would experience increases in average delay, causing ***potentially significant*** impacts at the following intersections:

- Marsh Road and US 101 NB Ramps
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Willow Road and Middlefield Road



Source: DKS, 2011.

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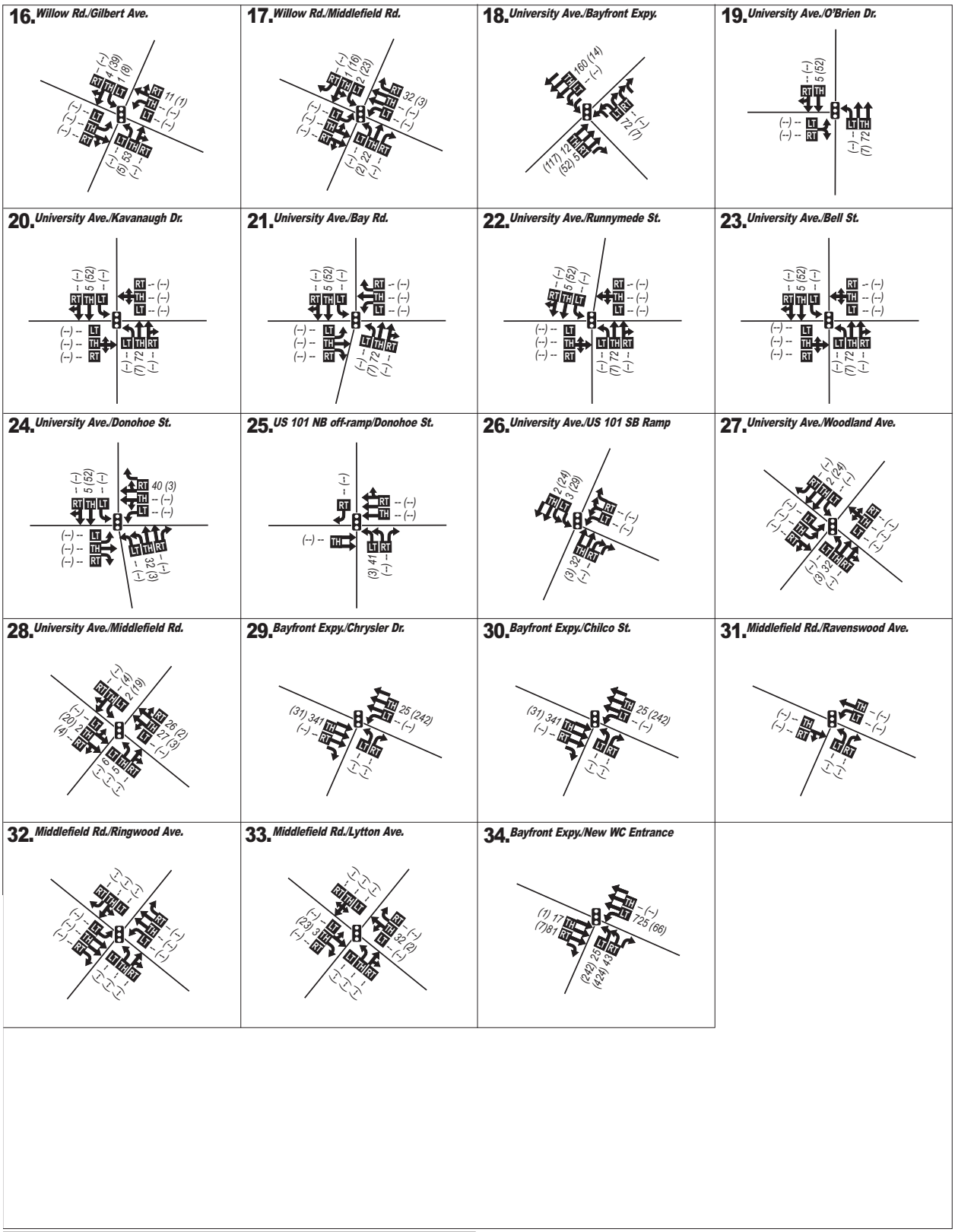
FIGURE 3.5-15a
West Campus Generated Trips



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-15b
West Campus Generated Trips

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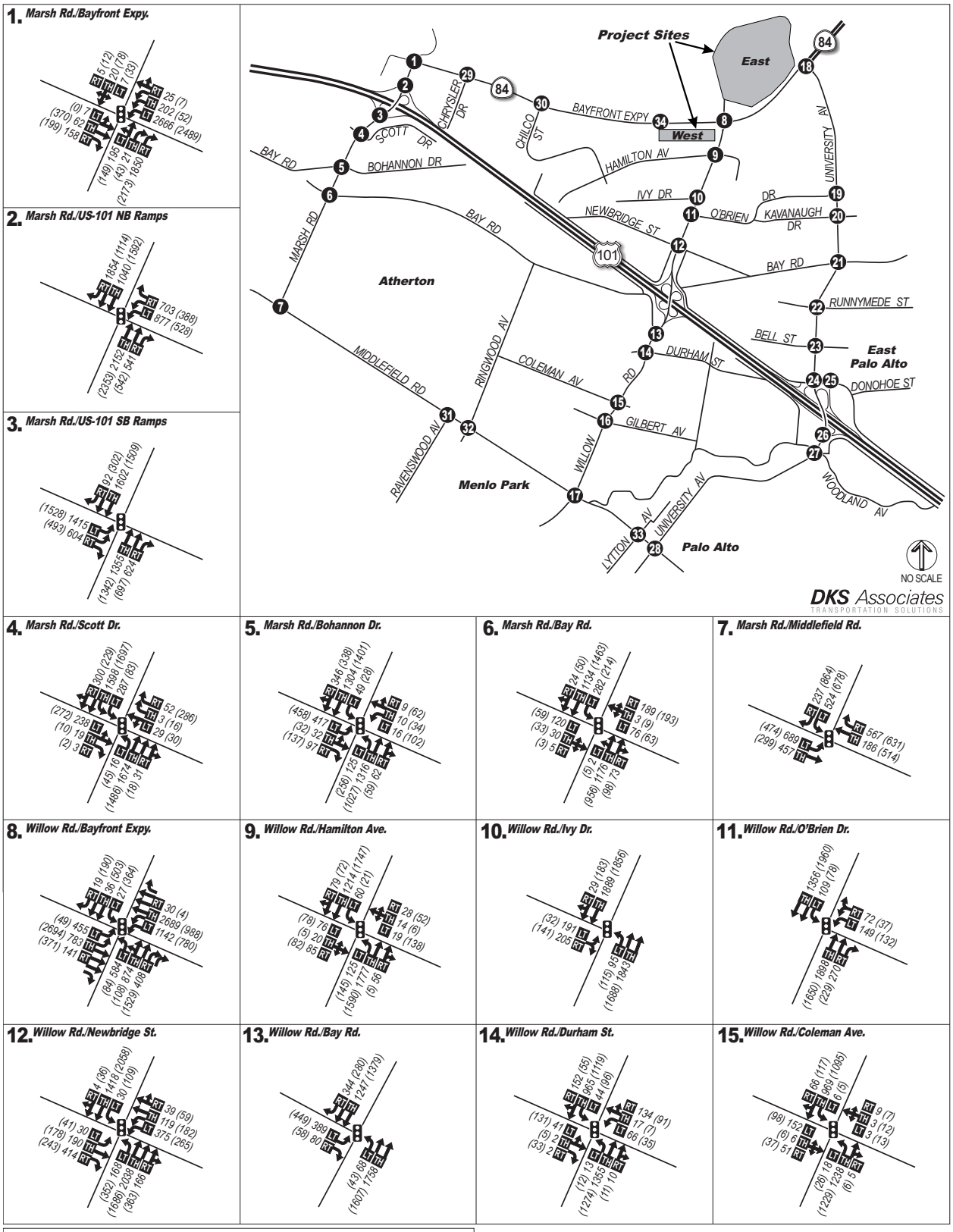
Menlo Park Facebook Campus Project



Source: DKS, 2011.

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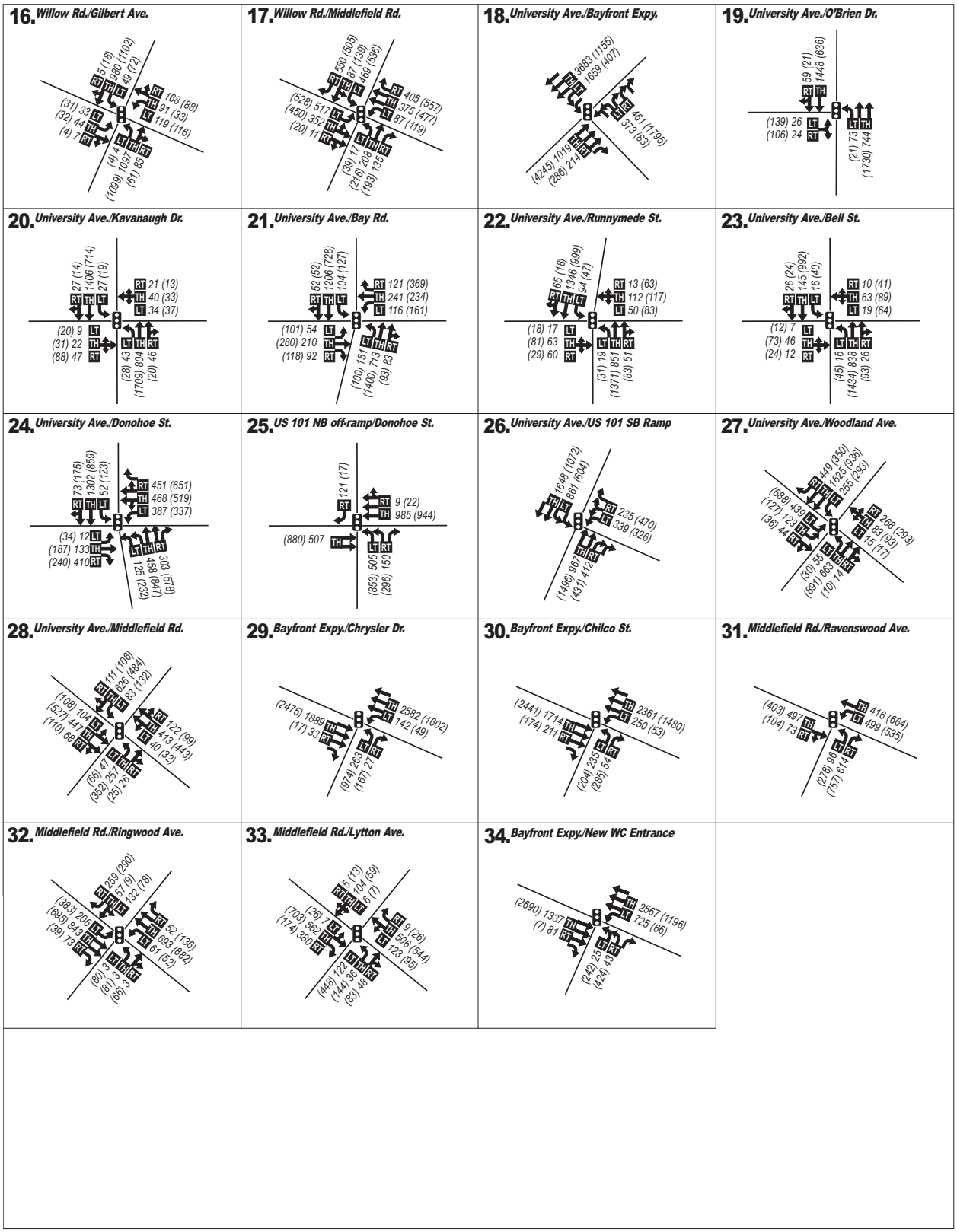
FIGURE 3.5-16a

Near Term 2018 East Campus and West Campus Peak Hour Volumes



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-16b

Near Term 2018 East Campus and West Campus Peak Hour Volumes

Table 3.5-18
Near Term 2018 East Campus and West Campus Condition Level of Service

	Near Term 2018 Condition				Near Term 2018 East Campus and West Campus Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
1. Marsh Rd and Bayfront Exp	23.4	C	61.1	E	26.0	C	63.5	E
SB Critical Local Approach	84.2	F	118.0	F	92.2	F	**122.0**	**E**
WB Critical Local Approach	66.4	E	155.8	F	66.4	E	**159.9**	**F**
2. Marsh Rd and US 101 NB Off-Ramp	46.7	D	33.4	C	**73.9**	**E**	35.0	C
3. Marsh Rd and US 101 SB Off-Ramp	25.6	C	25.4	C	29.7	C	29.8	C
4. Marsh Rd and Scott Dr	26.6	C	21.1	C	26.9	C	22.9	C
5. Marsh Rd and Bohannon Dr	15.1	B	21.4	C	15.0	B	21.8	C
6. Marsh Rd and Bay Rd	16.7	B	14.5	B	17.6	B	14.5	B
7. Marsh Rd and Middlefield Rd	26.9	C	41.6	D	31.8	C	45.4	D
8.Willow Rd and Bayfront Exp	46.1	D	115.6	F	**56.7**	**E**	**122.5**	**F**
WB Critical Local Approach	64.9	E	173.7	F	64.9	E	**187.1**	**F**
9. Willow Rd and Hamilton Ave	20.7	C	23.7	C	19.8	B	25.1	C
10. Willow Rd and Ivy Dr	22.9	C	14.0	B	26.0	C	15.9	B
11. Willow Rd and O'Brien Dr	13.4	B	9.3	A	13.6	B	9.2	A
12. Willow Rd and Newbridge St	52.2	D	48.0	D	**55.3**	**E**	**65.3**	**F**
NB Critical Local Approach	93.2	F	125.0	F	96.0	F	**160.0**	**F**
SB Critical Local Approach	80.4	F	126.0	F	83.4	F	**161.0**	**F**
13. Willow Rd and Bay Rd	20.5	C	21.4	C	20.7	C	21.7	C
14. Willow Rd and Durham St	12.9	B	17.3	B	12.8	B	18.2	B
15. Willow Rd and Coleman Ave	15.9	B	12.4	B	17.4	B	13.0	B
16. Willow Rd and Gilbert Ave	16.5	B	11.8	B	18.1	B	12.0	B
17. Willow Rd and Middlefield Rd	107.5	F	179.8	F	**121.5**	**F**	**180.6**	**F**
18. University Ave and Bayfront Exp	31.8	C	206.8	F	33.5	C	**214.3**	**F**
19. University Ave and O'Brien Dr	6.4	A	13.7	B	6.3	A	13.6	B

Table 3.5-18
Near Term 2018 East Campus and West Campus Condition Level of Service

	Near Term 2018 Condition				Near Term 2018 East Campus and West Campus Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
20. University Ave and Kavanaugh Dr	13.7	B	16.4	B	13.6	B	16.2	B
21. University Ave and Bay Rd	27.4	C	35.1	D	27.2	C	35.0	C
22. University Ave and Runnymede St	20.5	C	23.2	C	20.3	C	23.2	C
23. University Ave and Bell St	7.2	A	7.8	A	6.9	A	7.7	A
24. University Ave and Donohoe St	43.4	D	38.7	D	44.4	D	39.2	D
25. US 101 NB and Donohoe St	9.2	B	13.9	B	9.4	B	14.0	B
26. University Ave and US 101 SB	17.7	B	27.0	C	18.0	B	27.1	C
27. University Ave and Woodland Ave	41.5	D	50.0	D	41.6	D	50.0	D
28. University Ave and Middlefield Rd	40.7	D	34.8	C	42.7	D	35.3	D
29. Bayfront Expressway and Chrysler Dr	17.2	B	87.4	F	17.4	B	87.2	F
EB Critical Local Approach	53.2	D	117.6	F	53.6	D	**120.6**	**F**
30. Bayfront Expressway and Chilco St	19.4	B	18.4	B	19.5	B	18.1	B
31. Middlefield Rd and Ravenswood Ave	23.6	C	27.6	C	23.6	C	27.6	C
32. Middlefield Rd and Ringwood Ave	25.4	C	29.5	C	25.4	C	29.5	C
33. Middlefield Rd and Lytton Ave	41.8	D	100.9	F	43.7	D	**105.5**	**F**
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A	18.8	B	36.4	D
EB Critical Approach	N/A	N/A	N/A	N/A	42.5	D	81.0	F

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections.
Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches.
BOLD indicates potentially significant impact.

For City-controlled intersections with at least one collector or local street and an intersection delay of LOS D, E, or F: the intersection of Willow Road and Middlefield Road would experience an increase in delay of greater than 0.8 seconds at the critical movements of the intersection, resulting in ***potentially significant*** impacts at this location.

The local approaches to State-controlled intersections of Willow Road and Newbridge Street and Willow Road and Bayfront Expressway would operate with ***potentially significant*** impacts.

Additionally, the State-controlled intersection of Marsh Road and US 101 northbound ramps would experience a ***potentially significant*** impact.

PM Peak Hour

During the Near Term 2018 East and West Campus Condition PM peak hour, the net-new Project traffic would experience increased average delay at several intersections, creating potentially significant impacts at the following intersections:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Avenue
- Middlefield Road and Lytton Avenue

For City-controlled intersections that contain two arterial roadways and operate at LOS E or F: the intersection of Willow Road and Middlefield Road would have an increase in delay of greater than 0.8 seconds at the critical approaches resulting in an impact at this location.

The local approaches to the following State-controlled intersections would operate with ***potentially significant*** impacts:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Bayfront Expressway and Chrysler Drive

The State-controlled intersections of Marsh Road and US 101 northbound ramps and University Avenue and Bayfront Expressway would experience an increase in average delay creating a ***potentially significant*** impact.

Additionally, the intersection of Middlefield Road and Lytton Avenue in the City of Palo Alto would experience a ***potentially significant*** impact.

MITIGATION MEASURES. Mitigation Measure TR-6.1 involves a West Campus Vehicle Trip Cap to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition. Mitigation Measure TR-6.2 involves intersection improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition. However, intersection impacts would still remain ***significant and unavoidable*** since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. (SU)

TR-6.1 *West Campus Vehicle Trip Cap.*

West Campus 1,100 vehicle trip cap for both the AM Peak Period and PM Peak Period.

This mitigation measure would reduce AM and PM peak trips, and thus reduce trips at impacted intersections, and involves the imposition of a trip cap on the West Campus comparable to the Trip Cap that is part of the Project for the East Campus.

The 1,100 peak hour vehicle trip cap has been calculated in a similar fashion to the East Campus trip cap and is based on a comparative ratio between the East and West Campus employee totals in the following manner:

> 2,800 West Campus Employees x (2,600 East Campus Peak Period Trip Cap/6,600 East Campus Employees) = 1,100 West Campus Peak Period Trip Cap

The West Campus vehicle trip cap mitigation shall generally comply with Trip Cap Monitoring and Enforcement Policy, which is included in Appendix 3.5-F. A peak period trip cap of 1,100 trips for the West Campus does not, in and of itself, fully mitigate the impacts in either the AM peak or PM peak for any of the impacted intersections. Because the proposed mitigation would not fully mitigate the impact, it remains ***significant and unavoidable*** unless the impact is fully mitigated through a specific intersection improvement as outlined below.

TR-6.2 *Intersection Improvements.* The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way to add travel lanes. These mitigation measures are not dependent on the West Campus vehicle trip cap. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures.

a. Marsh Road and Bayfront Expressway

The proposed mitigation measures for the intersection of Marsh Road and Bayfront Expressway include restriping the westbound approach from a shared left-through-right lane to a shared left-through lane and a shared through-right lane.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measure at the intersection of Marsh Road and Bayfront Expressway for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City, with priority given to those portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigations would fully mitigate the impact, the impact remains ***significant and unavoidable*** because the intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented.

b. Marsh Road and US 101 NB Ramps

The proposed mitigation measures for the intersection of Marsh Road and US 101 Northbound off-ramp include widening the northbound off-ramp on the western side of the approach and adding an additional left-turn lane along with adding a second right-turn lane by restriping one of the existing left-turn lanes. This improvement will require relocation of existing traffic signal poles, utility relocation and reconstruction of the curb ramp on the southwest corner of the intersection.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the proposed mitigation measures at the intersection of Marsh Road and US 101 Northbound off-ramp for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the effective date of the Development Agreement, the Project Sponsor shall submit complete plans to construct the intersection improvements.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and signage and striping modifications. The plans shall be subject to review and approval of the Public Works Director prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the City and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City, with priority given to those portions of the City east of US 101. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, the impact remains ***significant and unavoidable*** because the

intersection is under the jurisdiction of Caltrans and the City cannot guarantee the mitigation measure would be implemented.

c. Willow Road and Bayfront Expressway

The proposed mitigation measures for the intersection of Marsh Road and Middlefield Road include an additional southbound left turn lane and restriping an additional eastbound receiving lane. The improvements would require potential additional right of way, widening the edge of pavement for the southbound direction of traffic into the existing landscape buffer, signing and striping improvements, and relocation of utility poles and traffic signal poles along the west side of Middlefield Road.

Prior to the Development Agreement approval, the Project Sponsor shall prepare an updated construction cost estimate for the proposed mitigation measures at the intersection of Marsh Road and Middlefield Road for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a bond for the improvements in the amount equal to the Project's fair share contribution of the estimated construction cost for the intersection improvements plus a 30 percent contingency. The Project's fair share contribution is estimated to be 30.4 percent.

Funds will be payable to the Town of Atherton upon substantial completion of construction of the intersection improvements. Funds will remain available to the Town of Atherton for a seven year period from the effective date of the Development Agreement, after which funds will be returned to the Project Sponsor. Construction of these improvements is not eligible for a Transportation Impact Fee (TIF) credit. Although the proposed mitigation would fully mitigate the impact, the impact remains ***significant and unavoidable*** because the intersection is under the jurisdiction of the Town of Atherton and the City cannot guarantee the mitigation measure would be implemented.

d. Willow Road and Newbridge Street

The potential mitigation measure for the intersection of Willow Road and Newbridge Street includes an additional eastbound left-turn lane, an additional northbound receiving lane for the eastbound left turning traffic, an additional westbound through/right-turn lane, and an additional receiving lane for the westbound through traffic. The additional eastbound left-turn lane and northbound receiving lane are not feasible due to the right-of-way acquisition and property impacts required along Newbridge Street and at the southwest quadrant of the intersection, which is in the City of East Palo Alto. However, the additional westbound through/right-turn lane and westbound receiving lane is a feasible, partial mitigation measure for the impact. This partial mitigation

measure would require traffic signal modifications, the removal of at least one heritage tree in front of 1157 Willow Road in order to accommodate the receiving lane, and the removal and relocation of a portion of the concrete masonry wall and landscaping near 1221 Willow Road.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the feasible mitigation measure at the intersection of Willow Road and Newbridge Street for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a performance bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the Development Agreement effective date, the Project Sponsor shall submit complete plans to construct a westbound through/right turn lane approximately 300 feet in length, and a westbound through receiving lane, from the Willow Road and Newbridge Street intersection to the beginning of the northbound US 101 on-ramp, based on impacts to the intersections of Willow Road and Newbridge Street.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including, but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of Menlo Park and East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released by the City after the Project Sponsor submits funds equal to the bid construction cost to the City. The City may use the funds for other transportation improvements, including, but not limited to, bicycle, pedestrian, transit improvements, and TDM programs, throughout the City, with priority given to those portions of the City east of US 101. The partial mitigation improvements are not eligible for a Transportation Impact Fee (TIF) credit. Because the proposed mitigation would not fully mitigate the impact, it remains ***significant and unavoidable***.

e. Willow Road and Middlefield Road

See Near Term 2015 East Campus Only TR-1.1b

f. University Avenue and Bayfront Expressway

See Near Term 2015 East Campus Only TR-1.1c.

g. Bayfront Expressway and Chrysler Drive

See Near Term 2015 East Campus Only TR-1.1d.

h. Middlefield Road and Lytton Avenue

See Near Term 2015 East Campus Only TR-1.1e.

TR-7 ***Impacts to Roadway Segments in the Near Term 2018 East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased volumes on Project area roadway segments resulting in a potentially significant impact. (PS)*

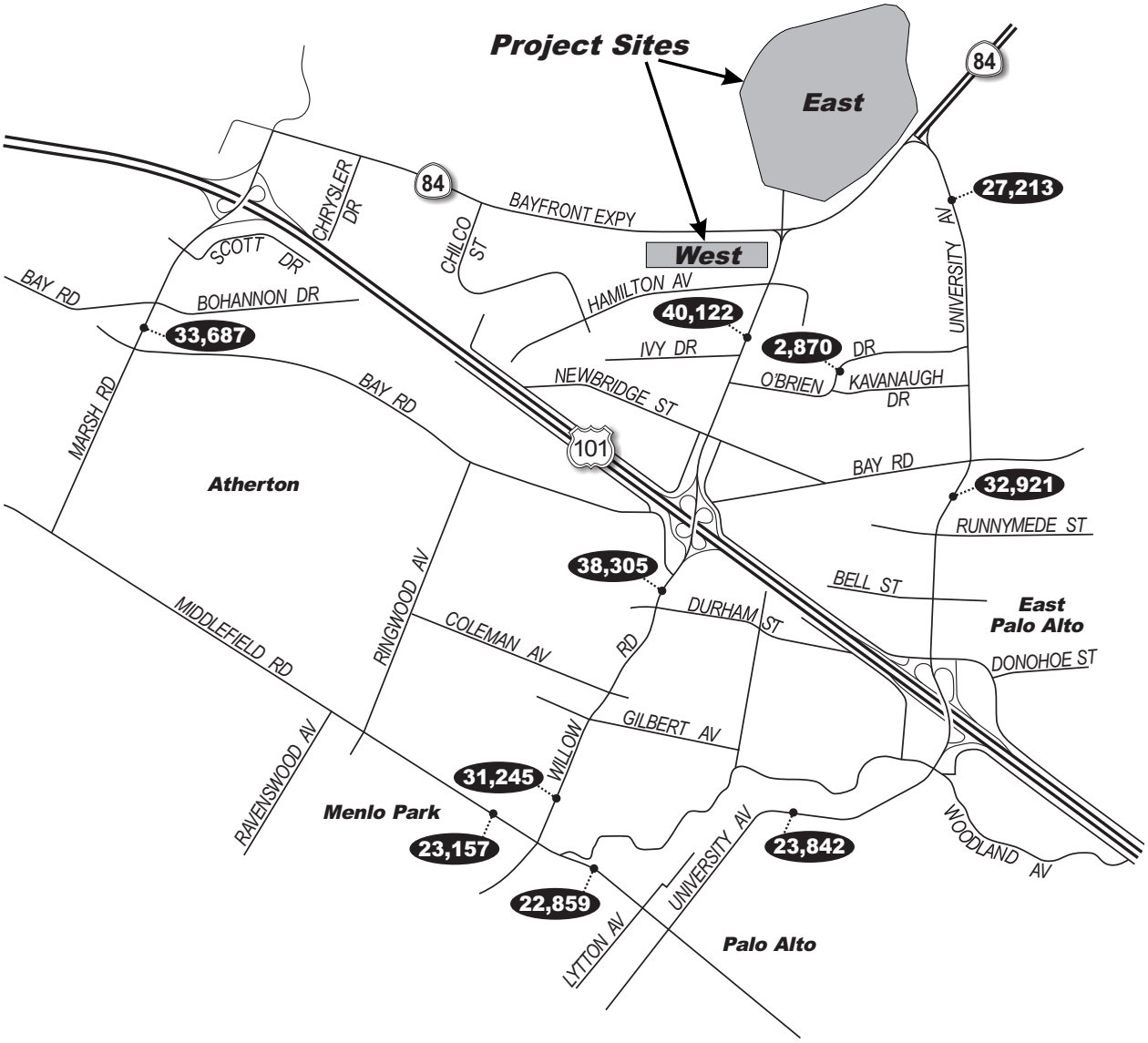
The Project would generate approximately 6,350 net daily trips during a typical weekday. Based on the criteria described in the Significance Criteria section, five of the roadway segments would experience potentially significant impacts for the Near Term 2018 East Campus and West Campus Condition. It should be noted that Willow Road between Bay Road and Railroad Tracks and University Avenue between Railroad Tracks and Palm Street are classified as primary arterials and are not subject to ADT analysis or thresholds. Figure 3.5-17 details the Near Term 2018 study East Campus and West Campus Condition ADT. Table 3.5-19 shows the comparison between the Existing Condition, Near Term 2018 Condition, and Near Term 2018 East Campus and West Campus Condition and the corresponding ADT increases among them.

The net volume added by the Project on the following Minor Arterial segments is higher than the corresponding 100 vehicle threshold, resulting in a ***potentially significant*** impact.

- Marsh Road (between Bay Road and the railroad tracks)
- Willow Road (between Durham Street and Chester Street)
- Willow Road (between Nash Avenue and Blackburn Avenue)

O'Brien Drive (classified as a collector street) would not be impacted.

MITIGATION MEASURE. Mitigation Measure TR-7.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition on daily roadway segment operations. However, to improve daily roadway operations, a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway impacts would still remain ***significant and unavoidable*** because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners. (SU)



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

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FIGURE 3.5-17
Near Term 2018 East Campus and West Campus Condition Average Daily Traffic

Table 3.5-19
Near Term 2018 East and West Campus Condition Average Daily Traffic Summary

			Existing	Near Term 2018 Condition	Near Term 2018 East Campus and West Campus Condition				
	Roadway Class	Threshold	Volume	ADT	ADT	Net Volume Added for Project	% Change from Near Term 2018 Condition	Change in TIRE index > 0.1 from Near Term 2018 Condition	Potentially significant impact?
Marsh Rd (Bay Rd and Railroad Tracks)	MA	20,000	27,428	33,095	34,175	1,080	3.3%	N/A	**Y**
Willow Rd (Ivy Dr and Hamilton Ave)	PA	NA	26,304	35,972	38,945	2,973	8.3%	N/A	exempt
Willow Rd (Durham St and Chester St)	MA	20,000	32,745	37,348	37,730	382	1.0%	N/A	**Y**
Willow Rd (Nash Ave and Blackburn Ave)	MA	20,000	26,032	30,355	30,673	318	1.0%	N/A	**Y**
University Ave (Railroad Tracks and Purdue Ave)	PA	NA	24,023	26,763	27,189	426	1.6%	N/A	exempt
University Ave (Bell St and Runnymede St)	PA	NA	29,431	32,471	32,897	426	1.3%	N/A	exempt
University Ave (Maple St and Palm St)	PA	NA	21,413	23,640	23,830	190	0.8%	N	N
Middlefield Rd (Linfield Dr and Survey Ln)	MA	20,000	20,069	22,599	22,599	0	0.0%	N/A	N
Middlefield Rd (Hawthorne Ave and Everett Ave)	MA	20,000	19,362	22,453	22,643	190	0.8%	N	N
O'Brien Dr (Adams Dr and Casey Ct)	C	10,000	2,611	2,870	2,870	0	0.0%	N/A	N

Source: DKS Associates, 2011.

Notes:

City of Menlo Park Segment Criteria:

L = Local Street. Impact if ADT is >1,350 vehicles and project adds >25 trips, or ADT is >750 and project increases ADT by 12.5%, or ADT is <750 and project increases ADT by 25%.

C = Collector Street. Impact if ADT is >9,000 vehicles and project adds >50 trips, or ADT is >5,000 and project increases ADT by 12.5%, or ADT is <5,000 and project increases ADT by 25%.

MA = Minor Arterial. Impact if ADT is >18,000 vehicles and project adds >100 trips, or ADT is >10,000 and project increases ADT by 12.5%, or ADT is <10,000 and project increases ADT by 25%.

PA = Primary Arterial. Primary arterials are exempt from ADT thresholds but are included in the report for informational purposes.

For City of Palo Alto, roadway segments would experience a potentially significant impact if TIRE increases by 0.1 or greater.

BOLD indicates potentially significant impact.

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it can viewed as more than an LOS or traffic operation issue.

TR-7.1 *Roadway Segment Improvements*. Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way, which can impact local property owners.

a. Marsh Road between Bay Road and the railroad tracks

   See Near Term 2015 East Campus Only TR-2.1a.

b. Willow Road between Durham Street and Chester Street

   See Near Term 2015 East Campus Only TR-2.1b.

c. Willow Road between Nash Avenue and Blackburn Avenue

   See Near Term 2015 East Campus Only TR-2.1c.

TR-8 ***Impacts to Routes of Regional Significance. in the Near Term 2018 East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under Near Term 2018 East Campus and West Campus Condition would result in significant impacts to several Routes of Regional Significance. (PS)*

Nine selected roadway segments within the Project vicinity are considered Routes of Regional Significance by the San Mateo County CMP (i.e., SR 84, SR 109, SR 114, and US 101). The Project would add traffic to Routes of Regional Significance in the study area by increasing the delay and possibly the LOS. However, because several of these freeway segments are already operating at their respective LOS standards, the traffic increase for these segments would be considered a potentially significant impact depending on the effect on each segment. Table 3.5-20 summarizes the estimated percent of capacity added to the Routes of Regional Significance. For Routes of Regional Significance, the C/CAG threshold significance criteria threshold is indicated as 1 percent of the respective roadway segment's existing capacity. If the overall project-related trip generation for a roadway segment meets or exceeds one percent of the existing roadway capacity, then a potentially significant impact has occurred.

Under Near Term 2018 East Campus and West Campus Condition, the following Routes of Regional Significance would be impacted by the Project.

- NB SR 84 between US 101 to Willow Road
- SB SR 84 between University Avenue and County Line
- NB US 101 North of Marsh Road
- NB US 101 between Willow Road and University Avenue
- SB US 101 South of University Avenue

The Project would increase traffic that would exceed the current thresholds resulting in a ***potentially significant*** impact.

Table 3.5-20
Near Term 2018 East Campus and West Campus Condition Routes of Regional Significance

Route	Segment	Condition LOS[a]	LOS Standard[a]	Estimated Capacity[c] (vph)	Net-new Project Trips[b]	Percent of Capacity	Significant Impact?
SR 84	NB US 101 to Willow Road	E	D	3,300	725	22%	**Y**
SR 84	NB Willow Road to University Avenue	F	E	3,300	32	1%	N
SR 84	SB University Avenue to County Line	F	F	3,300	170	5.2%	**Y**
SR 109	EB US 101 to Bayfront Expressway	D	E	2,200	72	3.3%	N
SR 114	EB US 101 to Bayfront Expressway	C	E	2,200	419	19.0%	N
US 101	NB North of Marsh Road	F	F	9,200	118	1.3%	**Y**
US 101	SB Marsh Road to Willow Road	F	F	9,200	0	0.0%	N
US 101	NB Willow Road to University Avenue	F	F	9,200	345	3.8%	**Y**
US 101	SB South of University Avenue	F	F	9,200	290	3.2%	**Y**

Source: DKS Associates, 2011; San Mateo County CMP Monitoring Report, 2009.

Notes:

a. Source: 2009 San Mateo County CMP Monitoring Report.

b. For peak hour of Project traffic.

c. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six lane segments and 2,200 vphpl for four lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl saturation flow rate (1,140 vphpl is rounded to 1,100 vphpl).

BOLD indicates potentially significant impact

MITIGATION MEASURE. Mitigation Measure TR-8.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Near Term 2018 East Campus and West Campus Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain ***significant and unavoidable*** because these roadways are

not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are planned and funded on a regional scale and would be too costly for a single project to be expected to fund. (SU)

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it can viewed as more than an LOS or traffic operation issue.

TR-8.1 *Routes of Regional Significance Improvements.* Routes of Regional Significance could be improved with additional travel lanes, but the freeways are under the jurisdiction of Caltrans.

a. SR 84 between US 101 and Willow Road

   See Near Term 2015 East Campus Only TR-3.1a.

b. SR 84 between University Avenue and County Line

   See Near Term 2015 East Campus Only TR-3.1c.

c. US 101 North of Marsh Road

   See Near Term 2015 East Campus Only TR-3.1d.

d. US 101 between Willow Road and University Avenue

   See Near Term 2015 East Campus Only TR-3.1e.

e. US 101 between South of University Avenue

   See Near Term 2015 East Campus Only TR-3.1f.

TR-9 ***Impacts to Local Transit System in the Near Term 2018 East Campus and West Campus Condition.*** *The Project under the Near Term 2018 East Campus and West Campus Condition would not result in any impacts to the local transit system. This impact is less than significant. (LTS)*

Current public bus service in the Project vicinity is limited, with the Dumbarton Express the only route providing direct service to the site. The closest SamTrans line (Route 281) is located

several blocks away at Ivy Drive and Willow Road. The proposed Dumbarton Rail Corridor Project, when completed, would place a station adjacent to the West Campus Site. The Project Sponsor plans to operate private shuttles to and from transit centers, including the Menlo Park and Redwood City Caltrain Stations and residential centers for employees. With the implementation of the Project's TDM plan, additional shuttles to meet the increase in rider demand would be provided. Therefore, the Project is not anticipated to add substantial demand to the existing transit services and, therefore, the impact is ***less than significant***.

TR-10 ***Impacts to Local Bicycle or Pedestrian Facilities in the Near Term 2018 East Campus and West Campus Condition.*** *The Project under the Near Term 2018 East Campus and West Campus Condition would not result in any impacts to local bicycle or pedestrian facilities. This impact is less than significant. (LTS)*

In addition to the improvements discussed under the East Campus Only scenario, site improvements are planned as part of the Project to improve connectivity of the East Campus and West Campus and provide a permanent grade-separated crossing of Bayfront Expressway for public access. In addition, a pump would be installed to protect the undercrossing from seasonal flooding.

The walk from Building 5 on the West Campus to Building 18 on the East Campus is approximately 3,200 feet and would take an average person approximately 16 minutes to travel. To create a more convenient option for employees to reduce the time needed to travel between the East Campus and West Campus, the Project Sponsor is investigating alternative circulation options to run through a portion of the tunnel, with a focus on people mover systems. These systems comprise a wide range of vehicle types and may be automated or driver-operated; run on a track or operate on a rubber-tire system; serve one person or a group. The technologies employed in these systems are rapidly developing, as alternative transportation systems are quickly expanding. Many new systems are solar or electric powered, and represent a clean and green way to transport employees from one campus to the other. Utilization of a people mover system through the tunnel allows for the efficient movement of people between the East and West Campus without adding traffic to Bayfront Expressway or Willow Road, and would operate within the height limitations of the existing tunnel (10.5 feet tall). Additionally, the vehicles are quiet and smaller than typical bus or tram- style systems, making them more compatible with the bicyclists and pedestrians also using the tunnel. Additional operating characteristics are described below. The people mover system would be implemented with the opening of the West Campus.

The people mover is anticipated to serve intra-campus travel between the Transit Center on the West Campus and the shuttle stops on the north side of the East Campus. The people mover would operate through the undercrossing of Bayfront Expressway. The existing undercrossing is 32-feet wide, allowing sufficient right-of-way for a bicycle and pedestrian shared-use (Class I) path, as well as width for one-direction of travel for the people mover system. A signal control system is proposed on either end of the tunnel to prevent a vehicle from entering when another approaching vehicle is already inside the tunnel.

Two pedestrian crossings of the people mover lane are proposed. The number of crossings that public Bay Trail users would need to make is minimized by placing the pedestrian path on the southern side of the tunnel. As they approach from Willow Road, pedestrians would travel through the tunnel unimpeded; on the eastern side of the tunnel near the East Campus, a single crossing point to access the Bay Trail would be provided. The crossing would be enhanced with advanced yield lines and high visibility crosswalk striping to maximize visibility. Facebook employees would be required to cross the people mover lane in a single crossing point near the West Campus. The crossing would also be enhanced with similar treatments of advanced yield lines and high visibility crosswalk striping.

The people mover is anticipated to operate at maximum speeds of 25 miles per hour (mph) on the East Campus and West Campus, with highest speeds reached on the on-site private ring road on the East Campus, where the vehicles would share the roadway with personal vehicles and shuttle buses. Through the rest of the campus, the people mover is expected to operate at 20 mph or less; within the undercrossing, maximum speeds of 15 mph are expected, to maximize the safety of bicyclists and pedestrians within close proximity to the vehicles.

The Project would result in ***less-than-significant*** impacts to bicycle and pedestrian facilities.

Ramp Analysis

While a ramp analysis is not normally included in an EIR analysis, it has been analyzed in this Draft EIR for informational purposes. Caltrans requested a ramp analysis for the US 101 and Willow Road interchange following their review of the NOP and the ramp analysis has been performed to satisfy this request. An analysis of ramps at Willow Road and US 101 is shown in Table 3.5-21. The highest AM peak hour ramp demand for the Near Term 2018 Condition occurs from northbound US 101 to eastbound Willow Road. For the PM peak hour, the highest demand occurs from northbound US 101 to eastbound Willow Road as well.

Table 3.5-21
Near Term 2018 Conditions Ramp Analysis

		Near Term 2018 Condition			Near Term 2018 East Campus and West Campus Condition		
From	**To**	**AM Peak Hour**	**PM Peak Hour**	**ADT**	**AM Peak Hour**	**PM Peak Hour**	**ADT**
NB US 101	EB Willow Road	1,283	1,321	13,308	1,638	1,353	14,365
EB Willow Road	NB US 101	462	367	4,719	462	367	4,719
WB Willow Road	NB US 101	390	500	5,369	391	508	5,402
NB US 101	WB Willow Road	588	413	6,931	588	413	6,931
SB US 101	WB Willow Road	344	398	5,361	344	398	5,361
WB Willow Road	SB US 101	1,049	1,345	11,382	1,076	1,606	12,439
EB Willow Road	SB US 101	812	534	10,034	812	534	10,034
SB US 101	EB Willow Road	258	543	5,685	258	543	5,685

Source: DKS Associates and Caltrans Census, 2011.

For the Near Term 2018 East Campus and West Campus Condition, the highest AM peak hour ramp volumes would occur from northbound US 101 to eastbound Willow Road while the ramp from westbound Willow Road to southbound US 101 would experience the highest number of vehicles in the PM peak hour.

Cumulative 2025 Conditions

This scenario focuses on a cumulative forecast of the operating conditions at the study intersections for both the cumulative and cumulative with project scenarios. The Cumulative 2025 Condition assumes similar growth related to Near Term planned or approved developments, with one additional development, and a 2025 horizon with an assumed ambient growth of one percent per year.

Cumulative Approved/Planned Development Projects

All of the Approved/Planned Development Projects for the Near Term Conditions are included in the Cumulative analysis. Additionally, the Stanford University Medical Campus (SUMC) is included in the Cumulative Condition analysis as detailed in Table 3.5-22.

Table 3.5-22
Cumulative Developments in Project Vicinity

Project/Land Use	Land Use	Size	Units
Stanford University Medical Campus	Hospital/Medical Office	854,970/24,330	SF/SF
1283 Willow Road	Office/Retail	3,800/5,096	SF/SF
110 Linfield Drive	Residential	22	DU
297 Terminal Avenue	Residential	21	DU
1460 El Camino Real	Residential/Office/Commercial	16/26,800/-12,016	DU/SF/SF
2122 Santa Cruz Avenue	Residential	7	DU
580 Oak Grove	Residential/Commercial	108/3,635	DU/SF
1300 El Camino Real	Commercial	110,065	SF
1906 El Camino Real	Medical Office	9,825	SF
1706 El Camino Real	Medical Office	10,166	SF
100-155 Constitution Drive & 100-190 Independence Drive	Office/Health Club/Restaurant/Hotel	497,619/68,964/ 4,285/230	SF/SF/SF/ Rooms
2550 Sand Hill Road	Office	23,011	SF
389 El Camino Real	Residential	26	DU
100 Middlefield Road	Office	8,936	SF
2484 Sand Hill Road	Office	8,970	SF
Civic Center	Fitness	26,900	SF

Source: City of Menlo Park, April 2011.
Notes:
a. Units are given as per square foot (SF) and single family dwelling units (DU).
b. Credits for existing land uses to be redeveloped further illustrated in Appendix 3.5-A.

Programmed/Planned Transportation Facility Improvements

Within the Project area, programmed or planned transportation facility improvements include the widening of US 101 to add auxiliary lanes from Marsh Avenue to Embarcadero Road and the Ringwood bike bridge reconstruction. These projects are intended to increase the capacity or improve the safety of their respective facilities and are included in the Cumulative Conditions analysis. While Menlo Gateway identifies three committed mitigation measures, only the one at the intersection of Marsh Road and Bohannon Drive is included in this analysis since it is the only one under the City's control to implement. This mitigation measure would include an additional westbound right-turn lane from Marsh Road to Florence Street. Slight changes to signal timing parameters are based on the CSA.

Cumulative Traffic Volumes and Levels of Service

An analysis was conducted for the Cumulative 2025 Condition that focuses on a 14-year forecast of the operating conditions at the study intersections for both a no project condition and two cumulative conditions. The no project condition assumes similar growth related to near term planned or approved developments over a 14-year horizon with an assumed ambient growth of one percent per year applied to the Existing Conditions traffic volumes.

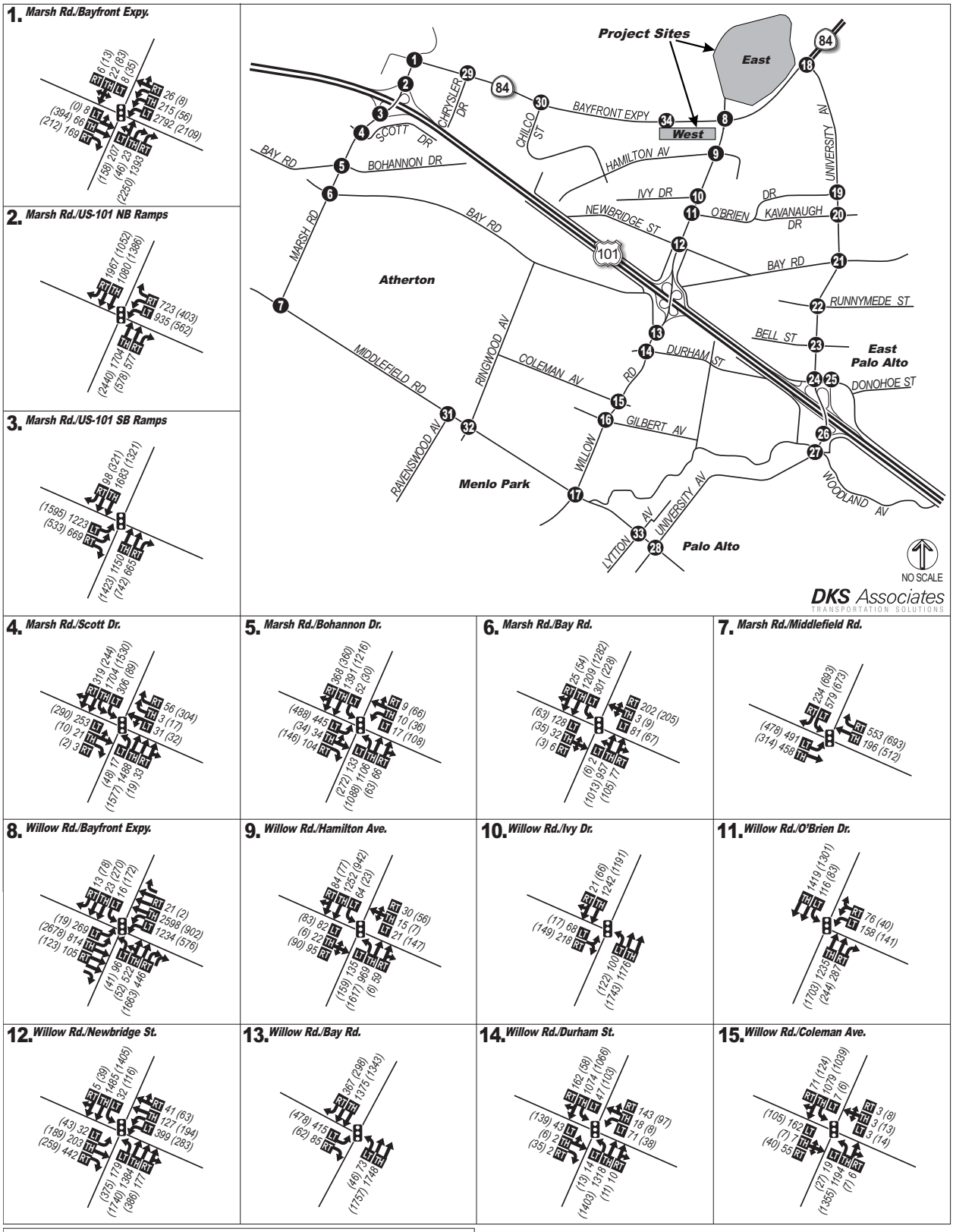
Cumulative Plus Project Traffic Volumes and Levels of Service

To obtain Cumulative 2025 Condition traffic volumes, the Existing Conditions volumes used in the previous scenarios were assumed to increase with an ambient growth of one percent per year to 2025. For the no project condition, occupancy of the existing buildings was assumed to remain the same as Near Term conditions. The background ambient growth would account for general increases in traffic within the area.

The Cumulative 2025 East Campus Only Condition and Cumulative 2025 East Campus and West Campus Condition follows similar trip generation assumptions to the Near Term 2015 East Campus Only Condition and Near Term 2018 East Campus and West Campus Condition.

Figure 3.5-18 illustrates the Cumulative 2025 Condition traffic volumes. Under the no project condition, the ambient growth over 14 years plus planned or approved traffic would add a large amount of traffic to the area and result in unacceptable levels of service at two study intersections during the AM peak hour and seven study intersections during the PM peak hour. This ambient growth would result in seven AM peak hour and eight local approaches to state intersections operating at unacceptable levels.

TR-11 ***Impacts to Intersections in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would result in increased delays at several intersections during peak hours causing a potentially significant impact to the operation of the several study intersections. (PS)*



Source: DKS, 2011.

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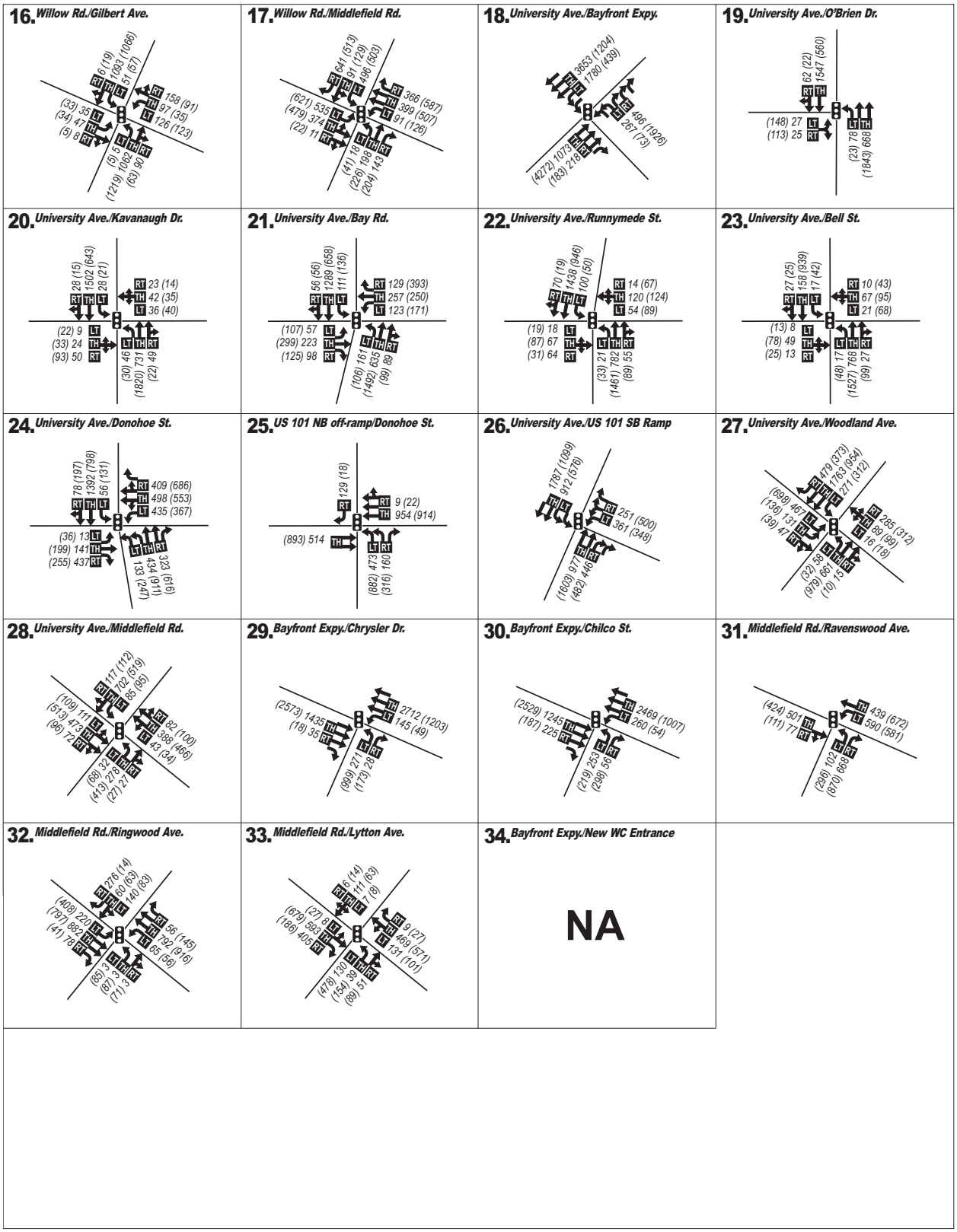
FIGURE 3.5-18a

Cumulative 2025 Condition Peak Hour Volumes



LEGEND

1 - Study Intersection
← - Lane Geometry
- Traffic Signal

AM (PM) - Peak Hour Traffic Volume
LT TH RT - Volume Turn Movement
Left•Thru•Right

NORTH
NOT TO SCALE

ATKINS

FIGURE 3.5-18b
Cumulative 2025 Condition Peak Hour Volumes

Source: DKS, 2011.

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Menlo Park Facebook Campus Project

Cumulative 2025 East Campus Only Condition. Net-new Project-related traffic described in the previous section for the Near Term 2015 East Campus Only Condition was added to the Cumulative 2025 Condition volumes to determine impacts related to the Project in the Cumulative 2025 East Campus Only Condition. Intersection levels of service for the Cumulative 2025 Condition and Cumulative 2025 East Campus Only Condition are provided in Table 3.5-23. Figure 3.5-19 illustrates the Cumulative 2025 East Campus Only Condition traffic volumes.

AM Peak Hour

During the AM peak hour, three intersections would operate at unacceptable LOS under the Cumulative 2025 East Campus Only Condition and would experience potentially significant impacts due to Project-related traffic. The intersections of Marsh Road and US 101 northbound ramps and Willow Road and Newbridge Street would operate at LOS E, while Willow Road and Middlefield Road would operate at LOS F.

At the City-controlled intersection of two arterials, the addition of Project-generated peak hour traffic would result in an increase in delay at the critical movements at the intersection of Willow Road and Middlefield Road resulting in a potentially significant impact at this location.

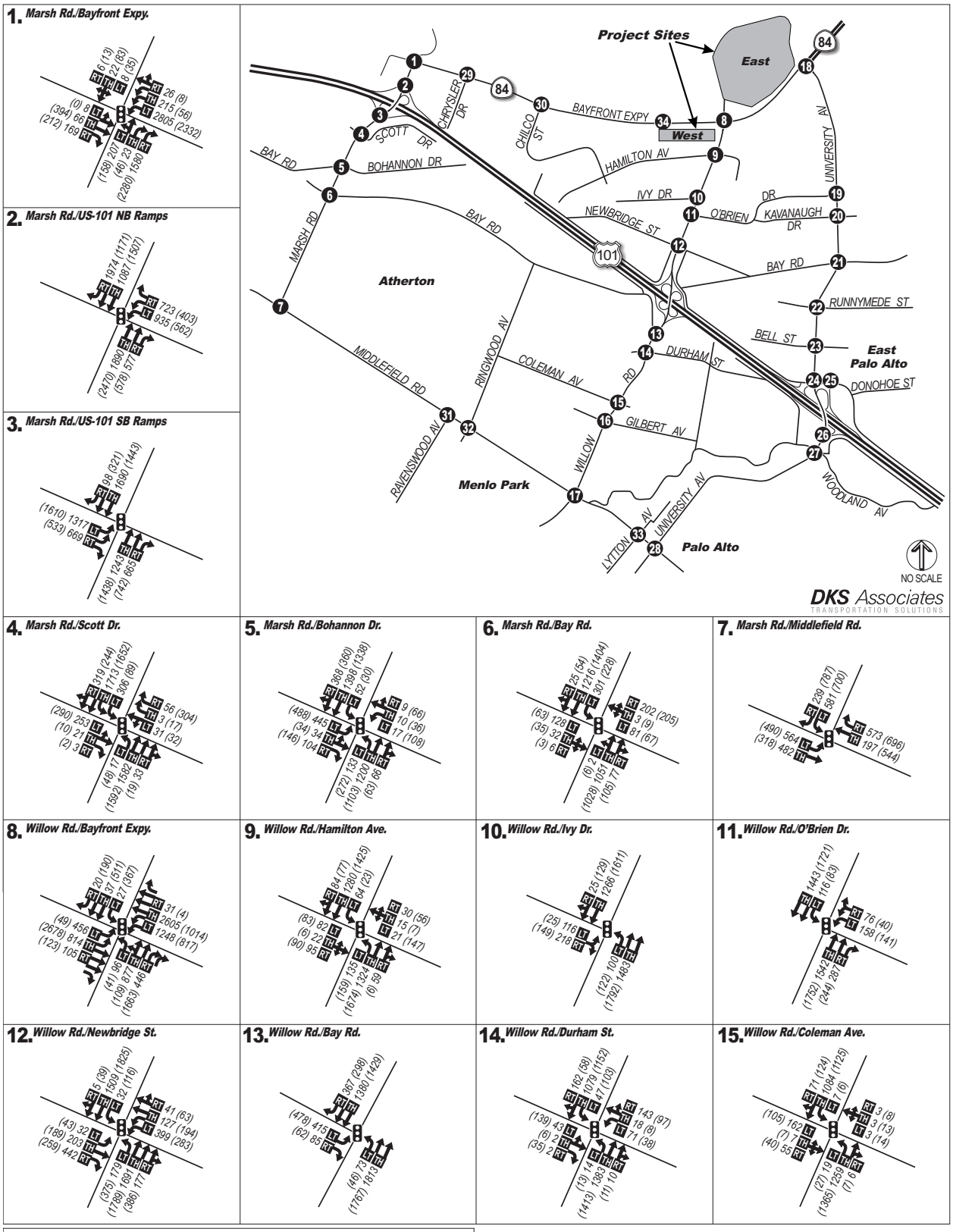
At the State-controlled intersection of Willow Road and Newbridge Street, which operates at LOS E, the Project-related traffic would increase delay at the local approaches causing a potentially significant impact at this intersection.

The State-controlled intersection of Marsh Road and US 101 northbound ramps would also experience a ***potentially significant*** impact.

PM Peak Hour

During the Cumulative 2025 East Campus Only Condition PM peak hour, the net-new Project traffic would experience increased average delay at several intersections, creating a ***potentially significant*** impact at the following intersections:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Drive
- Middlefield Road and Lytton Avenue



Source: DKS, 2011.

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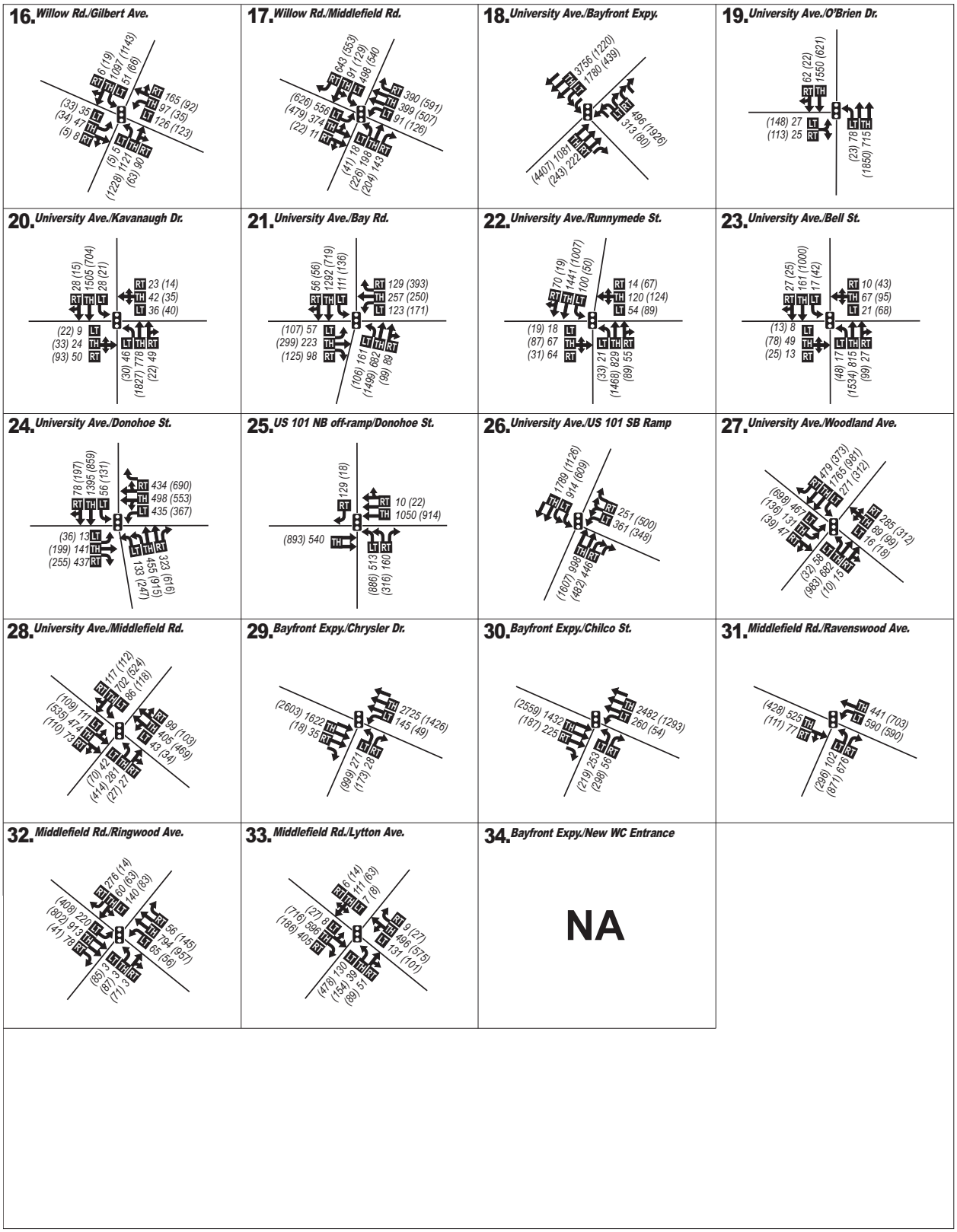
FIGURE 3.5-19a

Cumulative 2025 East Campus Only Condition Peak Hour Volumes



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-19b

Cumulative 2025 East Campus Only Condition Peak Hour Volumes

Table 3.5-23
Cumulative 2025 East Campus Only Condition Level of Service

	Cumulative Condition				Cumulative 2025 East Campus Only Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. Marsh Rd and Bayfront Exp	26.2	C	79.6	E	26.3	C	83.0	F
SB Critical Local Approach	94.2	F	135.0	F	95.0	F	**139.0**	**F**
WB Critical Local Approach	67.5	E	171.7	F	67.5	E	**175.9**	**F**
2. Marsh Rd and US 101 NB Off-Ramp	42.3	D	44.9	D	**55.2**	**E**	**46.5**	**D**
3. Marsh Rd and US 101 SB Off-Ramp	31.7	C	29.9	C	32.9	C	34.6	C
4. Marsh Rd and Scott Dr	35.6	D	22.4	C	35.8	D	24.2	C
5. Marsh Rd and Bohannon Dr	15.7	B	22.2	C	15.6	B	22.6	C
6. Marsh Rd and Bay Rd	17.4	B	15.4	B	17.9	B	15.3	B
7. Marsh Rd and Middlefield Rd	27.0	C	44.4	D	29.2	C	50.6	D
8.Willow Rd and Bayfront Exp	35.4	D	103.7	F	48.8	D	**140.2**	**F**
WB Critical Local Approach	62.5	E	182.9	F	**64.9**	**E**	**205.2**	**F**
9. Willow Rd and Hamilton Ave	22.4	C	24.0	C	21.8	C	25.7	C
10. Willow Rd and Ivy Dr	21.3	C	13.9	B	23.9	C	14.9	B
11. Willow Rd and O'Brien Dr	14.7	B	10.1	B	14.0	B	9.8	A
12. Willow Rd and Newbridge St	62.5	E	41.1	D	62.7	E	57.1	E
NB Critical Local Approach	110.7	F	97.8	F	**113.1**	**F**	**141.0**	**F**
SB Critical Local Approach	98.2	F	98.7	F	**100.6**	**F**	**142.0**	**F**
13. Willow Rd and Bay Rd	22.2	C	23.5	C	22.5	C	23.9	C
14. Willow Rd and Durham St	15.6	B	18.3	B	15.6	B	20.2	C
15. Willow Rd and Coleman Ave	18.8	B	15.9	B	20.5	C	17.1	B
16. Willow Rd and Gilbert Ave	18.0	B	13.9	B	19.6	B	14.3	B
17. Willow Rd and Middlefield Rd	123.8	F	205.7	F	**136.8**	**F**	**215.0**	**F**
18. University Ave and Bayfront Exp	35.1	D	235.7	F	36.1	D	**244.3**	**F**
19. University Ave and O'Brien Dr	6.8	A	14.7	B	6.7	A	14.7	B

Table 3.5-23
Cumulative 2025 East Campus Only Condition Level of Service

	Cumulative Condition				Cumulative 2025 East Campus Only Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]
20. University Ave and Kavanaugh Dr	14.2	B	17.7	B	14.1	B	17.5	B
21. University Ave and Bay Rd	29.0	C	39.8	D	28.8	C	39.7	D
22. University Ave and Runnymede St	21.6	C	24.8	C	21.5	C	24.7	C
23. University Ave and Bell St	7.4	A	8.2	A	7.2	A	8.2	A
24. University Ave and Donohoe St	53.5	D	44.9	D	54.3	D	45.6	D
25. US 101 NB and Donohoe St	9.3	B	14.3	B	9.4	B	22.2	C
26. University Ave and US 101 SB	18.3	B	34.2	C	18.5	B	34.3	C
27. University Ave and Woodland Ave	52.3	D	60.0	E	52.3	B	60.1	E
28. University Ave and Middlefield Rd	46.5	D	35.1	D	48.5	D	35.9	D
29. Bayfront Expressway and Chrysler Dr	17.5	B	102.7	F	17.5	B	101.9	F
EB Critical Local Approach	55.8	E	135.9	F	56.1	E	**138.9**	**F**
30. Bayfront Expressway and Chilco St	20.0	C	19.6	B	20.1	C	19.3	B
31. Middlefield Rd and Ravenswood Ave	25.7	C	32.6	C	26.3	C	32.7	C
32. Middlefield Rd and Ringwood Ave	25.7	C	30.0	C	25.6	C	30.0	C
33. Middlefield Rd and Lytton Ave	44.8	D	113.7	F	46.7	D	**121.6**	**F**
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EB Critical Approach	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections.
Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches.
BOLD indicates potentially significant impact.

For City-controlled intersections that contain two arterial roadways and operate at LOS E or F: the intersection of Willow Road and Middlefield Road would have an increase in delay of greater than 0.8 seconds at the critical approaches resulting in a ***potentially significant*** impact at this location under the Cumulative 2025 East Campus Only Condition.

The local approaches to State-controlled intersections (operating at LOS E or F) would experience a delay increase of greater than 0.8 seconds at the following intersections under the Cumulative 2025 East Campus Only Condition:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Bayfront Expressway and Chrysler Drive

These intersections would experience a ***potentially significant*** impact.

At the State-controlled intersection of University Avenue and Bayfront Expressway, which operates at LOS F, the Project-related traffic would increase intersection delay by greater than four seconds causing a ***potentially significant*** impact at this intersection.

The intersection of Middlefield Road and Lytton Avenue located in the City of Palo Alto would also experience a ***potentially significant*** impact for the PM peak hour.

MITIGATION MEASURE. Mitigation Measure TR-11.1 involves intersection improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition. However, intersection impacts would still remain ***significant and unavoidable*** since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. (SU)

TR-11.1 *Intersection Improvements*. The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way when travel lanes are added. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures.

a. Marsh Road and Bayfront Expressway

   See Near Term 2018 East and West Campus TR-6.2a.

b. Marsh Road and US 101 NB Ramps

   See Near Term 2018 East and West Campus TR-6.2b.

c. Willow Road and Bayfront Expressway

See Near Term 2015 East Campus Only TR-1c.

d. Willow Road and Newbridge Street

See Near Term 2018 East and West Campus TR-6.2d.

e. Willow Road and Middlefield Road

See Near Term 2015 East Campus Only TR-1.1b.

f. University Avenue and Bayfront Expressway

See Near Term 2015 East Campus Only TR-1.1c.

g. Bayfront Expressway and Chrysler Drive

See Near Term 2015 East Campus Only TR-1.1d.

h. Middlefield Road and Lytton Avenue

See Near Term 2015 East Campus Only TR-1.1e.

Cumulative 2025 East Campus and West Campus Condition. For this condition a Project increment including the East Campus and West Campus is considered. As shown in Table 3.5-24, the East Campus and West Campus trip generation would include 1,890 trips (1,758 inbound and 132 outbound trips) for the AM peak hour, 1,893 trips (208 inbound and 1,685 outbound trips) for the PM peak hour, and 15,956 daily trips.

Net-new Project-related traffic described above was added to the Cumulative 2025 Condition volumes to determine cumulative impacts in the Cumulative 2025 East Campus and West Campus Condition. Intersection levels of service for the Cumulative 2025 Condition and Cumulative 2025 East Campus and West Campus Condition are provided in Table 3.5-25. Figure 3.5-20 shows the East Campus and West Campus trip assignment and Figure 3.5-21 illustrates the Cumulative 2025 East Campus and West Campus Condition peak hour traffic volumes.

Table 3.5-24
East Campus and West Campus Trip Generation

Proposed Use	Land Use Code	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
East Campus Office Increment (3,600 to 6,600 Employees)	714	692	52	744	111	902	1,013	9,606
West Campus Office (2,800 Employees)	714	1,066	80	1,146	97	783	880	6,350
Total Net New Increment Trips		**1,758**	**132**	**1,890**	**208**	**1,685**	**1,893**	**15,956**

Source: DKS Associates, 2011.

Table 3.5-25
Cumulative 2025 East Campus and West Campus Condition Level of Service

	Cumulative Condition				Cumulative East Campus and West Campus Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
1. Marsh Rd and Bayfront Exp	26.2	C	79.6	E	29.1	C	86.5	F
SB Critical Local Approach	94.2	F	135.0	F	**99.9**	**F**	**143.0**	**F**
WB Critical Local Approach	67.5	E	171.7	F	67.5	E	**180.3**	**F**
2. Marsh Rd and US 101 NB Off-Ramp	42.3	D	44.9	D	**83.6**	**F**	48.1	D
3. Marsh Rd and US 101 SB Off-Ramp	31.7	C	29.9	C	39.1	D	40.6	D
4. Marsh Rd and Scott Dr	35.6	D	22.4	C	36.1	D	27.4	C
5. Marsh Rd and Bohannon Dr	15.7	B	22.2	C	15.6	B	23.4	C
6. Marsh Rd and Bay Rd	17.4	B	15.4	B	19.2	B	15.3	B
7. Marsh Rd and Middlefield Rd	27.0	C	44.4	D	36.1	D	**55.0**	**E**
8.Willow Rd and Bayfront Exp	35.4	D	103.7	F	**62.5**	**E**	**146.8**	**F**
WB Critical Local Approach	62.5	E	182.9	F	**64.9**	**E**	**219.0**	**F**
9. Willow Rd and Hamilton Ave	22.4	C	24.0	C	21.6	C	28.1	D
10. Willow Rd and Ivy Dr	21.3	C	13.9	B	27.6	C	17.4	C
11. Willow Rd and O'Brien Dr	14.7	B	10.1	B	14.4	B	9.9	B
12. Willow Rd and Newbridge St	62.5	E	41.1	D	**66.8**	**E**	**77.2**	**E**
NB Critical Local Approach	110.7	F	97.8	F	**116.5**	**F**	**179.0**	**F**
SB Critical Local Approach	98.2	F	98.7	F	**104.1**	**F**	**180.0**	**F**
13. Willow Rd and Bay Rd	22.2	C	23.5	C	22.9	C	24.2	C
14. Willow Rd and Durham St	15.6	B	18.3	B	15.5	B	21.8	C
15. Willow Rd and Coleman Ave	18.8	B	15.9	B	23.2	C	18.0	B
16. Willow Rd and Gilbert Ave	18.0	B	13.9	B	22.2	C	14.6	B
17. Willow Rd and Middlefield Rd	123.8	F	205.7	F	**151.9**	**F**	**215.7**	**F**
18. University Ave and Bayfront Exp	35.1	D	235.7	F	38.8	D	**251.8**	**F**
19. University Ave and O'Brien Dr	6.8	A	14.7	B	6.6	A	14.6	B
20. University Ave and Kavanaugh Dr	14.2	B	17.7	B	14	B	17.4	B
21. University Ave and Bay Rd	29.0	C	39.8	D	28.6	C	39.6	D

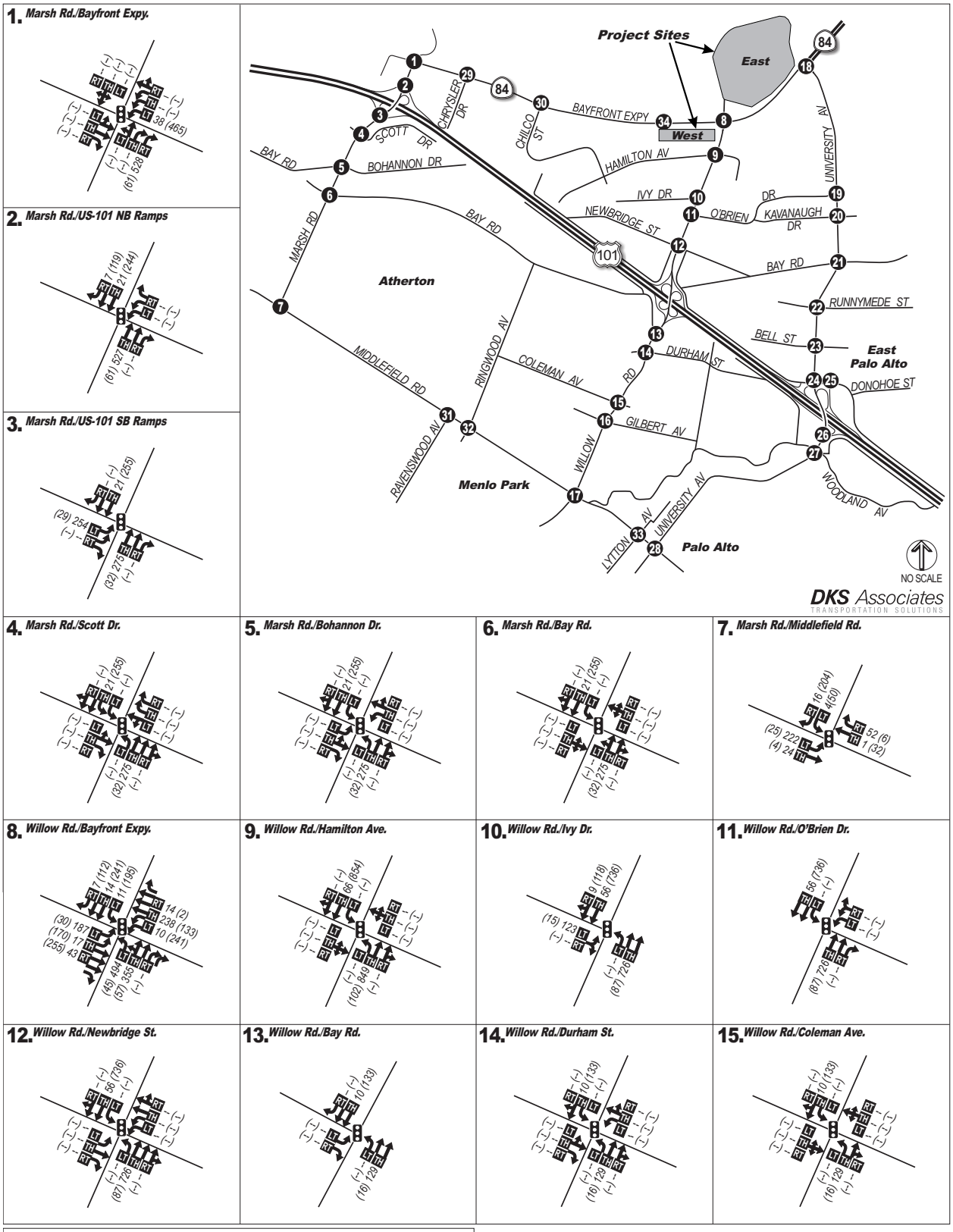
Table 3.5-25
Cumulative 2025 East Campus and West Campus Condition Level of Service

	Cumulative Condition				Cumulative East Campus and West Campus Condition			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Study Intersection	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**	**Delay[a]**	**LOS[b]**
22. University Ave and Runnymede St	21.6	C	24.8	C	21.4	C	24.7	C
23. University Ave and Bell St	7.4	A	8.2	A	6.9	A	8.1	A
24. University Ave and Donohoe St	53.5	D	44.9	D	**55.6**	**E**	46.3	D
25. US 101 NB and Donohoe St	9.3	B	14.3	B	9.6	B	14.4	B
26. University Ave and US 101 SB	18.3	B	34.2	C	18.9	B	34.3	C
27. University Ave and Woodland Ave	52.3	D	60.0	E	52.3	D	60.1	E
28. University Ave and Middlefield Rd	46.5	D	35.1	D	52.0	D	36.4	D
29. Bayfront Expressway and Chrysler Dr	17.5	B	102.7	F	17.7	B	**101.3**	**F**
EB Critical Local Approach	55.8	E	135.9	F	56.6	E	**141.9**	**F**
30. Bayfront Expressway and Chilco St	20.0	C	19.6	B	20.4	C	19.0	B
31. Middlefield Rd and Ravenswood Ave	25.7	C	32.6	C	26.3	C	32.7	C
32. Middlefield Rd and Ringwood Ave	25.7	C	30.0	C	25.6	C	30.0	C
33. Middlefield Rd and Lytton Ave	44.8	D	113.7	F	49.3	D	**126.8**	**F**
34. Bayfront Expressway and West Campus Entrance	N/A	N/A	N/A	N/A	19.1	B	43.8	D
EB Critical Approach	N/A	N/A	N/A	N/A	42.5	D	93.2	F

Source: DKS Associates, 2011.
Notes:
a. Delay = average number of seconds per vehicle for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
b. LOS represents average for signalized and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
See Appendix 3.5-B for definitions of LOS for signalized and unsignalized intersections.

Average delay for Eastbound/Westbound or Northbound/Southbound critical movements for local/critical approaches.

BOLD indicates potentially significant impact.



Source: DKS, 2011.

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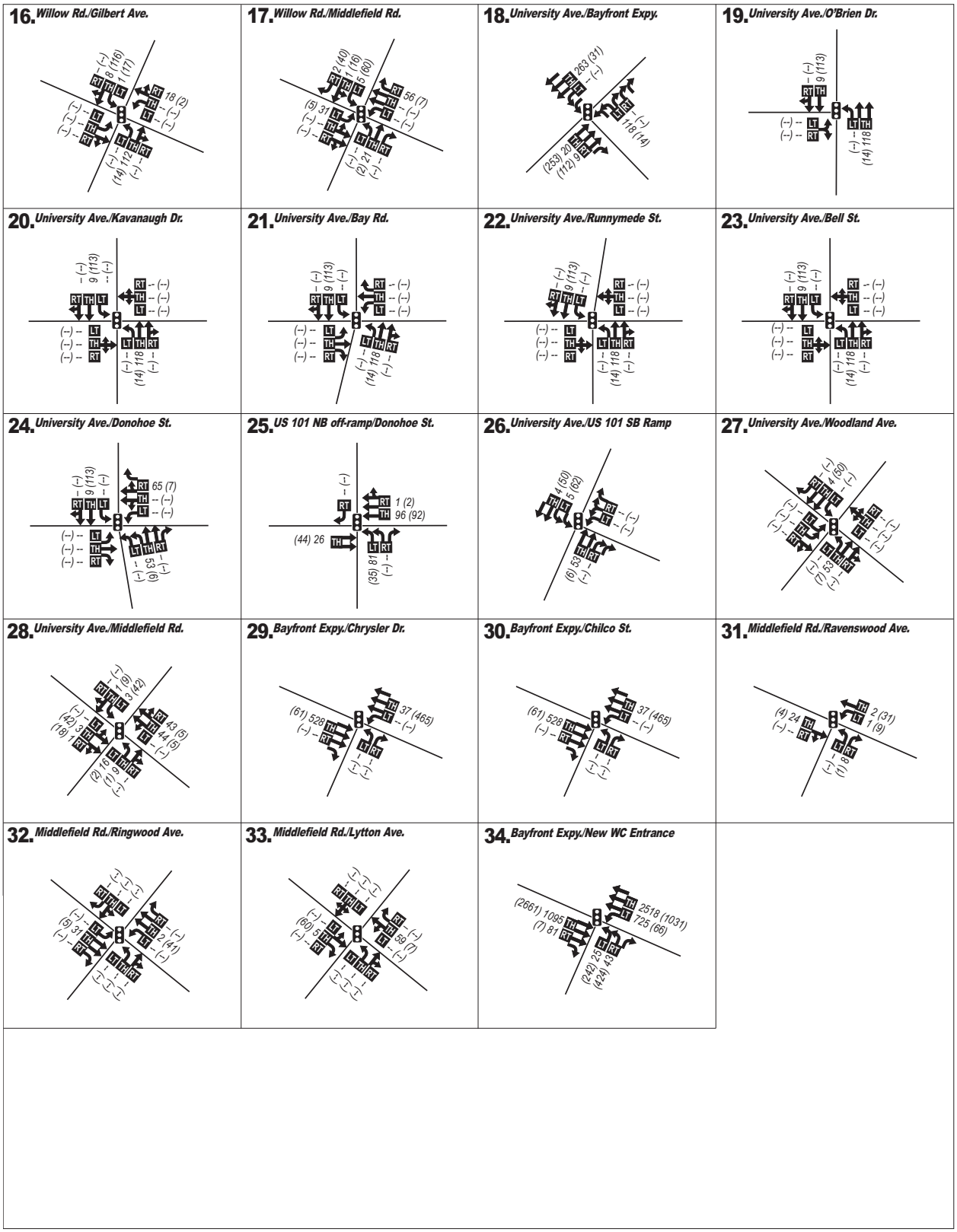
FIGURE 3.5-20a

Cumulative 2025 East Campus and West Campus Condition Generated Trips



LEGEND

- 1 - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

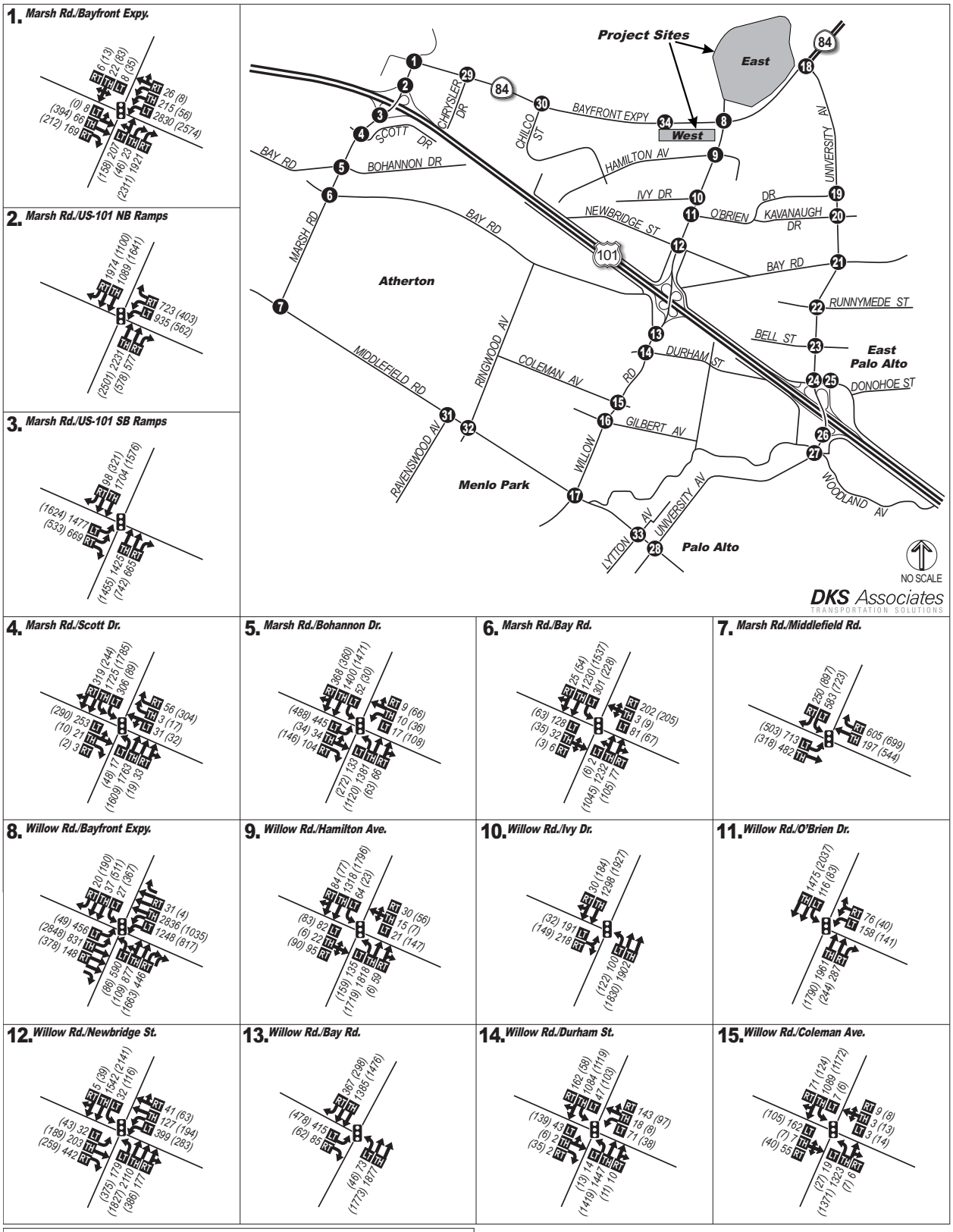
NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-20b

Cumulative 2025 East Campus and West Campus Condition Generated Trips



Source: DKS, 2011.

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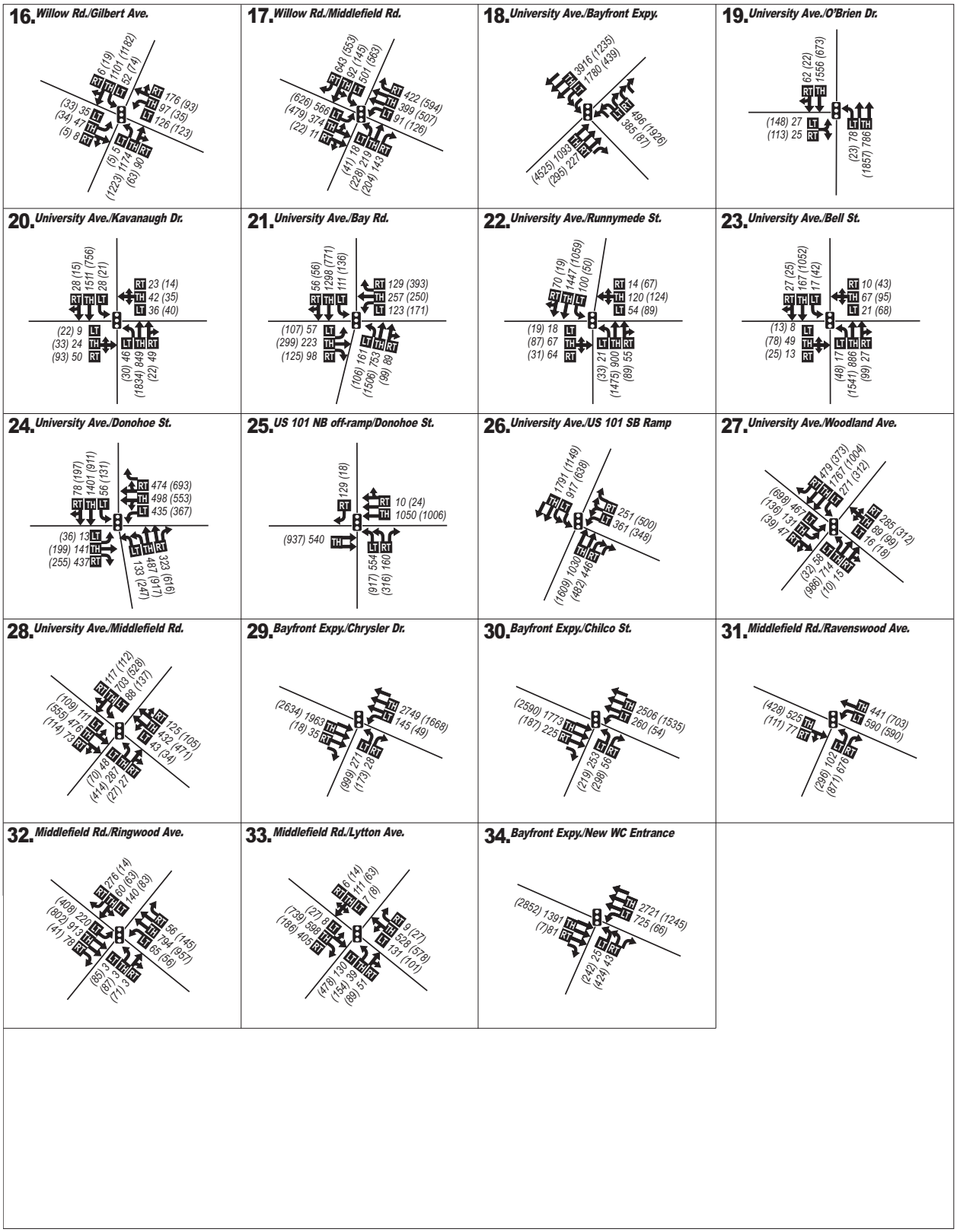
FIGURE 3.5-21a

Cumulative 2025 East Campus and West Campus Condition Peak Hour Volumes

100020154

Menlo Park Facebook Campus Project



Source: DKS, 2011.

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FIGURE 3.5-21b

Cumulative 2025 East Campus and West Campus Condition Peak Hour Volumes

100020154

Menlo Park Facebook Campus Project

AM Peak Hour

During the AM peak hour, all study intersections would operate at acceptable service levels with the exceptions of the following intersections:

- Marsh Road and US 101 NB Ramps
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Willow Road and Middlefield Road
- University Avenue and Donohoe Street

At the City-controlled intersection of two arterials, the addition of Project-generated peak hour traffic would result in an increase in delay at the critical movements at the intersection of Willow Road and Middlefield Road resulting in a ***potentially significant*** impact at this location.

The local approaches to the State-controlled intersection of Willow Road and Newbridge Street, which would operate at LOS E, would experience an increase delay at the local approaches causing a ***potentially significant*** impact at this intersection.

At the State-controlled intersections of Marsh Road and US 101 northbound ramps, the Project-related traffic would increase intersection LOS from LOS D to LOS F, resulting in a ***potentially significant*** impact.

Additionally the intersection of University Avenue and Donohoe Street in East Palo Alto would experience a ***potentially significant*** impact.

PM Peak Hour

During the Cumulative 2025 Condition PM peak hour, all study intersections would operate at acceptable LOS with the exception of the following intersections:

- Marsh Road and Bayfront Expressway
- Marsh Road and Middlefield Road
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Willow Road and Middlefield Road
- University Avenue and Bayfront Expressway
- Bayfront Expressway and Chrysler Drive
- Middlefield Road and Lytton Avenue

For City-controlled intersections that contain two arterial roadways and operate at LOS E or F: the intersection of Willow Road and Middlefield Road would have an increase in delay of greater than 0.8 seconds at the critical approaches resulting in an impact at this location. The local approaches to State-controlled intersections (operating at LOS E or F) would experience a delay increase of greater than 0.8 seconds at the following intersections:

- Marsh Road and Bayfront Expressway
- Willow Road and Bayfront Expressway
- Willow Road and Newbridge Street
- Bayfront Expressway and Chrysler Drive

These intersections would experience a ***potentially significant*** impact.

At the State-controlled intersection of University Avenue and Bayfront Expressway, which would operate at LOS F, the Project-related traffic would increase intersection delay by greater than four seconds causing a ***potentially significant*** impact at this intersection.

Additionally, the intersection of Marsh Road and Middlefield Road in Town of Atherton and Middlefield Road and Lytton Avenue in the City of Palo Alto would also experience ***a potentially significant*** impact.

MITIGATION MEASURE. Mitigation Measure TR-11.2 involves a West Campus Vehicle Trip Cap to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus and West Campus Condition. Mitigation Measure TR-11.3 involves intersection improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus and West Campus Condition. However, intersection impacts would still remain ***significant and unavoidable*** since many improvements require obtaining additional right-of-way and several intersections are not under the City's jurisdiction. (SU)

TR-11.2 *West Campus Vehicle Trip Cap.*

a. See Near Term 2018 East and West Campus TR-6.1.

TR-11.3 *Intersection Improvements.* The operations at several of the intersections could be improved by modifying the intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway; however, others may require additional right-of-way to add travel lanes. See Appendix 3.5-I for intersection conceptual layout plans for mitigation measures.

a. Marsh Road and Bayfront Expressway

See Near Term 2018 East and West Campus TR-6.2a.

b. Marsh Road and US 101 NB Ramps

See Near Term 2018 East and West Campus TR-6.2b.

c. Marsh Road and Middlefield Road

See Near Term 2018 and West Campus TR-1.1b.

d. Willow Road and Bayfront Expressway

See Near Term 2015 East Campus Only TR-1.1a.

e. Willow Road and Newbridge Street

See Near Term 2018 East and West Campus TR-6.2d.

f. Willow Road and Middlefield Road

See Near Term 2015 East Campus Only TR-1.1b.

g. University Avenue and Bayfront Expressway

See Near Term 2015 East Campus Only TR-1.1c.

h. University Avenue and Donohoe Street

The proposed mitigation measures for the intersection of University Avenue and Donohoe Street include restriping the westbound approach of the intersection to add a right turn lane and modify the traffic signal to add a right turn overlap phase.

Prior to the Development Agreement approval, the Project Sponsor shall prepare a construction cost estimate for the feasible mitigation measure at the intersection of University Avenue and Donohoe Street for review and approval of the Public Works Director. Within 90 days of the effective date of the Development Agreement for the East Campus, the Project Sponsor shall provide a performance bond for improvements in the amount equal to the estimated construction cost for the intersection improvements plus a 30 percent contingency. Within 180 days of the Development Agreement effective date, the Project Sponsor shall submit complete plans to construct the improvement.

Complete plans shall include all necessary requirements to construct the improvements in the public right-of-way, including, but not limited to, grading and drainage improvements, utility relocations, traffic signal relocations/modifications, tree protection requirements, and striping modifications. The plans shall be subject to review and approval by the City and coordination with the City of East Palo Alto Public Works Departments

prior to submittal to Caltrans. The Project Sponsor shall complete and submit an encroachment permit for approval by the cities of East Palo Alto, if required, and Caltrans prior to construction of the intersection improvements. The Project Sponsor shall construct the improvements within 180 days of receiving approval from Caltrans.

If Caltrans does not approve the intersection improvements proposed within five years from the Development Agreement effective date, and the Project Sponsor demonstrates that it has worked diligently to pursue Caltrans approval to the satisfaction of the Public Works Director, in his/her sole discretion, then the Project Sponsor shall be relieved of responsibility to construct the improvement and the bond shall be released. Because the improvement is under Caltrans jurisdiction and the City cannot guarantee it would be implemented the impact remains ***significant and unavoidable***.

i. Bayfront Expressway and Chrysler Drive

See Near Term 2015 East Campus Only TR-1d.

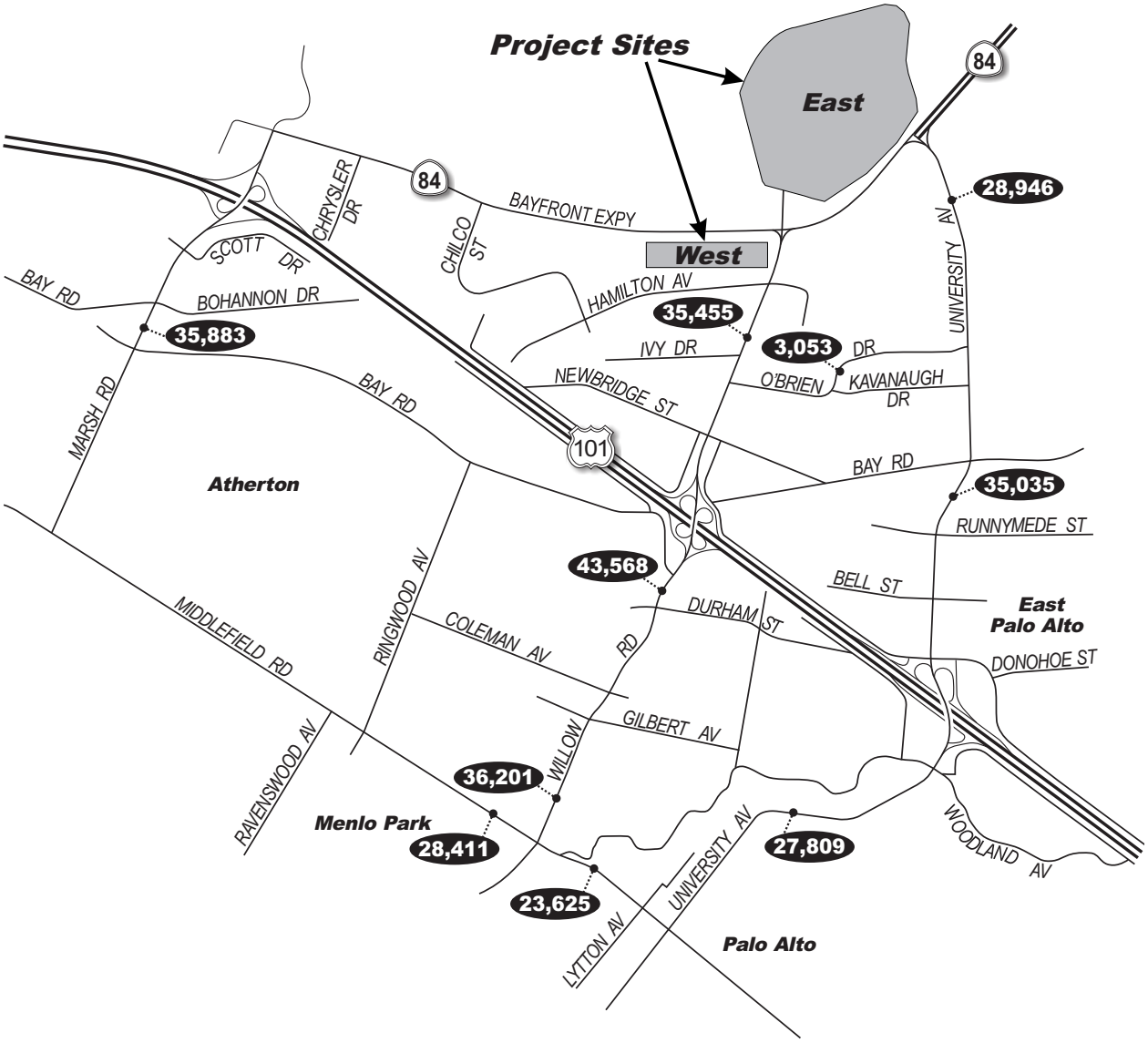
j. Middlefield Road and Lytton Avenue

See Near Term 2015 East Campus Only TR-1.1e.

TR-12 ***Impacts to Roadway Segments in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition result in increased volumes on Project area roadway segments resulting in a potentially significant impact. (PS)*

Figure 3.5-22 shows the ADT volumes for the Cumulative Condition while Figure 3.5-23 and Figure 3.5-24 shows the respective Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition ADT volumes. Table 3.5-26 and Table 3.5-27 compares the Cumulative Condition ADT volumes to the respective Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition.

As shown in Table 3.5-26 and Table 3.5-27, five roadway segments would experience significant impacts based on each roadway's respective criteria. It should be noted that Willow Road between Bay Road and the railroad tracks and University Avenue between railroad tracks and Palm Street are classified as primary arterials and are not subject to ADT analysis or thresholds.



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

Source: DKS, 2011.

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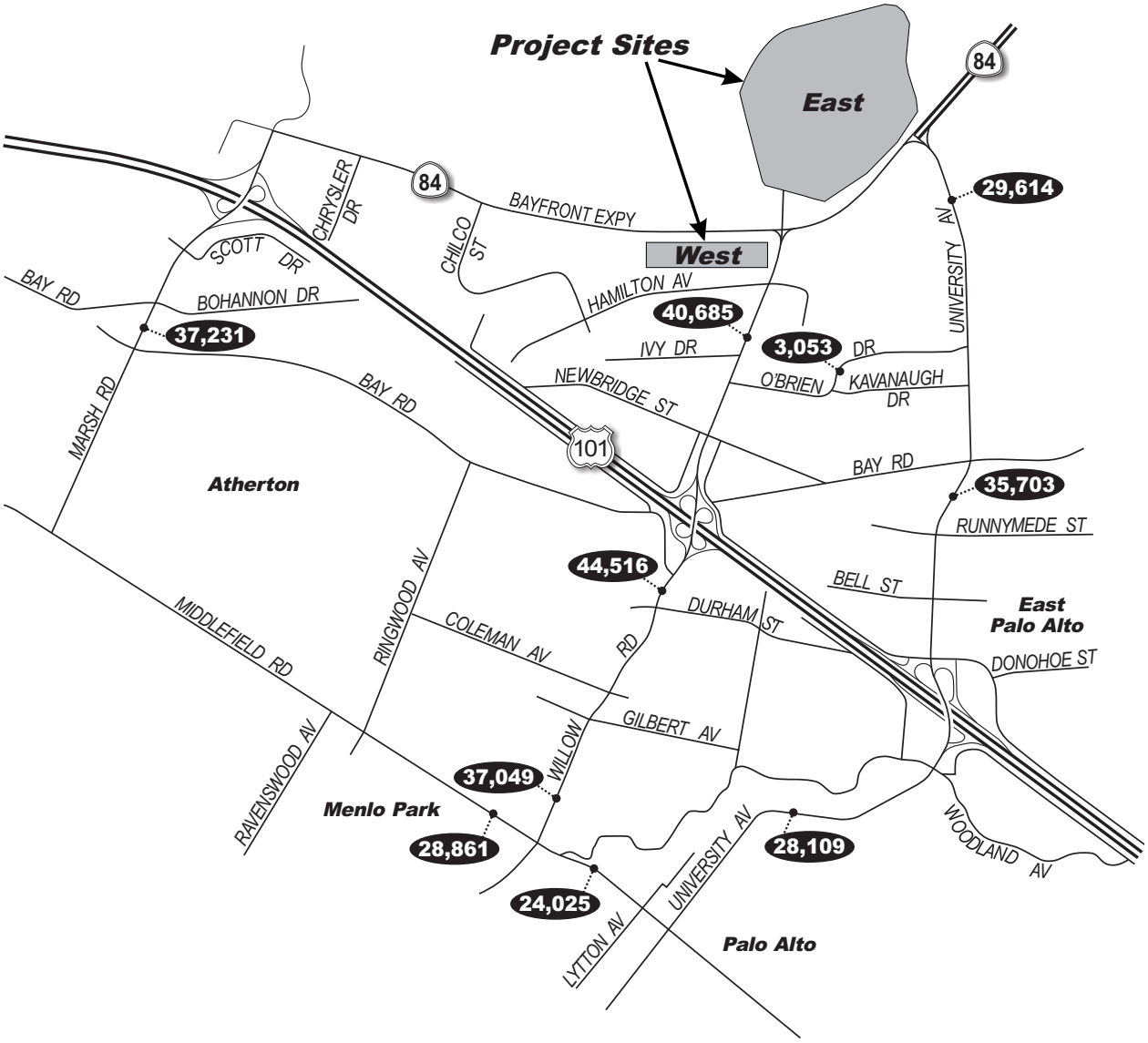
FIGURE 3.5-22
Cumulative 2025 Condition Average Daily Traffic



LEGEND

00,000 - Average Daily Traffic Volume

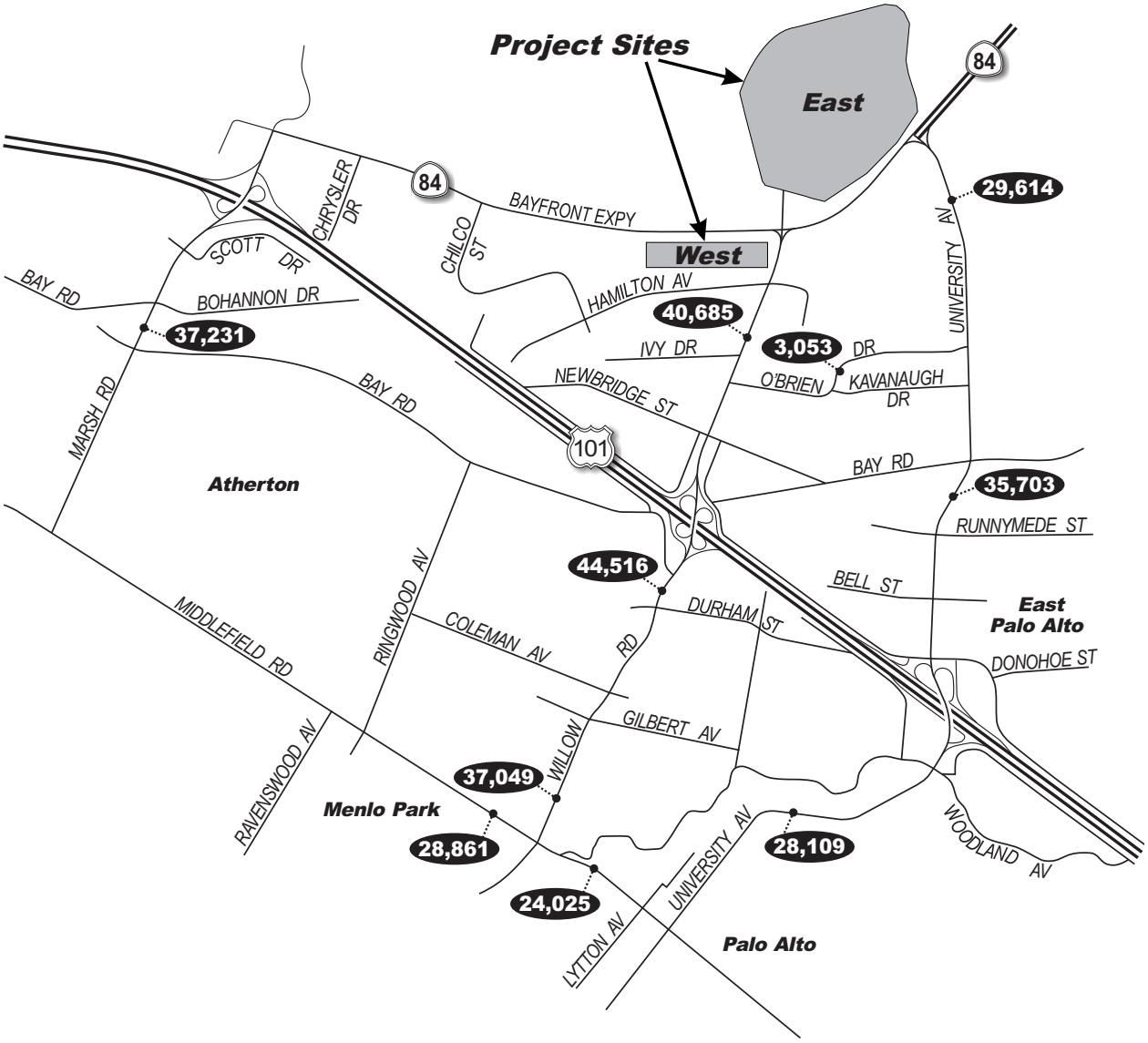
NORTH
NOT TO SCALE

Source: DKS, 2011.

ATKINS

FIGURE 3.5-23

Cumulative 2025 East Campus Only Condition Average Daily Traffic



LEGEND

00,000 - Average Daily Traffic Volume

NORTH
NOT TO SCALE

ATKINS

FIGURE 3.5-24

Source: DKS, 2011.

Cumulative 2025 East Campus and West Campus Condition Average Daily Traffic

100020154

Menlo Park Facebook Campus Project

Table 3.5-26
Cumulative 2025 East Campus Only Condition Average Daily Traffic Summary

			Existing	Cumulative Condition	Cumulative East Campus Only Condition				
	Roadway Class	Threshold	Volume	ADT	ADT	Net Volume Added for Project	% Change from Cumulative Condition	Change in TIRE index > 0.1 from Cumulative Condition	Potentially significant impact?
Marsh Rd (Bay Rd and Railroad Tracks)	MA	20,000	27,428	35,883	37,179	1,296	3.6%	N/A	**Y**
Willow Rd (Ivy Dr and Hamilton Ave)	PA	NA	26,304	35,455	40,491	5,036	14.2%	N/A	exempt
Willow Rd (Durham St and Chester St)	MA	20,000	32,745	43,568	44,480	912	2.1%	N/A	**Y**
Willow Rd (Nash Ave and Blackburn Ave)	MA	20,000	26,032	36,201	37,017	816	2.3%	N/A	**Y**
University Ave (Railroad Tracks and Purdue Ave)	PA	NA	24,023	28,946	29,590	644	2.2%	N/A	exempt
University Ave (Bell St and Runnymede St)	PA	NA	29,431	35,035	35,679	644	1.8%	N/A	exempt
University Ave (Maple St and Palm St)	PA	NA	21,413	27,809	28,097	288	1.0%	N	N
Middlefield Rd (Linfield Dr and Survey Ln)	MA	20,000	20,069	28,411	28,843	432	1.5%	N/A	**Y**
Middlefield Rd (Hawthorne Ave and Everett Ave)	MA	20,000	19,362	23,625	23,809	184	0.8%	N	N
O'Brien Dr (Adams Dr and Casey Ct)	C	10,000	2,611	3,053	3,053	0	0.0%	N/A	N

Source: DKS Associates, 2011.

Notes:

City of Menlo Park Segment Criteria:

L = Local Street. Impact if ADT is >1,350 vehicles and project adds >25 trips, or ADT is >750 and project increases ADT by 12.5%, or ADT is <750 and project increases ADT by 25%.

C = Collector Street. Impact if ADT is >9,000 vehicles and project adds >50 trips, or ADT is >5,000 and project increases ADT by 12.5%, or ADT is <5,000 and project increases ADT by 25%.

MA = Minor Arterial. Impact if ADT is >18,000 vehicles and project adds >100 trips, or ADT is >10,000 and project increases ADT by 12.5%, or ADT is <10,000 and project increases ADT by 25%.PA = Primary Arterial. Primary arterials are exempt from ADT thresholds but are included in the report for informational purposes.

For City of Palo Alto, roadway segments would experience a potentially significant impact if TIRE increases by 0.1 or greater.

BOLD indicates potentially significant impact.

Table 3.5-27
Cumulative 2025 East Campus and West Campus Condition Average Daily Traffic Summary

			Existing	Cumulative Condition	Cumulative East Campus Only Condition				
	Roadway Class	Threshold	Volume	ADT	ADT	Net Volume Added for Project	% Change from Cumulative Condition	Change in TIRE index > 0.1 from Cumulative Condition	Potentially significant impact?
Marsh Rd (Bay Rd and Railroad Tracks)	MA	20,000	27,428	35,883	38,259	2,376	6.6%	N/A	**Y**
Willow Rd (Ivy Dr and Hamilton Ave)	PA	NA	26,304	35,455	43,464	8,009	22.6%	N/A	exempt
Willow Rd (Durham St and Chester St)	MA	20,000	32,745	43,568	44,862	1,294	3.0%	N/A	**Y**
Willow Rd (Nash Ave and Blackburn Ave)	MA	20,000	26,032	36,201	37,335	1,134	3.1%	N/A	**Y**
University Ave (Railroad Tracks and Purdue Ave)	PA	NA	24,023	28,946	30,016	1,070	3.7%	N/A	exempt
University Ave (Bell St and Runnymede St)	PA	NA	29,431	35,035	36,105	1,070	3.1%	N/A	exempt
University Ave (Maple St and Palm St)	PA	NA	21,413	27,809	28,287	478	1.7%	N	N
Middlefield Rd (Linfield Dr and Survey Ln)	MA	20,000	20,069	28,411	28,843	432	1.5%	N/A	**Y**
Middlefield Rd (Hawthorne Ave and Everett Ave)	MA	20,000	19,362	23,625	23,999	374	1.6%	N	N
O'Brien Dr (Adams Dr and Casey Ct)	C	10,000	2,611	3,053	3,053	0	0.0%	N/A	N

Source: DKS Associates, 2011.

Notes:

City of Menlo Park Segment Criteria:

L = Local Street. Impact if ADT is >1,350 vehicles and project adds >25 trips, or ADT is >750 and project increases ADT by 12.5%, or ADT is <750 and project increases ADT by 25%.

C = Collector Street. Impact if ADT is >9,000 vehicles and project adds >50 trips, or ADT is >5,000 and project increases ADT by 12.5%, or ADT is <5,000 and project increases ADT by 25%.

MA = Minor Arterial. Impact if ADT is >18,000 vehicles and project adds >100 trips, or ADT is >10,000 and project increases ADT by 12.5%, or ADT is <10,000 and project increases ADT by 25%.

PA = Primary Arterial. Primary arterials are exempt from ADT thresholds but are included in the report for informational purposes.

For City of Palo Alto, roadway segments would experience a potentially significant impact if TIRE increases by 0.1 or greater.

BOLD indicates potentially significant impact.

The net volume added for the Project at the following Minor Arterial segments would be higher than the corresponding 100 vehicle threshold:

- Marsh Road (between Bay Road and railroad tracks)
- Willow Road (between Durham Street and Chester Street)
- Willow Road (between Nash Avenue and Blackburn Avenue)
- Middlefield Road (between Linfield Drive and Survey Lane)

O'Brien Drive (classified as a collector street) would not be impacted.

As with the Near Term 2015 East Campus Only Condition, it should be noted that some net-new Project-related trips would travel to destinations in the Belle Haven neighborhood. However, the problem of cut-through traffic through the Belle Haven neighborhood is anticipated to be minimal due to the projected average delays at intersections on Bayfront Expressway and on Willow Road, implemented traffic calming, and improvements along Bayfront Expressway. Existing turning movement restrictions include no left turns from Chilco Street onto Hamilton Avenue between 3:30 and 7:00 p.m. While no other turn restrictions are anticipated for the Belle Haven neighborhood, intersection improvements near the Project site, including added turning lanes at Chrysler Drive and Bayfront Expressway, and Chilco Street and Bayfront Expressway, would improve traffic flow and keep queues to a minimum. With these improvements, traffic would access Bayfront Expressway and US 101 closer to the Project site, thereby minimizing cut-through traffic through the Belle Haven neighborhood.

MITIGATION MEASURE. Mitigation Measure TR-12.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition and under the Cumulative 2025 East Campus and West Campus Only Condition on daily roadway segment operations. However, to improve daily roadway operations, a typical mitigation measure would seek to widen the road to add travel lanes and capacity. These roadway impacts would still remain ***significant and unavoidable*** because much of the City and surrounding areas are built out, making roadway widening difficult because right-of-way acquisition impacts local property owners. (SU)

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected

by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it should viewed as more than an LOS or traffic operation issue.

TR-12.1 *Roadway Segment Improvements*. Roadways could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way.

a. Marsh Road between Bay Road and the railroad tracks.

   See Near Term 2015 East Campus Only TR-2.1a.

b. Willow Road between Durham Street and Chester Street

   See Near Term 2015 East Campus Only TR-2.1b.

c. Willow Road between Nash Avenue and Blackburn Avenue

   See Near Term 2015 East Campus Only TR-2.1c.

d. Middlefield Road between Linfield Drive and Survey Lane

   See Near Term 2015 East Campus Only TR-2.1d.

TR-13 ***Impacts on Routes of Regional Significance in the Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition.*** *Increases in traffic associated with the Project under Cumulative East Campus Only Condition and Cumulative East Campus and West Campus Condition would result in significant impacts to several Routes of Regional Significance. (PS)*

Nine selected roadway segments within the Project vicinity are considered Routes of Regional Significance by the San Mateo County CMP (i.e., SR 84, SR 109, SR 114, and US 101). Project generated traffic would have an effect on the Regional Routes of Significance in the Study area by increasing the delay and possibly the LOS. However, because the freeway segments are already operating at their respective LOS standards, the traffic increase for these segments would be considered a potentially significant impact at seven segments. Table 3.5-28 and Table 3.5-29 summarize the estimated percent of capacity added to the Routes of Regional Significance. For Routes of Regional Significance, the C/CAG threshold significance criteria threshold is indicated as one percent of the respective roadway segment's existing capacity. If the overall Project-related trip generation for a roadway segment meets or exceeds 1 percent of the existing roadway capacity, then a potentially significant impact has occurred.

Table 3.5-28
Cumulative 2025 East Campus Only Condition Routes of Regional Significance

Route	Segment	Condition LOS[a]	LOS Standard[a]	Estimated Capacity[c] (vph)	Net-New Project Trips[b]	Percent of Capacity	Significant Impact?
SR 84	NB US 101 to Willow Road	E	D	3,300	362	11%	**Y**
SR 84	NB Willow Road to University Avenue	F	E	3,300	554	16.8%	**Y**
SR 84	SB University Avenue to County Line	F	F	3,300	317	9.6%	**Y**
SR 109	EB US 101 to Bayfront Expressway	D	E	2,200	109	5.0%	N
SR 114	EB US 101 to Bayfront Expressway	C	E	2,200	723	32.9%	N
US 101	NB North of Marsh Road	F	F	9,200	219	2.4%	**Y**
US 101	SB Marsh Road to Willow Road	F	F	9,200	24	0.3%	N
US 101	NB Willow Road to University Avenue	F	F	9,200	544	5.9%	**Y**
US 101	SB South of University Avenue	F	F	9,200	541	5.9%	**Y**

Source: DKS Associates, 2011; San Mateo County CMP Monitoring Report, 2009.

Notes:

a. Source: 2009 San Mateo County CMP Monitoring Report.

b. For peak hour of Project traffic.

c. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six lane segments and 2,200 vphpl for four lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl saturation flow rate (1,140 vphpl is rounded to 1,100 vphpl).

BOLD indicates potentially significant impact.

Table 3.5-29
Cumulative 2025 East Campus and West Campus Condition Routes of Regional Significance

Route	Segment	Condition LOS[a]	LOS Standard[a]	Estimated Capacity[c] (vph)	Net-New Project Trips[b]	Percent of Capacity	Significant Impact?
SR 84	NB US 101 to Willow Road	E	D	3,300	753	22.8%	**Y**
SR 84	NB Willow Road to University Avenue	F	E	3,300	586	17.8%	**Y**
SR 84	SB University Avenue to County Line	F	F	3,300	487	14.8%	**Y**
SR 109	EB US 101 to Bayfront Expressway	D	E	2,200	181	8.2%	N
SR 114	EB US 101 to Bayfront Expressway	C	E	2,200	1142	51.9%	N
US 101	NB North of Marsh Road	F	F	9,200	337	3.7%	**Y**
US 101	SB Marsh Road to Willow Road	F	F	9,200	24	0.3%	N
US 101	NB Willow Road to University Avenue	F	F	9,200	889	9.7%	**Y**
US 101	SB South of University Avenue	F	F	9,200	831	9.0%	**Y**

Source: DKS Associates, 2011; San Mateo County CMP Monitoring Report, 2009.

Notes:

a. Source: 2009 San Mateo County CMP Monitoring Report.

b. For peak hour of Project traffic.

c. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six lane segments and 2,200 vphpl for four lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl saturation flow rate (1,140 vphpl is rounded to 1,100 vphpl).

BOLD indicates potentially significant impact.

Under Cumulative East Campus Only Condition and the Cumulative East Campus and West Campus Condition, the following Routes of Regional Significance would be potentially impacted by the Project.

- SR 84 between US 101 to Willow Road
- SR 84 between Willow Road and University Avenue
- SR 84 between University Avenue and County Line
- US 101 North of Marsh Road
- US 101 between Willow Road and University Avenue
- US 101 South of University Avenue

The Project would increase traffic that would exceed the current thresholds resulting in a ***potentially significant*** impact.

MITIGATION MEASURE. Mitigation Measure TR-13.1 involves roadway improvements to mitigate or reduce the impacts of the Project under the Cumulative 2025 East Campus Only Condition and under the Cumulative 2025 East Campus and West Campus Only Condition on Routes of Regional Significance. A typical mitigation measure would seek to widen the road to add travel lanes and capacity. However, impacts to Routes of Regional Significance would remain ***significant and unavoidable*** because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add travel lanes are planned and funded on a regional scale and would be too costly for a single project to be expected to fund. (SU)

Roadway segments could be improved with additional travel lanes to accommodate the increase in net daily trips, but increasing the capacity of the roadway requires additional right-of-way. Also, the widening of roadways can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality reductions, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). There is also a quality of life aspect to roadway planning. Items such as congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, while traffic may increase on certain roadways by varying percentages, it can viewed as more than an LOS or traffic operation issue.

TR-13.1 *Routes of Regional Significance Improvements.* Routes of Regional Significance could be improved with additional travel lanes, but the freeways are under the jurisdiction of Caltrans.

a. SR 84 between US 101 and Willow Road

See Near Term 2015 East Campus Only TR-3.1a.

b. SR 84 between Willow Road and University Avenue

See Near Term 2015 East Campus Only TR-3.1b.

c. SR 84 between University Avenue and County Line

See Near Term 2015 East Campus Only TR-3.1c.

d. US 101 North of Marsh Road

See Near Term 2015 East Campus Only TR-3.1d.

e. US 101 between Willow Road and University Avenue

See Near Term 2015 East Campus Only TR-3.1e.

f. US 101 between South of University Avenue

See Near Term 2015 East Campus Only TR-3.1f.

TR-14 ***Impacts to Local Transit System in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.*** *The Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would not result in any impacts to the local transit system. This impact is less than significant. (LTS)*

Current public bus service in the Project vicinity is limited, with the Dumbarton Express the only route providing direct service to the site. The closest SamTrans line (Route 281) is located several blocks away at Ivy Drive and Willow Road. The proposed Dumbarton Rail Corridor Project, when completed, would place a station adjacent to the West Campus Site. The Project Sponsor plans to operate private shuttles to and from transit centers, including the Menlo Park and Redwood City Caltrain Stations and residential centers for employees. With the implementation of the Project's TDM plan, additional shuttles to meet the increase in rider demand would be provided. Therefore, the Project is not anticipated to add substantial demand to the existing transit services and, therefore, the impact is ***less than significant***.

TR-15 ***Impacts to Local Bicycle or Pedestrian Facilities in the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition.*** *The Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East Campus and West Campus Condition would not result in any impacts to local bicycle or pedestrian facilities. This impact is less than significant. (LTS)*

For the Cumulative 2025 East Campus Only Condition, see Near Term 2015 East Campus Only TR-5. For the Cumulative 2025 East Campus and West Campus Condition, see Near Term 2018 East Campus and West Campus TR-10.

Ramp Analysis

While a ramp analysis is not normally included in an EIR analysis, it has been analyzed in this Draft EIR for informational purposes. Caltrans requested a ramp analysis for the US 101 and Willow Road interchange following their review of the NOP and the ramp analysis has been performed to satisfy this request. An analysis of ramps at Willow Road and US 101 is shown in Table 3.5-30. The highest AM peak hour ramp demand for the Cumulative 2025 Condition occurs from northbound US 101 to eastbound Willow Road. For the PM peak hour, the highest demand occurs from northbound US 101 to eastbound Willow Road as well.

For the Cumulative 2025 East Campus Only Condition and Cumulative East Campus and West Campus Condition, the highest AM peak hour ramp volumes would occur from northbound US 101 to eastbound Willow Road while the ramp from westbound Willow Road to southbound US 101 would experience the highest number of vehicles in the PM peak hour.

Table 3.5-30
Cumulative 2025 Condition Ramp Analysis

		Cumulative 2025 Condition			Cumulative 2025 East Campus Only Condition			Cumulative 2025 East Campus and West Campus Condition		
From	**To**	**AM Peak Hour**	**PM Peak Hour**	**ADT**	**AM Peak Hour**	**PM Peak Hour**	**ADT**	**AM Peak Hour**	**PM Peak Hour**	**ADT**
NB US 101	EB Willow Road	1,102	1,369	12,416	1,333	1,406	14,015	1,688	1,438	15,072
EB Willow Road	NB US 101	499	418	6,091	499	418	6,091	499	418	6,091
WB Willow Road	NB US 101	413	495	5,521	415	529	5,701	416	537	5,734
NB US 101	WB Willow Road	626	440	7,379	626	440	7,379	626	440	7,379
SB US 101	WB Willow Road	392	430	6,775	392	430	6,775	392	430	6,775
WB Willow Road	SB US 101	1,100	1,102	10,364	1,117	1,402	11,963	1,144	1,663	13,020
EB Willow Road	SB US 101	865	568	10,685	865	568	10,685	865	568	10,685
SB US 101	EB Willow Road	264	577	5,977	275	579	6,052	275	579	6,052

Source: DKS Associates and Caltrans Census, 2011.

Cumulative Conditions with Potential Cumulative Projects

Tier 2. The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. As shown in Table 3.1-2, Tier 2 projects could result in more than 16,000 residential units and over two million sf of non-residential uses. In most cases, it is unknown whether these uses would be built. In other cases, future development is merely programmed through a large-scale planning document and build-out is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will result in increases in traffic levels on local area and regional roadways, on public transit systems, and along bicycle and pedestrian facilities.

Each of the developments would also be expected to comply with applicable local, regional and state polices and regulatory requirements as well as environmental analyses.

Four Tier 2 projects located in or adjacent to Menlo Park were not included in the CSA document: the Menlo Park El Camino Real Downtown Specific Plan, the Cargill Saltworks Project, the Fair Oaks Specific Plan, and the East Palo Alto Specific Plan. Traffic generated by these developments, as well as other development in adjacent jurisdictions, was considered in the Near Term 2015 and 2018 analysis via the one percent annual growth factor applied to the existing traffic counts. This one percent growth includes background traffic added to the roadway network not captured by the CSA document and has been added at the discretion of the City staff based on a standard used in previous City traffic studies. This growth may include traffic generated outside the City limits or changes in driving patterns or demand.

The conceptual plan for the Cargill Saltworks Project includes a large mixed use transit oriented development at the Cargill Saltworks site including residences, schools, parks, offices, retail, and transit facilities approximately two miles west of the project site. This project, which will be built in phases over many years, will be required to perform an independent environmental analysis as part of its review and approval process.

The Dumbarton Rail project would connect the East Bay cities of Union City, Fremont, and Newark to Caltrain facilities on the Peninsula. However, at this time, funding for the project is unidentified and the project status is uncertain. Should this project move forward there could be a rail station located along Bayfront Expressway near Willow Road in close proximity to the Project site. This would provide another means of accessing the Project site and potentially reduce the number of auto trips to the Project site.

Overall, the Tier 2 projects will add demand to the City's transportation system and roadway network analyzed in this report. As a result, these projects may influence intersections, local and route of regional significance roadway segment operation, ramp and freeway mainline operations, public transit service, and bicycle and walking demand.

The Project's transportation impact with respect to the Tier 2 projects would be significant. Tables 3.5-24, 3.5-26, and 3.5-28 indicate the cumulative Tier 1 and Tier 2 impacts. Cumulative Tier 1 and

Tier 2 impacts and mitigation measures are noted above and the impacts would be ***significant and unavoidable.***

Mitigation Measure Summary

The following tables summarize the proposed mitigation measure for the Project. Table 3.5-31 details a summary of the study intersection mitigation measures, Table 3.5-32 details the roadway segment mitigation measures summary, and Table 3.5-33 details a summary Routes of Regional Significance mitigation measures.

Table 3.5-31
Summary of Potential Intersection Mitigation Measures

Intersection		Significant Impact?									
#	Description	Near Term 2015 East Campus Only	Near Term 2018 East Campus and West Campus	Cumulative 2025 East Campus Only	Cumulative 2025 East Campus and West Campus	Jurisdiction	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Other Agency Approval/ Coord?	Significant Impact?
1	Marsh Rd and Bayfront Expy	N	Y	Y	Y	Caltrans	Reconfigure the westbound approach from a shared left-through-right lane to a left-through lane and a through-right lane.	Y	Y	Y	Y[c]
2	Marsh Rd and US-101 NB Ramps	N	Y	Y	Y	Caltrans	Add a northbound right lane, additional receiving capacity would be needed.	Y	Y	Y	Y
7	Marsh Rd and Middlefield Rd	N	N	N	Y	Atherton	Add a second left-turn lane to the southbound approach and widen paving. Restripe Marsh to accommodate receiving lane. Fair share contribution to the Project calculated to be approximately 30.4%.	Y	Y	Y	Y
8	Willow Rd and Bayfront Expy	Y	Y	Y	Y	Caltrans	Add a third eastbound right-turn lane and a second westbound left-turn lane.	Y	N[a]	Y	Y
12	Willow Rd and Newbridge St	N	Y	Y	Y	Caltrans	Add a second eastbound left-turn land and a third westbound through lane.	Y	N[b]	Y	Y
17	Willow Rd and Middlefield Rd	Y	Y	Y	Y	Menlo Park	Restripe on northbound through lane to a northbound shared through-right lane.	Y	Y	N	N
18	University Ave and Bayfront Expy	Y	Y	Y	Y	Caltrans	Convert the existing southbound right-turn lane to a shared through-right lane with receiving lane.	Y	N	Y	Y
24	University Ave and Donohoe St	N	N	N	Y	East Palo Alto	Stripe a formal southbound right turn lane and provide southbound right turn overlap phasing.	Y	Y	Y	N
29	Bayfront Expy and Chrysler Dr	Y	Y	Y	Y	Caltrans	Add an eastbound left-turn lane.	Y	Y	Y	Y
33	Middlefield Rd and Lytton Ave	Y	Y	Y	Y	Palo Alto	Add a dedicated northbound left-turn lane.	Y	N	Y	Y

Source: DKS, 2011.

Notes:

a. Westbound left-turn lane may not be feasible. Eastbound right-turn lane is feasible.

b. A second eastbound left turn lane may not be feasible. Partial mitigation would include a third westbound through lane.

c. Depending on depth of lanes, additional right-of-way may not be required.

Table 3.5-32
Summary of Potential Roadway Segment Mitigation Measures

Roadway Segment	Significant Impact?								
Description	Near Term East Campus Only 2015	Near Term East Campus and West Campus 2018	Cumulative East Campus Only 2025	Cumulative East Campus and West Campus 2025	Jurisdiction	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Significant Impact?
Marsh Road between Bay Road and Railroad Tracks	Y	Y	Y	Y	Menlo Park	Add an additional travel lane.	Y	N	Y
Willow road between Durham Street and Chester Street	Y	Y	Y	Y	Menlo Park	Add an additional travel lane.	Y	N	Y
Willow Road between Nash Avenue and Blackburn Avenue	Y	Y	Y	Y	Menlo Park	Add an additional travel lane.	Y	N	Y
Middlefield Road between Linfield Drive and Survey Lane	N	N	Y	Y	Menlo Park	Add an additional travel lane.	Y	N	Y

Table 3.5-33
Summary of Routes of Regional Significance Segment Mitigation Measures

Roadway Segment	Significant Impact?								
Description	Near Term East Campus Only 2015	Near Term East Campus and West Campus 2018	Cumulative East Campus Only 2025	Cumulative East Campus and West Campus 2025	Jurisdiction	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Significant Impact?
SR 84 (US 101 to Willow Road)	Y	Y	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y
SR 84 (Willow Road to University Avenue)	Y	N	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y
SR 84 (University Avenue to County Line)	Y	Y	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y
US 101 (North of Marsh Road)	Y	Y	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y
US 101 (Willow Road to University Avenue)	Y	Y	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y
US 101 (South of University Avenue)	Y	Y	Y	Y	Caltrans	Add an additional travel lane.	Y	N	Y

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3.6 AIR QUALITY

Introduction

This section evaluates the potential impacts on air quality resulting from implementation of the Project. This section includes the potential for the Project to: conflict with or obstruct implementation of the Air Quality Management Plan (AQMP) of the Bay Area Air Quality Management District (BAAQMD); violate an air quality standard or contribute substantially to an existing or projected air quality violation (the Bay Area is considered to have not attained the federal and State ozone standards or the State standard for respirable particulate matter [PM_{10}]); result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment; expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors that would affect a substantial number of people.

Information reported in this section is derived from: the United States Environmental Protection Agency (EPA) and BAAQMD air emission models that predict regional emissions and localized pollutant concentrations, and traffic data prepared by DKS Associates (DKS). The technical data used to prepare this section is provided in Appendix 3.6. Information on climate change is presented in Section 3.7, Greenhouse Gas Emissions, of this Draft EIR.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertaining to air quality impacts include carbon dioxide (CO_2) emissions as a result of increased traffic.

Applicable Plans and Regulations

Air quality within the San Francisco Bay Area Air Basin (Bay Area Basin) is addressed through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Bay Area Basin are discussed below.

Federal

US Environmental Protection Agency. The EPA is responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The EPA also has jurisdiction over emissions sources outside State waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify

specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

State

California Air Resources Board. CARB, a part of the California Environmental Protection Agency (Cal/EPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In April 2005, CARB issued a guidance document on air quality and land use, *Air Quality and Land Use Handbook: A Community Health Perspective*, which recommends that sensitive land uses not be located within 500 feet of a freeway or other high traffic roadway. It also recommends that a site-specific health risk assessment for all sensitive uses within 500 feet of a freeway or other high traffic roadway be performed as a way to more accurately evaluate the risk.

The basis for CARB's advisory recommendation of the 500 foot buffer is traffic-related studies of the additional cancer and non-cancer health risks attributable to proximity to roadways. Additional non-cancer health risks occur within 1,000 feet of freeways and high-traffic roadways. The highest concentration of emissions dissipates rapidly within the first 300 feet. According to CARB, California freeway studies also show an approximately 70 percent drop-off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel particulate matter (DPM) is expected to be lowered proportionately.[1] The guidance manual does not provide a quantitative acceptable threshold of risks from diesel exhaust from freeways in its recommendations of buffer distances between freeways and sensitive land uses. The CARB guidance acknowledges the need to balance this recommendation with other State and local policies addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues.

Bay Area Air Quality Management District. BAAQMD is the primary agency responsible for comprehensive air pollution control in the entire Bay Area Air Basin, including San Mateo County. To that end, BAAQMD, a regional agency, works directly with the Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), and local governments and cooperates actively with all federal and State government agencies. BAAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

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[1] CARB, Air Quality and Land Use Handbook: A Community Health Perspective. April 2005. http://www.arb.ca.gov/ch/handbook.pdf. Accessed November 15 2011.

BAAQMD is directly responsible for reducing emissions from stationary (area and point) sources and for assuring that State controls on mobile sources are effectively implemented. It has responded to this requirement by preparing a sequence of Ozone Attainment Plans and Clean Air Plans that comply with the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) to accommodate growth, reduce the pollutant levels in the Bay Area Basin, meet the national and State Ambient Air Quality Standards (NAAQS)/CAAQS, and minimize the fiscal impact that pollution control measures have on the local economy. The Ozone Attainment Plans are prepared for the federal ozone standard, and the Clean Air Plans are prepared for the State ozone standards. The most recent Ozone Attainment Plan was adopted by BAAQMD Board of Directors on October 2001 and demonstrates attainment of the federal ozone standard in the Bay Area by 2006. In January 2006, BAAQMD adopted the 2005 Ozone Strategy to identify further steps needed to continue reducing public's exposure to unhealthy levels of ozone. Most recently, the 2010 Clean Air Plan was adopted by the Board of Directors on September 15, 2010, which serves to:

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce ozone;
- Provide a control strategy to reduce ozone (O_3), particulate matter (PM), air toxics, and greenhouse gases (GHGs) in a single, integrated plan;
- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2010-2012 timeframe.

These planning efforts have substantially decreased the population's exposure to unhealthful levels of pollutants, even while substantial population growth has occurred within the Bay Area.

In 2003, the California Legislature enacted Senate Bill 656 (SB 656) to reduce public exposure to PM_{10} and $PM_{2.5}$. SB 656 required CARB, in consultation with local air districts, to develop and adopt, by January 1, 2005, a list of the most readily available, feasible, and cost-effective control measures that could be used by CARB and the air districts to reduce PM_{10} and $PM_{2.5}$. In November 2005, BAAQMD adopted a Particulate Matter Implementation Strategy (PMIS) focusing on those measures most applicable and cost effective for the Bay Area.

Although BAAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Bay Area. Instead, BAAQMD has used its expertise and prepared the BAAQMD California Environmental Quality Act (CEQA) Guidelines to indirectly address these issues in accordance with the projections and programs of the Ozone Attainment Plan and Clean Air Plan. The purpose of the BAAQMD CEQA Guidelines is to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects and plans proposed in the Bay Area. Specifically, the BAAQMD CEQA Guidelines explain the procedures that BAAQMD recommends be followed during the environmental review processes required by CEQA. The BAAQMD CEQA Guidelines provide direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. BAAQMD intends

that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Bay Area, and adverse impacts will be minimized.

BAAQMD recently updated its CEQA Guidelines, and adopted revised CEQA significance thresholds on June 2, 2010. The most recent revision to the CEQA Guidelines was on May 3, 2011. All of the adopted CEQA thresholds of significance, except for the risk and hazards thresholds for new receptors, were effective June 2, 2010. The risk and hazards thresholds when considering the siting of new sensitive receptors such as residences or schools became effective May 1, 2011.

The new guidelines provide methodologies for analyzing air quality impacts for the updated CEQA significance thresholds for construction-related and operational emissions of criteria pollutants, ozone precursors, health risks, and GHGs.[2] The BAAQMD CEQA Guidelines recommend an evaluation of air concentrations from a project's traffic sources if the project is expected to add 10,000 vehicles per day or 1,000 trucks per day to surrounding roads. The Guidelines also recommend a cumulative evaluation of sources, which includes mobile emissions from major roadways, on sensitive receptors affected by project sources. BAAQMD defines a major roadway as those with daily traffic greater than 10,000 vehicles per day.

Local

City of Menlo Park. Local jurisdictions, such as the City, have the authority and responsibility to reduce air pollution through their police powers and decision-making authority. Specifically, the City is responsible for assessing the potential for and mitigating air quality problems that result from its land use decisions. The City is also responsible for the implementation of transportation control measures, as outlined in the Clean Air Plan.

In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits and monitors and enforces the implementation of such mitigation measures. The City uses the *BAAQMD CEQA Guidelines* as its guidance document for the environmental review of plans and development proposals within its jurisdiction.

Menlo Park General Plan. The General Plan guides development and use of land within the City. Several goals and policies would be expected to contribute to improving air quality. However, the following goal and policy from the Open Space and Conservation Element[3] of the City's General Plan pertain directly to the Project.

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[2] BAAQMD, "Updated CEQA Guidelines," website: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx, accessed October 11, 2011.

[3] City of Menlo Park, Menlo Park General Plan, Open Space and Conservation Element, adopted June 26, 1973.

Goal 12: To enhance and preserve air quality in accord with regional standards.

Policy 14: Reaffirm the policies and goals of the Regional Water Quality Control Board (RWQCB) and BAAQMD.

Existing Conditions

Air Quality Background

The City is located within the Bay Area Basin, which derives its name from the surrounding mountains that confine the movement of air and the pollutants it contains. This area includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, the western half of Solano, and the southern half of Sonoma counties. The regional climate within the Bay Area Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime on-shore breezes, and moderate humidity. A wide range of meteorology and emissions sources—such as dense population centers, heavy vehicular traffic, and industrial activity—primarily influence the air quality within the Bay Area Basin.

Air pollutant emissions within the Bay Area Basin are generated from stationary, area-wide, mobile, and natural sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Examples are boilers and combustion equipment that produce electricity or generate heat. Area-wide sources consist of many smaller point sources that are widely distributed. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hair spray. Construction activities that create fugitive dust, through activities such as excavation and grading, also contribute to area source emissions. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

Both the federal and State governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The NAAQS/CAAQS have been set at levels above which concentrations could be generally harmful to human health and welfare, and to protect the most sensitive persons from illness or discomfort with a margin of safety.

The air pollutants for which NAAQS/CAAQS have been promulgated and that are most relevant to air quality planning and regulation in the Bay Area Basin include ozone (O_3), carbon monoxide (CO), PM_{10}, fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). In addition, toxic air contaminants (TACs) are of concern in the Bay Area Basin. Each of these is briefly described below.

- *Ozone* (O_3) is a gas that is formed when volatile organic compounds (VOCs), which can also be referred to as reactive organic gases (ROG), and nitrogen oxides (NO_x), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Meteorological conditions that are needed to produce high concentrations of ozone are direct sunshine, early morning stagnation in source areas, high ground surface temperatures, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable.
- *Carbon Monoxide* (CO) is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest in the winter mornings when surface-based inversions trap the pollutant at ground level. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the Bay Area Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Respirable Particulate Matter* (PM_{10}) and *Fine Particulate Matter* ($PM_{2.5}$) consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns, respectively, or smaller in diameter. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Nitrogen dioxide* (NO_2) is a reddish-brown reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is an essential ingredient in the formation of ozone. Like O_3, NO_2 is not directly emitted but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} and is emitted as a by-product of fuel combustion.
- *Sulfur oxide* (SO_x), primarily SO_2, is a product of high-sulfur fuel combustion and chemical processes occurring at chemical plants and refineries. It is a colorless, extremely irritating gas or liquid. Although sulfur dioxide concentrations have been reduced to levels well below State and national standards, further reductions are desirable to attain compliance with standards for PM_{10}, of which SO_2 is a contributor.
- *Lead* (Pb) occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Bay Area Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles; therefore, most lead combustion emissions are associated with off-road vehicles such as racecars and some jet fuels. Other sources of lead occur in the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.
- *Toxic Air Contaminants* (TACs) is a general term for a diverse group of air pollutants that can adversely affect human health, but have not had ambient air quality standards established for them. They are not fundamentally different from the pollutants discussed above, but lack ambient air quality standards for a variety of reasons (e.g., insufficient data on toxicity, association with particular workplace exposures rather than general environmental exposure, etc.). TACs effects tend to be local rather than regional. CARB has designated nearly 200

compounds as TACs. Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines. The health effects of TACs can result from either acute or chronic exposure; many types of cancer are associated with chronic TAC exposures.

Existing Regional Air Quality

The emissions inventory for the entire Bay Area Basin and San Mateo County is summarized in Table 3.6-1. In the Bay Area Basin, motor vehicles generate the majority of ROG, NO_X, and CO. Stationary sources generate the most SO_x and area-wide sources generate the most airborne particulates.

Table 3.6-1
2010 Estimated Average Daily Emissions

	Emissions in Tons per Day					
Emissions Source	**ROG**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
San Francisco Bay Area Air Basin	359.2	414.2	1595.7	62.2	215.7	81.6
San Mateo County	33.4	56.2	158.3	8.6	20.9	7.6

Source: California Air Resources Board, *California Almanac of Emissions and Air Quality*, website: http://www.arb.ca.gov/app/emsinv/emssumcat.php, 2011.

Measurements of ambient concentrations of the criteria pollutants (CP) are used by the EPA and CARB to assess and classify the air quality of each regional air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national and State standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment" for that pollutant. If the pollutant exceeds the standard, the area is in marginal, moderate, serious, severe, or extreme "nonattainment," depending on the magnitude of the air quality standard exceedance. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

The EPA and CARB use different standards for determining whether the Bay Area Basin is an attainment area. Under national standards, the Bay Area Basin is currently classified as a nonattainment area for O_3. The Bay Area Basin is in attainment or designated as unclassified for all other pollutants under national standards. Under State standards, the Bay Area Basin is designated as a nonattainment area for O_3 and PM_{10}, and an attainment area for all other pollutants.

Existing Local Air Quality

BAAQMD monitors ambient air pollutant concentrations through a series of monitoring stations located throughout the Bay Area Basin. There is no monitoring station in the City, but there is one in Redwood City, approximately three miles to the north of the Project site, that currently measures CP concentrations, including O_3, CO, NO_2, and particulates (both PM_{10} and $PM_{2.5}$). The air quality on the Peninsula, including the City, has generally improved over the past 20 years, as motor vehicles have

become cleaner, agricultural and residential burning has been curtailed, and consumer products containing ROGs have been reformulated or replaced.

Table 3.6-2 identifies the national and State ambient air quality standards for relevant air pollutants along with the ambient pollutant concentrations that have been measured at the Redwood City monitoring station through the period of 2007 to 2009. Measurements from these years indicate that State standards for O_3 were not exceeded. Particulate air quality is a moderate problem on the Peninsula. There was one exceedance of the State 24-hour standard in 2007 at the Redwood City monitoring station. Carbon monoxide, a product of incomplete combustion, was formerly a problem for the Peninsula; but with improved motor vehicles and fuels, air quality at Redwood City meets State and federal standards. Due to the City's close proximity to the monitoring station in Redwood City, it can be assumed that pollutant concentrations are similar in the City.

Table 3.6-2
Summary of Ambient Air Quality in the Project Vicinity

Air Pollutants Monitored at San Mateo County Monitoring Stations	Year		
	2007	**2008**	**2009**
Ozone			
Maximum 1-hour concentration measured	0.077 ppm[a]	0.082 ppm	87 ppm
Days exceeding State 0.09 ppm 1-hour standard	0	0	0
Maximum 8-hour concentration measured	0.069 ppm	0.069 ppm	63 ppm
Days exceeding national 0.08 ppm 8-hour standard	0	0	0
Days exceeding State 0.07 ppm 8-hour standard	0	0	0
Respirable Particulate Matter (PM_{10})			
Maximum 24-hour concentration measured (national)	56 $\mu g/m^3$ [b]	38 $\mu g/m^3$	N/A[c]
No. of days exceeding national 150 $\mu g/m^3$ 24-hour standard	0	0[d]	N/A[c]
Days exceeding State 50 $\mu g/m^3$ 24-hour standard	1	0[d]	N/A[c]
Fine Particulate Matter ($PM_{2.5}$)			
Maximum 24-hour concentration measured	45.4 $\mu g/m^3$	27.9 $\mu g/m^3$	31.7 $\mu g/m^3$
No. of days exceeding national 35 $\mu g/m^3$ 24-hour standard	1	0	0
Carbon Monoxide (CO)			
Maximum 8-hour concentration measured	2.3 ppm	1.9 ppm	1.8 ppm
Number of days exceeding national and State 9.0 ppm 8-hour standard	0	0	0
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration measured	0.057ppm	0.069 ppm	0.056 ppm
Days exceeding State 0.25 ppm 1-hour standard	0	0	0

Source: BAAQMD annual air quality summaries, http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Air-Quality-Summaries.aspx, 2011. California Air Resources Board (CARB), *http://www.arb.ca.gov/adam/select8/sc8start.php*, 2011.

Notes:

a. ppm = parts by volume per million of air.

b. $\mu g/m^3$ = micrograms per cubic meter.

c. PM_{10} monitoring was discontinued on June 30, 2008 at Redwood City and is not available. In addition, data for San Mateo County from CARB is also not available.

d. Data represents PM_{10} summaries for San Mateo County in 2008. PM_{10} monitoring at Redwood City was discontinued on June 30, 2008 and is not available.

Existing uses adjacent to the Project site include Bayfront Expressway and tidal marsh to the north and northeast, industrial uses to the southeast and west, and residential uses, schools, and churches to the south in the Belle Haven neighborhood (see Figure 2-1 in Section 2, Project Description). The Bay Trail parallels Bayfront Expressway, which bisects the East Campus and the West Campus. Motor vehicles are the primary source of air pollutants in the Project vicinity.

Project Area Inventory. The Project Site consists of a 56.9-acre East Campus and a 22-acre West Campus. Together, the East Campus and the West Campus comprise the Project Area. The East Campus includes nine existing buildings, approximately one million square feet (sf), primarily consisting of office uses, cafés, and fitness center. Under the current land use designation and Conditional Development Permit (CDP), the East Campus could be occupied by a maximum of 3,600 employees. The existing development on the West Campus includes two office buildings and ancillary structures; however, the buildings are unoccupied and no existing emissions are assumed. Only the existing emissions associated with the East Campus are considered in the discussion below.

An inventory of the CP emissions generated by existing uses is provided in Table 3.6-3. The inventory includes the following emissions:

- *Area Source Emissions.*[4] Area source emissions are direct emissions sources, which include existing emissions from landscaping equipment, consumer product use, and architectural coating. These emissions were estimated using the California Emission Estimator Model™ version 2011.1.1 model (CalEEMod™)[5] along with site-specific values for building area and employee population.
- *Emissions Associated with Energy Use.* The combustion of natural gas on-site for heating, cooking and other purposes in buildings generates direct emissions of CPs. Existing natural gas usage, which was used to estimate CP emissions from existing facilities, is based upon the actual building size and usage as obtained from available records in 2008 which represents the most recent year of full occupancy at the East Campus.
- *Vehicular Emissions.* Employee and visitor vehicle trips associated with existing land uses represent the largest portion of the existing emissions inventory. The CP emissions associated with vehicle trips for the existing uses at the East Campus were estimated using the default vehicle emission factors for San Mateo County and year 2010 in the CalEEMod™ model, as well as vehicle miles traveled (VMT) and number of trips provided by DKS, which incorporate a 25 percent reduction in vehicle trips associated with the Transportation Demand Management (TDM) program (reflecting the efficacy of the TDM program for permitted occupancy of the East Campus). Fugitive emissions of PM are calculated outside of CalEEMod™, using EPA's most recent guidance in AP-42.[6]
- *Emergency Generators.* The combustion of diesel fuel during testing of the nine emergency generators located at the East Campus emits CPs. Emissions were estimated based on data

[4] Also known as "areawide" emissions.

[5] California Emissions Estimator Model, available at: http://caleemod.com.

[6] EPA, Compilation of Air Pollutant Emission Factors, Chapter 13.2.1 Paved Roads, January 2011.

provided by the Project Sponsor, BAAQMD, and manufacturer specification sheets for the emergency generators.

It is believed that the above sources represent the vast majority of the CP emissions associated with existing development within the Project area. Therefore, the CP inventory presented in Table 3.6-3 represents a reasonable estimate of all emissions directly associated with current on-site operations.

Table 3.6-3
Existing Average Daily Operational CP Emissions Within the Project Area

Source of Emissions	ROG	NO_X	PM_{10}	$PM_{2.5}$
	Average lb/day			
Area	29	0	0	0
Energy Use	0.99	8.9	0.66	0.66
Vehicular	37	69	40	13
Emergency Generators	0.06	2.3	0.033	<0.033
Total	**67**	**80**	**41**	**14**

Source: ENVIRON, 2011, Table 15 of Appendix 3.6-A.

Receptors. Populations that are more susceptible to the effects of air pollution than the population at large are often referred to as sensitive receptors. While the ambient air quality standards are designed to protect public health and are generally regarded as conservative for healthy adults, there is greater concern to protect adults who are ill or have long-term respiratory problems, and young children whose lungs are not fully developed. According to CARB, sensitive receptors include children less than 14 years of age, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. According to BAAQMD, "examples of receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities. Residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers."[7]

The AERMOD version 11103[8] and CAL3QHCR version 04244,[9] dispersion models for predicting pollutant concentrations, were used to estimate pollutant concentrations at sensitive receptors near congested roadways and from off-road construction equipment and stationary sources. In this case, residences are within 400 feet of the Project site and major traffic access routes in the Project vicinity and, therefore, would be affected by traffic generated by the Project and other cumulative

[7] BAAQMD. 2011. CEQA Guidelines. May, website: http://www.baaqmd.gov/~/media/Files/Planning %20and %20Research/CEQA/BAAQMD%20CEQA%20Guidelines%20May%202011.ashx?la=en.

[8] On November 9, 2005, the EPA promulgated final revisions to the federal *Guideline on Air Quality Models*, in which they recommended that AERMOD be used for dispersion modeling evaluations of criteria air pollutant and toxic air pollutant emissions from typical industrial facilities. The model can be downloaded online here: http://www.epa.gov/scram001/dispersion_prefrec.htm.

[9] CAL3QHCR is the EPA's preferred model for determining air pollutions' concentrations downwind from traffic. The model can be downloaded online here: http://www.epa.gov/scram001/dispersion_prefrec.htm.

development. Exposure of these receptors to pollutants from existing and future traffic and other Project sources is discussed below under Impacts and Mitigation Measures.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Air Quality Analysis Methodology

The analysis of air quality impacts involves determining the CP and TAC emission inventories for the Project sources and comparing these inventories against thresholds of significance to determine if air quality impacts would result. In addition, a health risk assessment (HRA) is conducted to determine the impacts of TACs emitted by the Project on existing sensitive receptors consistent with BAAQMD CEQA Guidelines. The HRA described in this document also considers the impacts of other nearby emission sources and foreseeable projects on the most impacted sensitive receptor to determine the cumulative impacts of the Project consistent with BAAQMD CEQA Guidelines.

This section describes the methodologies that were used to develop the emission inventories associated with the Project and to conduct the HRA. Separate emission inventories are presented for both the East Campus and the West Campus. These inventories consider five categories of criteria and TAC emissions: construction, area sources, energy use, traffic, and emergency generator testing. The inventories in this report are a reflection of the guidance and knowledge currently available.

ENVIRON, the preparers of this section, primarily utilized the CalEEMod™ to assist in quantifying the emissions from the Project presented in this section. CalEEMod™ is a statewide program designed to calculate both CP and GHG emissions from development projects in California. This model was developed under the auspices of the South Coast Air Quality Management District (SCAQMD), which received input from other California air districts, including BAAQMD, and is the currently model accepted by BAAQMD for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod™ utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources, such as the EPA AP-42 compendium of emission

factors,[10] CARB's on-road and off-road equipment emission models, such as the EMission FACtor model (EMFAC) and the Off-road Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies, such as the California Energy Commission (CEC) and CalRecycle.

ENVIRON used San Mateo County CalEEMod™ defaults in the model runs, unless otherwise noted in the methodology descriptions below. Details regarding the specific methodologies used by CalEEMod™ can be found in the CalEEMod™ User's Guide and associated appendices.[11] The CalEEMod™ output files are provided for reference in Appendix 3.6-E to this report and relevant CalEEMod™ inputs can be found in Tables 1 through 5 of Appendix 3.6-A.

Consistency with the Clean Air Plan

The most current air quality plan for the region is the recently adopted 2010 Clean Air Plan, which updates the 2005 Ozone Strategy and represents a unique approach to air planning by including GHGs, as well as CPs and TACs. For the 2010 Clean Air Plan, the travel activity adjustments used in preparing the on-road mobile source inventory are the same as those used in the Transportation Air Quality Conformity Analysis for MTC's regional transportation plans. MTC's travel demand model utilizes regional demographic forecasts from ABAG's socioeconomic and population projections. Under BAAQMD methodology, for consistency with the 2010 Clean Air Plan, a project or plan must demonstrate that the population or VMT assumptions contained in the Clean Air Plan would not be exceeded and that the project or plan implements transportation control measures (TCMs) as applicable.

Construction Period Emissions

This section describes the estimation of CP emissions from construction activities at the West Campus. There are four major construction phases for an urban redevelopment: demolition, site preparation, grading, and building construction. The building construction phase can be broken down into three subphases: building construction, architectural painting, and asphalt paving. CP emissions from these construction phases are largely attributable to fuel use from construction equipment, worker commuting, and off-gassing of architectural coating and asphalt.

ENVIRON used CalEEMod™ to assist in quantification of the construction emissions. The construction schedule and equipment list are based on information provided by the Project Sponsor.[12] The off-road equipment emissions were adjusted from the CalEEMod™ output to account for a 33 percent reduction

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[10] The EPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Website: http://www.epa.gov/ttnchie1/ap42/.

[11] Available at: http://www.caleemod.com.

[12] Justin Murphy, Development Services Manager, City of Menlo Park Community Development Department, Planning Division, electric communication with ENVIRON, July 14, 2011. Attachments: Facebook_ Construction_Data_Request_11-07-13.pdf and SCBI_EIR_Response _11-07-13.pdf, Shown in Appendix 3.6-F.

attributable to overestimation of load factors, which CARB has indicated to be appropriate.[13] The CP emissions associated with construction of the West Campus, as an average daily emissions over the construction period, are 22 pounds per day of ROG, 40 pounds per day of NO_X, 2 pounds per day of PM_{10} exhaust, and 2 pounds per day of $PM_{2.5}$ exhaust and shown in Table 3.6-4 with further details contained in Tables 6 through 9 of Appendix 3.6-A.

Table 3.6-4
Construction Criteria Air Pollutant Emissions

Phase	Construction Emissions			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
	Pounds (lbs)			
Demolition I	174	1,425	87	87
Demolition II	294	3,320	100	100
Grading I	100	703	47	47
Grading II	74	395	47	47
Grading III	434	3,408	107	107
OTHER I	208	1,266	127	127
OTHER II	74	609	47	47
Building Construction I	281	1,806	127	127
Building Construction II	294	2,438	67	67
Building Construction III	134	1,171	60	60
Building Construction IV	594	3,655	154	154
Building Construction V	447	3,151	100	100
Paving	74	468	47	47
Site Preparation	154	1,044	87	87
Coating	10,220	60	40	40
Total Emissions [lbs]	*13,555*	*24,921*	*1,244*	*1,244*
Average Daily Emissions over 630 days [lb/day]	**22**	**40**	**2**	**2**

Source: ENVIRON, 2011, Table 9 of Appendix 3.6-A.

Since most construction equipment uses diesel fuel, it is assumed that all of the PM_{10} exhaust emissions from off-road equipment operated on-site is equal to the amount of DPM emissions, which are a TAC. All other TACs are based on the speciation profile of the ROG emissions as shown in Appendix 3.6-G.

[13] In September 2010, the CARB announced that its methods used to estimate the load factor for off-road equipment were incorrect and led to an overestimate of emissions by a factor of at least 33 percent. CARB is currently revising their emissions model, OFFROAD, which has not yet been released. In the meantime, we have received direction from CARB to reduce the load factors by a 33 percent to take into account this error and this will be accounted for into the analysis whether using OFFROAD directly or CalEEMod, which is based on OFFROAD. The slides from the CARB workshop discussing this change are available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/emissions_inventory_presentation_full_10_09_03.pdf.

Operational Emissions – Daily Emissions of ROG, NO_X, and PM_{10}

This section outlines the operational CP emissions associated with the Project. Emissions from traffic, area sources and natural gas combustion would occur every year after build out. Emergency generator testing will also occur periodically. ENVIRON used CalEEMod™ to assist in quantification of the operational emissions, except for emergency generator testing, which was based on the emission factor from OFFROAD2007, and generator-specific emissions factors for diesel generators.

Several site-specific data were used in CalEEMod™. Natural gas use was provided by the Project Sponsor for the baseline usage at the East Campus, the incremental usage at the East Campus, and the anticipated usage at the West Campus.[14] The natural gas use analysis takes into account adjustments in energy use due to higher employee occupancy, improved building system energy use from the Tenant Improvements (TIs), adjustments to account for California's current building codes, and the Project Sponsor's commitment to reduce energy use beyond current building code thresholds. Area sources incorporate emissions associated with consumer product usage, architectural coatings associated with building upkeep, and landscaping equipment. The emissions associated with area sources were all calculated using CalEEMod™ default inputs, other than building sizes and types. The VMT and trips were provided by DKS Associates[15] and the Project Sponsor,[16] respectively. This data includes an analysis of employee commute VMT when considering the TDM program. The weekend trips and VMT were assumed to be 10 percent of the weekday trips provided, as provided by DKS. Fugitive emissions of PM were estimated using the same VMT information, but were estimated outside of CalEEMod™ using the USEPA's most recent guidance in AP-42.[17] The detailed breakdown is shown in Table 3.6-5 with further details for each category shown in Tables 10 through 15 of Appendix 3.6-A.

Emergency generators emit CPs when they are tested to ensure proper functioning. It was assumed that all West Campus emergency generators would be tested for 30 minutes each month, as specified by the Project Sponsor, and East Campus emergency generators would be tested for 20 hours per year based on BAAQMD permits as shown in Appendix 3.6-I. To calculate emissions, the horsepower rating of the engine is multiplied by an emission factor for each pollutant and the total number of hours operated per year. Emission factors were obtained from information supplied by the Project Sponsor, BAAQMD, or manufacturer specification sheets if available. The detailed breakdown is shown in Table 3.6-5 with further details for each category shown in Tables 10 through 15 of Appendix 3.6-A.

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[14] KEMA. Facebook Menlo Park Campus Energy Demands. Memorandum between Erik Dyrr, KEMA and City of Menlo Park. August 2, 2011. Shown in Appendix 3.6-H.

[15] Paul Stanis, DKS Associates, electronic communication with ENVIRON, October 26, 2011. Shown in Appendix 3.6-C.

[16] Fehr & Peers. Transportation Demand Management Program. August 2011.

[17] EPA, Compilation of Air Pollutant Emission Factors, Chapter 13.2.1 Paved Roads, January 2011.

Table 3.6-5
Project Operational Criteria Air Pollutants

	East Campus				West Campus			
Source Category	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Daily Emissions (average lb/day)								
Area	29	0	0	0	15	0	0	0
Natural Gas Use	0.99	9.2	0.66	0.66	0.22	1.9	0.11	0.11
Traffic	72	125	110	37	30	53	47	16
Emergency Generators	0.06	2.3	0.033	<0.033	0.02	1.4	0.007	<0.007
Total Average Daily Emissions	*101*	*136*	*111*	*37*	*46*	*56*	*47*	*16*
Annual Emissions (tons/year)								
Area	5.3	0	0	0	2.8	0	0	0
Natural Gas Use	0.18	1.7	0.12	0.12	0.04	0.35	0.02	0.02
Traffic	13	23	20	6.7	5.5	9.6	8.5	2.8
Emergency Generators	0.010	0.43	0.006	<0.006	0.004	1.4	0.001	<0.007
Annual Average Emissions	*19*	*25*	*20*	*6.8*	*8.4*	*11*	*8.5*	*2.9*

Source: ENVIRON, 2011, Table 15 of Appendix 3.6-A.

The CP emissions shown in Table 3.6-5 reflect Project design features associated with building energy use. The emissions associated with traffic reflect the proposed daily trip cap for the East Campus and estimated trip generation for the West Campus specified as part of the Project in Section 3.5, Transportation. The emergency generator emissions reflect details on generator types and sizes provided by the Project Sponsor. Emissions from area sources do not reflect any Project design features.

Operational Emissions – TACs

During operations, the Project would emit TACs from multiple sources. These sources include traffic, emergency generator testing, and natural gas combustion. Natural gas combustion for space heating and cooking is classified as a minor low emitting source and emissions of TACs are not quantified since they are de minimis according to BAAQMD guidelines. Emissions from traffic come from both diesel and gasoline-fueled vehicles. Emissions from diesel fueled vehicles and emergency generators emit diesel particulate matter, which is a TAC. Other TACs associated with diesel fuel are speciated from total organic gases based on EPA speciation profiles. Gasoline-fueled vehicles emit various TACs, which are speciated from total organic gases based on the recommended profiles in BAAQMDs guidelines. The emissions of TACs from operational sources are used in the HRA and the details of the individual chemicals emitted is contained in Table 16 of Appendix 3.6-A.

Cumulative Emissions – TACs

In order to evaluate the impacts on a cumulative basis, emissions of TACs from other nearby sources were assessed. This was done using BAAQMD's Stationary Source Screening Analysis Tool version May 2011 for San Mateo County. Sources within 1,000 feet of the Project were identified, as shown

in Figure 1 of Appendix 3.6-B. This figure shows the East Campus emergency generators represented as Sun Microsystems (the previous tenant) as well as the off-site sources since this is how items are identified by BAAQMD. A stationary source inquiry form was sent to BAAQMD requesting information for the sources that did not have complete information in the stationary source screening analysis tool. The information provided by BAAQMD to ENVIRON as a result of the stationary source inquiry form is included in Appendix 3.6-K. The data provided either gave the individual TAC emissions from sources or simply reported the health impacts and appropriate methods for scaling the health impacts by distance. As complete TACs emissions information was not explicitly provided for all sources, an emissions inventory of TACs from surrounding sources is not reported here. However, the health impacts from all the sources are used in the HRA and are fully evaluated for cumulative health impacts to the extent that information was available.

Health Risk Assessment

In order to evaluate the impacts of TACs and $PM_{2.5}$ on nearby existing sensitive receptors, a HRA was conducted consistent with BAAQMD CEQA Guidelines for determining local community risks and hazards. The HRA is a process that ENVIRON followed to evaluate the health risks associated with the Project and the findings are summarized below. The HRA evaluated Project emissions associated with construction equipment at the West Campus, testing of emergency generators, and Project traffic on nearby roadways. In addition, the impacts of TACs and $PM_{2.5}$ on the receptors from non-Project sources, both existing and foreseeable, were analyzed to determine the cumulative impact consistent with BAAQMD CEQA Guidelines for determining cumulative impacts for local community risks and hazards. The discussion that follows provides the detailed information on the methodology and data used to conduct the HRA since refined air dispersion modeling was required because screening methods were not applicable to this situation.

Project-Specific Information

Sources of TACs evaluated in the HRA are from Project construction, Project operation, other stationary sources, and traffic impacting the cumulative health risks on sensitive receptors affected by the Project sources. Project construction emissions were restricted to off-road construction equipment used in the construction of the West Campus. Emissions from on-road vehicles traveling to the West Campus construction site are not considered, as these are small in number. Project operation sources include emergency generators and Project traffic on nearby roadways. Emergency generators were only evaluated for the emissions associated with testing and not for any emergency use, as emergency use would be speculative. Project traffic on nearby roadways included all of the intersections evaluated in the traffic assessment for the Project. Figure 2 of Appendix 3.6-B identifies these roadways.

Sources considered for the cumulative evaluation include stationary sources identified using BAAQMD's stationary source inquiry tool and cumulative traffic which, includes existing traffic and traffic from anticipated new projects in the area consistent with those evaluated throughout the Draft EIR.

Chemical Selection

The chemicals considered for the cancer risk and chronic non-cancer analyses in the HRA for the Project include DPM and TACs associated with gasoline combustion. Diesel exhaust, a complex mixture that includes hundreds of individual constituents,[18] is identified by the State as a known carcinogen.[19] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. Cal/EPA and other proponents of using the surrogate approach to quantifying cancer risks associated with the diesel mixture indicate that this method is preferable to use of a component-based approach. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component-based approach believe it will underestimate the risks associated with diesel, as a whole mixture, because the identity of all chemicals in the mixture may not be known and/or exposure and health effects information for all chemicals identified within the mixture may not be available. Furthermore, Cal/EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components."[20]

There is currently no acute non-cancer toxicity value available for DPM. Thus, speciated components of diesel with acute toxicity values were included in the acute non-cancer hazard analysis.

Six stationary sources located within 1,000 feet of the Project were identified, as can be seen in the BAAQMD information request in Appendix 3.6-K and shown in Figure 1 of Appendix 3.6-B. For two sources, the State of California Department of Transportation (CalTrans) and SRI Cogeneration Inc., BAAQMD provided specific TACs from diesel generators and boilers. If BAAQMD identified DPM for an emergency generator, as well as individual TACs that are constituents of DPM, only the DPM emissions were considered in this evaluation, as the toxicity associated with DPM is assumed to incorporate the toxicity of diesel exhaust as a whole, including the volatile and metallic constituents. BAAQMD identified other TACs from boilers including benzene, formaldehyde, toluene, and particulates. For some stationary sources, BAAQMD did not identify specific TACs, but only gave the results of the cancer risk or chronic hazard index (HI) associated with emissions for that source. BAAQMD did not provide data for Pacific Biosciences, and, therefore, no conclusions about the magnitude of TACs released from this source could be determined.

Air Dispersion Modeling Methodologies

For sources for which BAAQMD did not provide screening data, two different air dispersion models were used to determine the health risks from construction, operational stationary sources, traffic on roadways, and off-site sources considered for the cumulative analysis. The dispersion of emissions

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[18] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. 1998a. Findings of the Scientific Review Panel on The Report on Diesel Exhaust, as adopted at the Panel's April 22, 1998, meeting.

[19] Cal/EPA, OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values, February 14, 2011. Website: http://www.arb.ca.gov/toxics/healthval/contable.pdf.

[20] Cal/EPA, the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Office of Environmental Health Hazard Assessment, August 2003.

from traffic on roadways was simulated with the EPA preferred program for modeling roadways called CAL3QHCR. The dispersion of emissions from everything else was simulated using the EPA regulatory approved model called AERMOD. The model inputs and assumptions used in each of the dispersion models are described below. Following the description of the two dispersion modeling methodologies, which are used to obtain concentrations of TACs in the air, the exposure parameters, toxicity and the health impacts and risks are described.

Construction and Emergency Generator Modeling with AERMOD

AERMOD was used to estimate the air concentrations associated with emissions from off-road equipment used during construction. It was also used to estimate the air concentrations associated with emissions from the testing of emergency generators. AERMOD input files are shown in Appendix 3.6-L.

Meteorological Data. To characterize the transport and dispersion of pollutants in the atmosphere, AERMOD requires hourly meteorological data from surface stations and once daily upper air data. The Stanford University on-site surface meteorological station and Oakland Airport upper air station, the closest stations to the Project site, were processed to be in AERMOD ready format using the meteorological pre-processor, AERMET. Besides the meteorological data, AERMET requires surface parameters: albedo, Bowen ratio, and surface roughness, which are shown in Appendix 3.6-M.

An important consideration in an air dispersion modeling analysis is the selection of rural or urban dispersion coefficients. The designation of urban or rural is dependent on the predominant land use within three kilometers of the site. The use of a rural designation in an air dispersion model typically produces a higher estimated concentration than does an urban designation, due to the higher level of mixing associated with the buildings and heat sources in an urban area. The San Francisco Bay (Bay) is considered to be a rural land use due to the flat expanse of the Bay which does not encourage air mixing. Because the rural designation is more conservative and the Project is adjacent to the Bay, ENVIRON used rural dispersion coefficients.

Terrain Considerations. AERMOD uses a terrain preprocessor, AERMAP, to determine elevations of the surrounding landscape. Data from the National Elevation Data (NED) set, available from the United States Geological Survey (USGS), was utilized to import the elevation information for sources and receptors.

Emission Rates. The emission rates of the various TACs for the sources were quantified as described for the individual mass emissions and speciated as necessary. The mass of emissions were divided by the amount of time over which they are emitted to give the amount of each TAC emitted in terms of grams per second. Table 3.6-6 shows the emission rates used. Construction sources were assumed to operate for eight hours per day from 8:00 a.m. to 4:00 p.m. Testing for emergency generators was assumed to occur at 6:00 a.m., when dispersion conditions tend to be least favorable, which will result in a conservative estimate of concentrations. However, due to noise restrictions (discussed in Mitigation Measure NO-1.2), the emergency generator will not be tested until at least 8:00 a.m., which would result in lower concentrations than predicted here.

Table 3.6-6
Emission Rates from Construction and Operational Sources Used in AERMOD

Source	Phase	Year	DPM	$PM_{2.5}$	TOG
			g/s		
Construction	Demolition I	2012	0.003	0.003	0.066
	Demolition II	2012	0.003	0.005	0.08
	Grading I	2013	0.001	0.001	0.08
	Grading II	2013	0.001	0.001	0.038
	Grading III	2013	0.001	0.001	0.025
	OTHER I	2013	0.005	0.005	0.048
	OTHER II	2013	0.001	0.001	0.015
	Building Construction I	2013	0.005	0.005	0.048
	Building Construction II	2013	0.001	0.001	0.018
	Building Construction III	2013	0.002	0.002	0.018
	Building Construction IV	2013	0.003	0.003	0.024
	Building Construction IV	2014	0.001	0.001	
	Building Construction V	2013	0.001	0.001	0.010
	Building Construction V	2014	0.001	0.001	
	Paving	2013	0.001	0.001	0.019
	Site Preparation	2013	0.001	0.001	0.017
	Site Preparation	2014	0.002	0.002	
	Coating	2014	0	0	0.005
West	2205 HP Emergency Generator		3.0E-04		
East	1135 HP Emergency Generator		1.6E-03		
	120 HP Emergency Generator		3.7E-05		
	102 HP Emergency Generator		2.5E-04		
	750 HP Emergency Generator		1.7E-03		

Source: ENVIRON, 2011, Table 16 of Appendix 3.6-A.
Note: TOG stands for Total Organic Compounds and consists of reactive and non-reactive organic compounds.

Source Parameters. AERMOD represents sources as point sources, area sources, or volume sources. Each of these source types requires several parameters to adequately characterize the factors which influence the air dispersion. Construction sources were represented as a grid of volume sources covering the West Campus construction area with each individual volume source having dimensions of 20 by 20 meters, as shown in Figure 3 of Appendix 3.6-B. A release height of five meters, initial vertical dimension of 1.4 meters, and initial lateral dimension of 4.65 meters were the other parameters used to characterize the volume sources. Emergency generators were modeled as point sources with stack diameter, release height, exit velocity and exit temperature based on information from the Project Sponsor and manufacturer specifications as listed in Table 17 of Appendix 3.6-A. Figure 4 of Appendix 3.6-B shows the modeled locations of the emergency generators. East Campus emergency generators are included in the cumulative analysis since the testing of these generators is not included in the Project.

Receptors. In order to evaluate health impacts on off-site receptors, ENVIRON placed receptors at the locations of surrounding sensitive populations, including adult and child residents, schools, hospitals,

and playgrounds utilizing a 25 by 25 meter receptor grid for 500 meters as shown in Figure 5 of Appendix 3.6-B. A default breathing height of 1.8 meters was used for ground-level or ground floor receptors. For sensitive populations at heights other than ground level, a default height of three meters was added to the receptor height for each floor/story above ground.

Buildings. In order to evaluate the impact of building downwash[21] effects on the emergency generators, the dimensions of the buildings near the emergency generators were added to the model and the impact was simulated using EPA's building wake effect model to be used with AERMOD, called Building Profile Input Program (BPIP).

CAL3QHCR Modeling Methodology

$PM_{2.5}$ and TAC concentrations from Project and background traffic on major roadways at existing sensitive receptors were estimated using CAL3QHCR, EPA's and BAAQMD's preferred model for determining air pollutant concentrations downwind from traffic. CAL3QHCR incorporates hourly emission factors and traffic volumes with a full year of hourly meteorological data to estimate air concentrations for inert pollutants including particulate matter, such as DPM and other gaseous TACs. For the HRA, the following TACs associated with traffic were evaluated:

- DPM from diesel-fueled vehicles;
- Total organic gas (TOG) from the exhaust of diesel-fueled vehicles;
- TOG from the exhaust of gasoline-fueled vehicles;
- Evaporative TOG from gasoline-fueled vehicles;
- $PM_{2.5}$ from the exhaust of all vehicles; and
- $PM_{2.5}$ from the brake and tire wear of all vehicles.

Air dispersion models, such as CAL3QHCR, require a variety of inputs, such as source geometry, hourly traffic volumes, hourly emission factors, meteorological parameters, topography information, and receptor parameters. When site-specific information is unknown, default parameter sets were used that are designed to produce conservative (i.e. overestimates of) air concentrations.

Vehicular emission factors are expected to decrease with time due to the improvement of engines and increasingly stringent engine control regulations. Traffic volumes are assumed to increase with time due to development. Therefore, the future year (or years) that is selected to be analyzed for traffic modeling impacts the end results. For the HRA, $PM_{2.5}$ and TAC concentrations were evaluated for 2015, 2018, 2025 (consistent with analyses in Section 3.5, Transportation), and a 70-year age

[21] Turbulent eddies can be formed in the downwind side of buildings. Those eddies may cause a plume from a stack source located near the building to be drawn towards the ground much more than it would if a building or structure were not present. The effect can increase the resulting ground-level pollutant concentrations downstream of a building. The dispersion model used to evaluate the impacts of emergency generators incorporate algorithms to evaluate the effect.

sensitivity weighted average, as is required by BAAQMD for both Project and background traffic. See *Traffic Volumes* and *Emission Factors* section for more details.

Roadway Source Geometry. The roadway geometry used in the model was determined using an aerial map of the Project area. Bayfront Expressway, Marsh Road, Willow Road, University Avenue, Middlefield Road, and Highway 101 were modeled, as shown in Figure 2 of Appendix 3.6-B. Consistent with CAL3QHCR guidance,[22] each roadway was broken into a series of straight segments, or "links," which have constant emission factors and traffic volumes. The width of the link includes all travel lanes in one direction and, consistent with CAL3QHCR guidance,[23] an additional three meters on each side to account for the turbulent mixing of air behind the moving vehicles. The elevation of each link used in the model was the average elevation within the link's geometry, which was found using data from the USGS.[24]

Traffic Volumes. Project average daily traffic volumes along each roadway were obtained from DKS. Background average daily traffic volumes were obtained from DKS, the City,[25] and CalTrans Traffic Data Branch.[26] When the estimates of traffic volume differed across these sources, the larger traffic volume was used in order to be conservative. Estimated traffic volumes from other known projects in the area were also obtained from DKS and were included in the background traffic analysis. Traffic volumes were assumed to remain constant on a link between major roads. Areas of constant traffic volume are shown as one color in Figure 2 of Appendix 3.6-B. While this assumption is not consistent with what physically happens along the roadways, as vehicles would turn off or onto the roadway at minor intersections, it is a reasonable approximation of the flow of vehicles for this analysis because the largest known traffic volume was assumed for the entire segment. Estimated traffic volumes are shown in Appendix 3.6-N and Appendix 3.6-O of this Draft EIR.

Project traffic was provided for full occupancy of the East Campus and full and partial occupancy for the West Campus. For example, the 2015 traffic volume scenario incorporated the assumption that only the East Campus was fully occupied where 2018 and 2025 traffic volume scenarios incorporated the assumption that both campuses were fully occupied.[27] The 70-year average traffic volume incorporates the assumptions of full occupancy of the East Campus in 2013 and a linear phasing in of the West Campus between 2015 and 2018 with no growth in Project traffic after that time.

Background traffic was provided for the same time periods as the full occupancy of the East Campus and West Campus, discussed above. The background traffic was assumed to increase by one percent

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[22] Technology Transfer Network, Support Center for Regulatory Atmospheric Modeling, "Preferred/Recommended Models," April 19, 2011, website: http://www.epa.gov/scram001/dispersion_prefrec.htm, accessed November 21, 2011.

[23] EPA. 1995. Addendum To The User's Guide To CAL3QHC Version 2.0 (CAL3QHC User's Guide). Office of Air Quality Planning and Standards. September.

[24] United States Geological Survey, "The National Map Seamless Server Start Page," website: http://seamless.usgs.gov/website/seamless/viewer.htm, accessed November 21, 2011.

[25] Traffic volumes obtained from the city are shown in Appendix 3.6-D.

[26] California Department of Transportation, "Welcome to the Traffic Data Branch," website: http://traffic-counts.dot.ca.gov/, accessed November 21, 2011.

[27] Years evaluated are consistent with transportation analysis.

per year and included traffic from nearby anticipated projects, as detailed in Section 3.5, Transportation.

Daily traffic volumes were converted to hourly traffic volumes using an assumed percentage of traffic for each hour. For Project traffic, this percentage was obtained from the Project Sponsor (see Appendix 3.6-P). For background traffic, this percentage was calculated using the fraction of VMT at each hour obtained from EMFAC2007[28] and is shown in Appendix 3.6-P.

Because the emissions of some TACs depend on the fuel burned in combustion, the hourly traffic volumes must be broken down into diesel and gasoline fueled traffic volumes. The hourly percentage of diesel and gasoline fueled vehicles is calculated using the fraction of VMT at each hour that are diesel or gasoline fueled, which was obtained from EMFAC2007 and is shown in Appendix 3.6-N and 3.6-Q for Project and background traffic respectively.

Emissions Factors. As mentioned above, emissions factors were estimated for the following pollutants:

- DPM from diesel-fueled vehicles;
- TOG from the exhaust of diesel-fueled vehicles;
- TOG from the exhaust of gasoline-fueled vehicles;
- Evaporative TOG from gasoline-fueled vehicles;
- $PM_{2.5}$ from the exhaust of all vehicles; and
- $PM_{2.5}$ from the brake and tire wear of all vehicles.

Emission factors were calculated using EMFAC2007 in "Burden Mode" for San Mateo County, California. Burden Mode generates emission factors in terms of tons of pollutant emitted per day, which takes into account distributions of temperatures, relative humidities, and vehicular speeds that are characteristic of the area. Emissions reported by the model were converted to units of grams of pollutant emitted per VMT or trip using the daily VMT or trips. Emission factors for TOG, DPM, and $PM_{2.5}$ for each of the vehicle classes from EMFAC2007 were weighted by the fraction of VMT of each class for each hour for the relevant fuel type to obtain the hourly emission factor. Thus, these hourly emission factors incorporate the mix of vehicle types by hour. For background traffic, this percentage was calculated using unadjusted fractions of VMT from EMFAC2007 for all roadways, except for the section of Willow Road between Middlefield Road and US 101. For this section, the heavy duty trucks were removed from the default vehicle mix due to the restriction on trucks along this segment of the road. For Project traffic, the only vehicle classes considered were light duty automobiles, light and medium duty trucks, motorcycles, and urban buses.

[28] California Environmental Protection Agency, Air Resources Board, "EMFAC2007 Release," April 14, 2010, website: http://www.arb.ca.gov/msei/onroad/latest_version.htm, accessed November 21, 2011.

Emission factors used in modeling are shown in Appendix 3.6-R and Appendix 3.6-S for Project and background traffic respectively. Emission factors were calculated for the year of each modeling scenario described above. For the 70-year average scenario, the emission factors were calculated for 2013 to 2040 (the last year EMFAC2007 estimates emissions), with 2040 emission factors used for the years 2041 through 2083. This is likely an overestimate because emission factors would likely continue to decrease with time. The average is weighted by an age sensitivity factor assuming the receptor is *in utero* in 2013, consistent with BAAQMD guidance.[29] These scaling factors are shown in Appendix 3.6-T. The concentrations of TOG were speciated using BAAQMD's speciation profiles for TOG from gasoline-fueled vehicles[30] and EPA's speciation profile for TOG from diesel-fueled vehicles, which is shown in Appendix 3.6-U.

Receptors. The modeled receptor locations are presented in Figures 5 and 6 of Appendix 3.6-B**,** and are the same as the receptors used for construction and stationary source modeling. In addition to the receptors for the construction and emergency generator models described above, receptors were placed with 25 meter spacing 25, 50, and 75 feet away from each roadway modeled.

Meteorological Data. To characterize the transport and dispersion of pollutants in the atmosphere, CAL3QHCR requires hourly meteorological data in the same format as the data required by the Industrial Source Complex Short Term Model (ISCST3), another EPA air dispersion model. The same meteorological station, Stanford University on-site meteorological station, used in the emergency generator and construction model was used in the roadway analysis. However, the meteorological data was processed to be in the ISCST3 format.

An important consideration in an air dispersion modeling analysis is the selection of rural or urban dispersion coefficients. As discussed in the AERMOD model section, the rural designation was chosen, which results in the use of the rural mixing height found in the meteorological data. Much of the area surrounding the roadways is comprised of single family homes, so ENVIRON used a surface roughness of one meter, consistent with BAAQMD guidance.

Modeled Air Concentration. The maximum modeled annual concentration for DPM, $PM_{2.5}$, hourly concentration for diesel exhaust TOG, and annual and hourly concentrations for gasoline exhaust TOG and gasoline non-exhaust TOG at the receptors modeled are used to calculate the cancer risk and non-cancer HIs, which are discussed in the following sections.

Cumulative Risk Sources

Cumulative risks from nearby sources were evaluated using data from background traffic and stationary sources identified using BAAQMD's stationary source tool for sources within 1,000 feet of the Project. If emissions of specific TACs from stationary sources were given, ENVIRON used generic source parameters in AERMOD to determine the dispersion of these emissions. The emission rates used in modeling for these sources are shown in Appendix 3.6-V. In other instances, ENVIRON utilized the

[29] BAAQMD. 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards.
[30] BAAQMD. 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards.

specified risks and the appropriate distance multiplier provided by BAAQMD in response to the source inquiry. These details are contained in Appendix 3.6-K. Details on background traffic evaluation are discussed above.

Risk Characterization Methods

The following sections discuss the various components required for conducting the HRA in detail. This consists of using the modeled air concentrations coupled with exposure intake parameters and toxicity information to determine the health impacts to sensitive receptors.

Exposure Assessment

Potentially Exposed Populations. The Project Sponsor has indicated that there would be no on-site day care facilities. Therefore, only off-site sensitive receptors were considered. The off-site receptor populations included in this evaluation are adult resident and child resident as the closest properties to the Project site are residences. There are schools, hospitals and daycare facilities located near the Project site, however, assuming these sensitive receptors to be residences is more conservative, due to longer exposure time, duration and frequency, since recommended breathing rates are either the same or more conservative.

For purposes of the HRA, a maximally exposed individual sensitive receptor (MEISR) is identified. The MEISR is defined as the sensitive receptor with the highest estimated cancer, chronic, or acute non-cancer health impacts.

Exposure Assumptions. The exposure parameters used for estimating excess lifetime cancer risks and chronic and acute non-cancer HIs for all potentially exposed populations were obtained using risk assessment guidelines from Cal/EPA[31] and BAAQMD,[32] unless otherwise noted, and are presented in Table 3.6-7 for the Project.

Calculation of Intake: The dose estimated for the each exposure pathway is a function of the concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows:

$$IF_{inh} = \frac{DBR * ET * EF * ED * CF}{AT}$$

[31] Cal/EPA, the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Office of Environmental Health Hazard Assessment. August 2003.

[32] BAAQMD, Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines, January 2010.

Where:

IF_{inh}	=	Intake Factor for Inhalation (m^3/kg-day)
DBR	=	Daily Breathing Rate (L/kg-day)
ET	=	Exposure Time (hours/24 hours)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)
CF	=	Conversion Factor, 0.001 (m^3/L)

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh}, by the chemical concentration in air, C_i. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in Office of Environmental Health Hazard Assessment (OEHHA) Hot Spots guidance.[33]

Table 3.6-7
Exposure Parameters

		Construction		Operational	
Exposure Parameter	**Units**	**Resident Adult**	**Resident Child**	**Resident Adult**	**Resident Child**
Daily Breathing Rate (DBR)	[L/kg-day]	302	581	302	581
Exposure Time (ET)	[hours/24 hours]	24	24	24	24
Exposure Frequency (EF)	[days/year]	350	350	350	350
Exposure Duration (ED)	[years]	1.7	1.7	70.0	9.0
Averaging Time (AT)	[days]	25550	25550	25550	25550
Intake Factor, Inhalation (IF_{inh})	[m^3/kg-day]	0.007	0.014	0.290	0.072

Source: ENVIRON, 2011, Table 18 of Appendix 3.6-A.

Toxicity Assessment

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. For purposes of calculating exposure criteria to be used in risk assessments, adverse health effects are classified into two broad categories: cancer and non-cancer endpoints. Toxicity values used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment.

In this HRA, the chemicals of potential concern were identified in accordance with the indicator chemical approach that is consistent with the Cal/EPA OEHHA guidance. Diesel exhaust, a complex mixture that includes hundreds of individual constituents, is identified by the State as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen

[33] Cal/EPA, the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Office of Environmental Health Hazard Assessment, August 2003.

exposure for the mixture of chemicals that make up diesel exhaust as a whole. There is currently no acute non-cancer toxicity value available for DPM. Thus, speciated components of diesel with acute toxicity values were included in the acute non-cancer hazard analysis. The toxicity values for the chemicals evaluated in this analysis are summarized in Table 19 of Appendix 3.6-A.

As shown in Table 3.6-7, the estimated excess lifetime cancer risks for a resident child, daycare child, and school child were adjusted using the age sensitivity factors (ASFs) recommended in the Cal/EPA OEHHA Technical Support Document (TSD)[34] and the cancer risk adjustment factors (CRAFs) recommended by BAAQMD.[35] This approach accounts for an "anticipated special sensitivity to carcinogens" of infants and children. Cancer risk estimates are weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age and by a factor of three for exposures that occur from two years through 15 years of age. No weighting factor (i.e., an ASF of one, which is equivalent to no adjustment) is applied to ages 16 to 70 years.

Risk Characterization

Estimation of Cancer Risks. Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF).

The equation used to calculate the potential excess lifetime cancer risk for the inhalation pathway is as follows:

$$Risk_{inh} = C_i \text{ x } CF \text{ x } IF_{inh} \text{ x } CPF_i \text{ x } ASF$$

Where:

$Risk_{inh}$ = Cancer Risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a particular potential carcinogen (unitless)

C_i = Annual Average Air Concentration for $Chemical_i$ ($\mu g/m^3$)

CF = Conversion Factor (mg/μg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_I = Cancer Potency Factor for $Chemical_i$ (mg chemical/kg body weight-day)$^{-1}$

ASF = Age Sensitivity Factor (unitless)

Estimation of Chronic Non-cancer Hazard Quotients/Indices. The potential for exposure to result in chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the chemical-specific non-cancer chronic reference exposure levels (RELs). When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient (HQ). To evaluate the potential for adverse chronic non-cancer health effects

[34] Cal/EPA, Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustment to Allow for Early Life Stage Exposures, May 2009.

[35] BAAQMD, California Environmental Quality Act Air Quality Guidelines, May 2011a.

from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding an HI. For evaluation of the Project, DPM is the only pollutant evaluated for chronic non-cancer risks, therefore the HQ for DPM is the same as the overall HI.

The equations used to calculate the chemical-specific HQs and the overall HI are:

$$\text{Chronic } HQ_i = C_i / cREL_i$$

$$\text{Chronic HI} = \Sigma HQ_i$$

Where:

Chronic HQ_i	=	Chronic Hazard Quotient for Chemical_i (unitless)
Chronic HI	=	Hazard Index (unitless)
C_i	=	Annual Average Air Concentration for Chemical_i ($\mu g/m^3$)
$cREL_i$	=	Chronic Non-cancer Reference Exposure Level for Chemical_i ($\mu g/m^3$)

Estimation of Acute Non-cancer Hazard Quotients/Indices. The potential for exposure to result in acute non-cancer effects is evaluated by comparing the estimated one-hour maximum air concentration to the chemical-specific non-cancer acute RELs. The estimation method for determining the 1-hr maximum concentration was described in the "Air Dispersion Modeling" section. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient or HQ. To evaluate the potential for adverse acute non-cancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding an HI.

The equations used to calculate the chemical-specific HQs and the overall HI are:

$$\text{Acute } HQ_i = C_i / aREL_i$$

$$\text{Acute HI} = \Sigma HQ_i$$

Where:

Acute HQ_i	=	Acute Hazard Quotient for Chemical_i (unitless)
Acute HI	=	Acute Hazard Index (unitless)
C_i	=	1-hour Maximum Air Concentration for Chemical_i ($\mu g/m^3$)
$aREL_i$	=	Acute Non-cancer Reference Exposure Level for Chemical_i ($\mu g/m^3$)

Project Evaluation

The following analysis is based both on trip rates associated with the proposed CDP amendment at the East Campus, included in Section 3.5, Transportation, as well as development that would occur at the West Campus.

AQ-1 ***Conflict with or Obstruct Implementation of the Applicable Air Quality Plan.*** *The Project, at both the East Campus and West Campus, would not conflict with or obstruct implementation of the applicable air quality plan. (LTS)*

The most current air quality plan for the region is the recently adopted 2010 Clean Air Plan, which updates the 2005 Ozone Strategy and represents a unique approach to air planning by including GHGs, as well as CPs and TACs. For the 2010 Clean Air Plan, the travel activity adjustments used in preparing the on-road mobile source inventory are the same as those used in the Transportation Air Quality Conformity Analysis for MTC's regional transportation plans. MTC's travel demand model utilizes regional demographic forecasts from ABAG's socioeconomic and population projections. Under BAAQMD methodology, for consistency with the 2010 Clean Air Plan, a project or plan must demonstrate that the population or VMT assumptions contained in the Clean Air Plan would not be exceeded and that the project or plan implements TCMs as applicable.

East Campus

As mentioned in Section 2, Project Description, the East Campus is currently zoned M-2-X (General Industrial, Conditional Development) and designated General Industrial in the City's General Plan. Under the current land use designation and CDP, the East Campus could accommodate a maximum of 3,600 employees. However, the Project Sponsor seeks a CDP amendment to convert the employee cap to a vehicular trip cap in order to allow additional employees on-site. The CDP amendment would accommodate the proposed increase in employees at the site to a total of approximately 6,600 employees at the East Campus through implementation of the Project Sponsor's proposed TDM program.

West Campus

The West Campus is currently zoned M-2 (General Industrial) and designated General Industrial in the City's General Plan. The development of the West Campus would require an increase in allowable height from 35 feet to 75 feet and would require rezoning the site to M-2-X. Under the current land use designation, the West Campus can be built out to approximately 449,346 sf, with a 0.45 floor to area ratio (FAR) for office uses and a 0.55 FAR for related office uses (such as amenities). Development of the West Campus would result in an employment increase of approximately 2,800 persons.

Total Project

MTC maintains an inventory of population for the region and by county, the latest version of which was published in 2008.[36] The MTC population estimates cite a 2035 Bay Area[37]

[36] Travel Forecasts Data Summary, "Transportation 2035 Plan for the san Francisco Bay Area," website: http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035-Travel_Forecast_Data_Summary.pdf, accessed July 26, 2011.

[37] Includes San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, and Marin counties.

population of 9,031,498. Implementation of the Project at the East Campus and West Campus would result in an employment increase of approximately 5,800. The East Campus is currently permitted to accommodate a maximum of 3,600 employees. The proposed approximately 6,600 employees is a 3,000-person increase in employment density. The West Campus would add approximately 2,800 employees. Therefore, the net increase in employment for the East Campus and West Campus is 5,800. As discussed in Section 3.14, Population and Housing, this represents approximately 3,257 new households in the region, which represents approximately 0.10 percent of the total anticipated growth in the Bay Area according to ABAG projections.

MTC also maintains an inventory of VMT for the nine-county Bay Area region and by county. For 2035, MTC data shows VMT for San Mateo County to be 168,120,927 miles. Full operation of the East Campus and West Campus would result in a vehicle trip generation of 15,956 trips per weekday. The resulting regional increase in VMT would be 222,886 miles per weekday. The addition of Project-related VMT represents approximately 0.13 percent of the total anticipated VMT growth in the nine county Bay Area. The Project's contribution to VMT would not exceed the regional VMT projections and do not constitute a significant share of overall VMT for the Bay Area according to MTC's VMT inventory.

Both the 2010 Clean Air Plan and the 2005 Ozone Strategy emphasize the need for smart growth and a reduction of single automobile usage. The Project includes a TDM program to reduce vehicular traffic generated by the Project, as described in Section 2, Project Description. Although the TDM program would reduce the effect of traffic impacts, conservatively, it may not be enough to reduce the impact associated with an increase in VMT. The Project would also enhance non-automotive access to and within the Project site, including providing public bicycle and pedestrian access through the undercrossing of Bayfront Expressway between the East Campus and West Campus.

The transportation improvements mentioned above, and explained in more detail in Section 3.5, Transportation, would collectively enhance connectivity between the East Campus and West Campus, promote safe bicycle and pedestrian circulation, and increase accessibility to transit. These improvements are consistent with and supportive of the TCMs identified in the 2005 Ozone Strategy and the 2010 Clean Air Plan, as critical to attaining the CCAA ozone standard. Therefore, the Project does not conflict with or obstruct implementation of the applicable Air Quality Plan and impacts are considered ***less than significant***.

AQ-2 ***Violation of any Air Quality Standard.*** *The Project, at both the East Campus and West Campus, could result in the violation of air quality standards:*

- *Operation of the Project at the East Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, PM_{10} and $PM_{2.5}$, but would not exceed BAAQMD's significance thresholds. However, emissions of NO_X from the East Campus operations would exceed BAAQMD's significance thresholds, resulting in a potentially significant impact. (PS)*

- *Operation of the Project at the West Campus would create new area and mobile sources of air pollutants that would generate emissions of ROG, PM_{10} and $PM_{2.5}$, but would not exceed BAAQMD's significance thresholds. However, emissions of NO_X from the West Campus operations would exceed BAAQMD's significance thresholds, resulting in a potentially significant impact. (PS)*
- *Operation of the Project, at both the East Campus and West Campus, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} and would exceed BAAQMD's significance thresholds. Thus, this impact would be potentially significant. (PS)*

East Campus

The mass emissions associated with operation of the East Campus are based on the estimates for area sources, natural gas energy use, traffic associated with the Project, and emergency generator testing. Table 3.6-5, above, presents the mass emissions from these sources, which are compared to BAAQMD's operational CP and precursors thresholds of significance outlined in Table 2-1 of BAAQMD's CEQA Guidelines. Table 3.6-8, below, shows these values compared to the mass emissions presented in Table 3.6-5, with removal of the background emissions at the East Campus. As shown in Table 3.6-8, the ROG, PM_{10}, and $PM_{2.5}$ emissions as a result of East Campus operations would be below the threshold. However, the threshold for NO_X emissions is 54 pounds per day, while operation of the East Campus would emit approximately 56 pounds per day due to the increase in traffic. As such, the Project at the East Campus would result in ***potentially significant*** NO_X emissions.

West Campus

As with the East Campus, mass emissions associated with operation of the West Campus are based on the estimates for area sources, natural gas energy use, traffic associated with the Project, and emergency generator testing. Table 3.6-8, below, shows these values compared to the mass emissions presented in Table 3.6-5, above. As shown in Table 3.6-8, the West Campus net emissions do not exceed BAAQMD's significance threshold for ROG, PM_{10} and $PM_{2.5}$, resulting in a less-than-significant impact. However, at 56 pounds per day, emissions of NO_X would exceed BAAQMD's significance thresholds of 54 pounds per day. This would be a ***potentially significant*** impact.

Total Project

The mass emissions associated with operation of the total Project are based on the estimates for area sources, natural gas energy use, traffic associated with the Project and emergency generator testing. However, the majority of the Project NO_X, ROG, and PM_{10} emissions are associated with traffic. Table 3.6-8 outlines these values compared to the mass emissions presented in Table 3.6-5, with the removal of the background emissions at the East Campus.

As shown in Table 3.6-8, $PM_{2.5}$ emissions would not exceed BAAQMD's significance thresholds, resulting in a less-than-significant impact. However, the Project would exceed emissions thresholds for ROG, NO_X, and PM_{10}. The threshold for ROG emissions is 54 lbs per year. Individually, operations at the East Campus and the West Campus would not exceed this threshold; however, when the East Campus and West Campus are combined, the Project would emit 80 lbs of ROG emissions per day, which exceeds the threshold. Similarly, while the PM_{10} threshold is 82 pounds per day, the Project would emit approximately 117 pounds per day. Since the East Campus and West Campus individually exceed NO_X thresholds, the Project would also exceed the BAAQMD NO_X threshold. Therefore, the Project would result in ***potentially significant*** ROG, NO_X, and PM_{10} emissions.

Table 3.6-8
Operational Mass Emissions

	ROG	NOx	PM_{10}	$PM_{2.5}$	ROG	NOx	PM_{10}	$PM_{2.5}$
	(Average Pounds per Day)				(Annual Average Tons per Year)			
East Campus	35	**56**	71	24	6.3	**10**	13	4.3
West Campus	46	**56**	47	16	8.4	**11**	8.5	2.9
Project	**80**	**112**	**117**	39	**15**	**22**	**21**	7.2
Threshold of Significance	54	54	82	54	10	10	15	10

Source: ENVIRON, 2011.

Note: Bolded Values are Significant

MITIGATION MEASURES. At this time there are no feasible mitigation measures that would reduce the NO_X, ROG, and PM_{10} emissions to less than significant. Thus, this impact would be significant and unavoidable. However, the silt loading used to estimate fugitive dust emissions of PM_{10} is likely an overestimate of the actual silt loading on the roads on which the Project trips would occur based on the range of silt loadings explained in EPA's AP-42.[38] Therefore, the actual PM_{10} emissions would likely be less than shown. Nonetheless, since site-specific silt loadings are not available at this time, the actual reduction in emissions is speculative. Therefore, impacts related to these emissions are ***significant and unavoidable***. (SU)

AQ-3 ***Construction Criteria Air Pollutant Emissions.*** *Construction activities at the West Campus would not generate emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ that would exceed BAAQMD's significance thresholds. (LTS)*

The CP emissions associated with construction of the West Campus are an estimate of average daily over the construction period and would result in 22 pounds per day of ROG, 40 pounds per day of NO_X, 2 pounds per day of PM_{10} exhaust, and 2 pounds per day of $PM_{2.5}$ exhaust. These are shown in Table 3.6-4, above, with further details contained in Tables 6 through 9 of Appendix 3.6-A of this Draft EIR. Table 3.6-9, below, compares the average daily mass emissions from construction to BAAQMD's construction mass emission significance thresholds shown in Table 2-1 of the BAAQMD CEQA Guidelines. As shown, the West Campus

[38] EPA, Compilation of Air Pollutant Emission Factors, Chapter 13.2.1 Paved Roads, January 2011.

construction activities would not exceed BAAQMD significance thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$, resulting in a ***less-than-significant*** impact.

Table 3.6-9
Construction Mass Emissions

	ROG	NOx	PM_{10}	$PM_{2.5}$
West Campus Emissions (Average pounds per day)	22	40	2	2
BAAQMD Significance Threshold (Average pounds per day)	54	54	82	54

Source: ENVIRON, 2011.
Note: PM emissions are from exhaust only.

MITIGATION MEASURES. Mitigation Measure AQ-3.1 includes all appropriate dust control measures recommended by BAAQMD. Inclusion of these measures in the construction contracts for future development of the West Campus would ensure that construction-related air quality impacts remain at a less-than-significant level. (LTS)

AQ-3.1 *Implement Recommended Dust Control Measures.* BAAQMD does not have mass emission thresholds for fugitive PM, but rather requires implementation of Best Management Practices (BMPs) as mitigation measures for all proposed projects. In order to ensure that these are implemented to minimize possible fugitive PM emissions, the BMPs are designated as mitigation measures.

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 mph.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator.

h. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

AQ-4 ***Localized Carbon Monoxide Impacts from Motor Vehicle Traffic.*** *The addition of Project-related traffic from both the East Campus and West Campus would result in increased concentrations of carbon monoxide around intersections in the vicinity of the Project, but not to the extent that the ambient air quality standards for CO would be exceeded. As a result, impacts of localized CO concentrations would be less than significant. (LTS)*

According to BAAQMD's screening criteria for CO, projects are considered less than significant if:[39]

a. The project is consistent with an applicable congestion management program established by the county's congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

b. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

c. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As illustrated in Figure 3.5-21, Transportation, the Project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour. Because this volume is substantially less than even the most stringent criterion (24,000 vehicles per hour), CO concentrations are considered to be ***less than significant***.

AQ-5 ***Exposure to Toxic Air Contaminants.*** *The Project at both the East Campus and West Campus could expose sensitive receptors to substantial TACs, resulting in a potentially significant impact. (PS)*

ENVIRON conducted a HRA that evaluated exposure of sensitive receptors to TACs and $PM_{2.5}$ concentrations from Project construction and operational sources. The MEISR from construction, emergency generators, and Project traffic were identified. The sum of all health impacts from Project sources at these receptors was quantified and the mitigated health impacts are listed in Table 3.6-10. The short term health impacts are shown in Table 3.6-11.

[39] BAAQMD, CEQA Air Quality Guidelines, May 2011.

Table 3.6-10
Mitigated Project Health Impacts

MEISR for each Project Source	UTMx	UTMy	Source Contribution at MEISR	Lifetime Excess Cancer Risk	Chronic HI	$PM_{2.5}$ Concentration
	M			in a million		$\mu g/m^3$
Project Construction	574,724	4,148,425	Mitigated West Campus Construction	9.1	0.014	0.09
			West Campus Emergency Generators	0.022	0.000008	4.0E-05
			Project Traffic	0.75	0.0005	0.009
Project Emergency Generator Testing	574,849	4,148,400	Mitigated West Campus Construction	0.40	0.012	0.058
			West Campus Emergency Generators	0.034	0.00001	6.3E-05
			Project Traffic	0.90	0.0006	0.011
Project Traffic	574,734	4,147,461	Mitigated West Campus Construction	0.058	0.0017	0.009
			West Campus Emergency Generators	0.012	0.000004	1.9E-05
			Project Traffic	9.0	0.009	0.156
			BAAQMD Significance Threshold	10	1	0.3
			Significant?	No	No	No

Source: ENVIRON, 2011, Table 26 of Appendix 3.6-A, with supporting information in Tables 20 through 25 of Appendix 3.6-A.

Table 3.6-11
Project Short Term Impacts

Source	MEISR Location		Acute Hazard Index
	UTMx	UTMy	
	m		
Project Construction	574,724	4,148,425	0.44
Project Traffic	574,951	4,148,088	0.013

Source: ENVIRON, 2011, Table 23 of Appendix 3.6-A.

BAAQMD requires that risks imposed by Project sources be less than 10 in a million for cancer risks. BAAQMD also requires that both chronic and acute Project health impacts result in an HI of less than 1.0. In addition, BAAQMD requires that the $PM_{2.5}$ concentration from Project sources be less than 0.3 micrograms per cubic meter ($\mu g/m^3$). The unmitigated cancer risk, chronic HI, and $PM_{2.5}$ concentration at the MEISR for Project construction are 14 in a million, 0.02, and 0.11 $\mu g/m^3$, respectively. This would result in a ***potentially significant impact***. With implementation of Mitigation Measure AQ-5.1 (discussed in more detail below), the mitigated cancer risk, chronic HI and $PM_{2.5}$ concentrations are 9.13 in a million, 0.014, and 0.16 $\mu g/m^3$, respectively.

To evaluate whether relocating the proposed emergency generators would reduce the health risks, ENVIRON performed a sensitivity analysis of the West Campus Emergency Generator locations and determined that any combination of three similarly sized emergency generators would not result in a significant Project impact.

MITIGATION MEASURE. Since the DPM emissions from the fleet mix contributed substantially to the exceedance of health risk thresholds; the HRA evaluated a reduction in the DPM emissions that would result in a less-than-significant impact. Mitigation Measure AQ-5.1 includes a plan to reduce Project fleet-wide average DPM emissions associated with off-road equipment by 35 percent from current fleet average DPM emissions levels. Inclusion of this measure in the construction contracts for future development in the Project area would reduce construction-related air quality impacts to a less-than-significant level. Therefore, implementation of Mitigation Measures AQ-5.1 would reduce construction-related mass emissions, resulting in a ***less-than-significant*** impact relative to exposure to TACs. (LTS)

AQ-5.1 *Reduce Fleet-Wide Average DPM Emissions*. The Project shall develop a plan that is approved by the City prior to issuance of building permits demonstrating that the off-road equipment (more than 50 horsepower) to be used for the West Campus construction (i.e., owned, leased, and subcontractor vehicles) would achieve a Project wide fleet-average 35 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

AQ-6 ***Exposure to Objectionable Odors.*** *The Project, at both the East Campus and West Campus, would not be expected to create objectionable odors that would affect a substantial number of people. This impact would be less than significant. (LTS)*

Screening tools were used to evaluate odor impacts. The Project would include on-site stationary source emissions related to the periodic testing of emergency diesel generators. These emissions are not expected to have the potential for substantial odor impacts on local sensitive receptors. Under certain circumstances, emissions for older, badly maintained diesel engines can have the potential for odor impact, but such would not be the case with the

emergency generators at the East Campus or West Campus. These generators would have advanced air emission controls systems, would be well-maintained, and would operate only briefly for periodic testing.

None of the activities associated with the Project would have the potential to expose nearby sensitive receptors (i.e., residential areas) to objectionable odors. BAAQMD presents odor screening distances in Table 3-3 of the BAAQMD CEQA Guidelines. Since the Project does not contain any of the listed land use types (including wastewater treatment plants, municipal solid waste storage or landfilling facilities, odoriferous manufacturing processes, and animal handling facilities) and is not siting a new receptor closer than the recommended screening distances to an existing odor source, the Project would not result in a significant odor impact. Therefore, the impact of exposure to objectionable odors would be ***less than significant***.

Cumulative Impacts

Regional air quality cumulative impacts of the Project are evaluated on the geographic scale of the Bay Area Basin. The BAAQMD CEQA Guidelines cumulative significance criteria are applied to the cumulative analysis of impacts to regional air quality, as discussed below. The geographic context for a discussion of cumulative impacts to localized air quality, such as for CO and PM_{10}, is the Menlo Park vicinity, in which the Project is located. This cumulative analysis examines the effects of the Project, in combination with other current projects, probable future projects, and projected future growth within the Bay Area Basin, San Mateo County and the City in the next 20 years.

Odors are not addressed cumulatively for the Project because the types of uses anticipated to be developed or allowed under the proposed zoning would not generate significant sources of odor. In addition, the Project area is not located in an area where existing or future odor-producing uses are proposed. Therefore, the additive effect of assessing cumulative odor impacts is not relevant for this Project and would not be cumulatively considerable.

C-AQ-1 ***Consistency with Applicable Air Quality Plans.*** *The Project, combined with other development within the City, would not conflict with or obstruct implementation of the applicable air quality plan. (LTS)*

Tier 1

As discussed above, the 2010 Clean Air Plan is based on ABAG's projections. Under BAAQMD methodology, for consistency with the 2010 Clean Air Plan, a project or plan must demonstrate that the population or VMT assumptions contained in the Clean Air Plan would not be exceeded and that the project or plan implements TCMs as applicable. As discussed in Section 3.14, Population and Housing, the Tier 1 projects would develop 200 dwelling units, which, when taken together with the Project's 666 new residents, would result in an increase in resident population of 1,190 (based on the current City persons per

household [pph] ratio of 2.62).[40] ABAG projects that the City's population will be approximately 37,900 in 2015 (the closest projection year to Project completion) and 40,600 in 2025. If the Tier 1 projects are completed concurrently with the Project, an increase of 1,190 total residents would result from cumulative development. Added to the current population of 32,319, this would result in a total City population of 33,509 persons in 2015, which is below ABAG projections. As such, implementation of the Tier 1 projects would not result in a conflict with the Clean Air Plan. The cumulative impacts associated with Tier 1 projects are considered ***less than significant***.

Tier 2

The Tier 2 projects encompass a larger geographic area and consist of projects that are in the early stages of planning or whose development could be considered somewhat speculative. The geographic context for the Tier 2 analysis would be the County of San Mateo, within which the Tier 2 projects are located. As discussed, in Section 3.14, Population and Housing, the Tier 2 projects, if completely realized, could result in a direct population increase of 43,332 residents[41] and an indirect population increase through creation of approximately 9,830 jobs that would generate 1,129 new residents.[42] The direct and indirect growth from (43,332 direct and 1,129 indirect) Tier 2 projects would total approximately 45 percent of the population growth forecasted for San Mateo County by ABAG between 2010 and 2025. On a cumulative basis, this is considered significant. The Project itself would add approximately 1,384 new residents to San Mateo County, which represents approximately three percent of the population growth that could result from Tier 2 projects. As such, the Project's contribution to this potential cumulative impact is not considerable. Therefore, the Project's cumulative impact regarding consistency with the Clean Air Plan would be ***less than significant.***

C-AQ-2 ***Violation of any Air Quality Standard.*** *The Project, in combination with other development within the City, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10}, resulting in a violation of an Air Quality Standard. (PS)*

Tier 1 and Tier 2

The Project, in combination with the Tier 1 and Tier 2 Projects within the City, would result in a cumulatively significant impact for ROG, NO_X, and PM_{10} since these are significant for the Project. This is considered cumulatively significant according to BAAQMD's significance thresholds when a Project exceeds the BAAQMD's Project mass

[40] 1,190 new residents = 666 residents resulting from the Project + (200 dwelling units * 2.62 pph)

[41] 43,332 residents = 16,539 dwelling units * 2.62 pph

[42] 1,129 new residents = 9,830 new jobs / 1.78 workers per household * 7.8 percent City share * 2.62 pph

emission threshold for criteria air pollutants.[43] Because no feasible mitigation has been identified, the impact for ROG, NO_X, and PM_{10} is therefore ***significant and unavoidable.***

C-AQ-3 ***Cumulative Construction Criteria Air Pollutant Emissions.*** *Construction activities associated with the West Campus, in combination with other construction activities in the City, could generate dust or diesel emissions, thus exposing people to particulate matter. This is considered a potentially significant impact. (PS)*

Tier 1

Tier 1 includes 15 projects around the Project area. The CP emissions from these projects were analyzed using screening tables created by BAAQMD.[44] These screening tables were created to identify projects with CP emissions from construction that would likely be less than significant when compared to their thresholds. Table 3.6-12 shows the 15 Tier 1 projects, the size of the projects, their respective screening values, and a comparison to the screening values. As shown in the table, 14 of the projects have less-than-significant impacts when compared against the screening table. However, Menlo Gateway shows a significant impact on a project level. Therefore, the combination of projects could result in a significant impact. Thus, the cumulative impact of the Tier 1 projects is considered ***potentially significant***.

Tier 2

Tier 2 cumulative projects are still in their planning stages and may not be completed as currently planned or programmed. Therefore, the evaluation of their specific potential impacts would be speculative. While construction-related emissions are localized and tend not to cumulate with other projects unless they are immediately nearby, the Project would build out over a two-year period, making it possible that other projects could occur in the Project vicinity, but unlikely in this time frame. It is assumed that any of these projects going forward would conduct analyses that assess their emissions and implement feasible mitigation to reduce any large emissions including the dust control BMPs. Small projects with short construction schedules would likely not add to large amounts of emissions based on the screening criteria in BAAQMD's CEQA guidelines. Since the larger Tier 2 projects would not likely be constructed concurrently with the Project, whose buildout is anticipated to be completed by 2014, cumulative emissions are considered ***less than significant***.

MITIGATION MEASURE. Mitigation Measure AQ-3.1, identified for the Project, includes all appropriate dust control measures recommended by BAAQMD; therefore, construction-related air quality impacts associated with the West Campus would be reduced to a less-than-significant level. This measure would reduce the Project's contribution to cumulative construction emissions to less than cumulatively considerable. In addition, these same measures would apply to other construction projects (i.e., Menlo Gateway) that might

[43] BAAQMD CEQA Guidelines page 2-3.

[44] Table 3-1 of BAAQMD, CEQA Air Quality Guidelines, May 2011.

occur in the vicinity of the Project area. As a result, the cumulative impact would be considered to be less than significant. (LTS)

Table 3.6-12
Analysis of Construction CP Emissions from Tier 1 Projects

ID	Type	# of Units or Square Feet	Unit	Screening Quantity	Unit	Fraction of Significance
Office/Retail/Commercial/Etc						
1	Office	3,800	sf	277	ksf	0.01
	Retail	5,096		277		0.02
2	Commercial	110,065		277		0.40
3	Medical Office	9,825		277		0.04
4	Medical Office	10,166		277		0.04
5	Office/Health Club/Restaurant/ Hotel (includes 230 Rooms)	744,304		277		2.7
6	Office	23,011		277		0.08
7	Office	8,936		277		0.03
8	Office	8,970		277		0.03
9	Fitness	26,900		277		0.10
Residential						
10	Residential	22	du	114	du	0.19
11	Residential	21		114		0.18
12	Residential	7		114		0.06
13	Residential	26		114		0.23
Mixed Use						
14	Office	14,784	sf	277	ksf	0.05
	Residential	16	du	114	du	0.14
15	Commercial	3,635	sf	277	ksf	0.01
	Residential	108	du	114	du	0.95

Source: ENVIRON, 2011, Appendix 3.6-X.
Note: ID number corresponds with Table 3.1-1 in Section 3.1.

C-AQ-4 ***Cumulative Localized CO Concentrations.*** *Cumulative development in the Project vicinity would not result in CO concentrations above the ambient air quality standards. Therefore, cumulative impacts on localized CO concentrations would be less than significant. (LTS)*

Tier 1 and Tier 2

The criteria for significance for cumulative localized CO concentrations are the same as Project CO concentrations. According to BAAQMD's screening criteria for CO, the cumulative impacts of projects are considered less than significant if:[45]

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

2. The total traffic would not result in traffic volumes at affected intersections of more than 44,000 vehicles per hour.

3. The total traffic would not increase traffic volumes at affected intersections of more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Project would meet all of these criteria, as discussed above in AQ-4, and it is unlikely that Tier 1 or Tier 2 projects would violate the above criteria. In order to evaluate the likelihood of the criteria being exceeded, one can consider the order of magnitude increase based on peak hourly traffic volume at key intersections. For example, 2010 data from Caltrans that tracks peak hourly traffic volumes on California state highways are shown in Table 3.6-13. As shown below, the peak hourly volume at these intersections would have to more than double to exceed 44,000 vehicles per hour, which is the applicable standard since these are not areas where condition 3 above applies. Therefore, the Project along with the cumulative CO concentrations would be ***less than significant***.

[45] BAAQMD, CEQA Air Quality Guidelines, May 2011.

Table 3.6-13
Peak Hour Traffic Volumes in 2010

Street 1	Street 2	Traffic on Street 1	Traffic on Street 2	Total traffic
		Vehicles Per Hour		
Bayfront	Willow	4,800	3,250	8,050
Bayfront	University	4,800	1,950	6,750
101	Willow	14,500	3,250	17,750
101	University	14,500	1,950	16,450

Source: Traffic and Vehicle Data Systems Unit 2010 All Traffic Volumes on California State Highway System Available at: http://traffic-counts.dot.ca.gov/2010all/index.html.

C-AQ–5 ***Cumulative Toxic Air Contaminants Emissions.*** *The Project, in combination with other foreseeable development in the Project vicinity, would expose sensitive receptors to substantial TACs. Therefore, cumulative impacts from these pollutants would be potentially significant. (PS)*

Tier 1

According to the BAAQMD CEQA Guidelines, local community risks and hazards cumulative impacts should examine the TAC and $PM_{2.5}$ sources within 1,000 feet of a proposed project site. This includes both existing and foreseeable sources. The cumulative HRA combines the Project health impacts with other stationary sources within 1,000 feet of the Project site and traffic in the vicinity including current background levels and increases from other Tier 1 projects and growth. In addition, the TAC emissions from the Tier 1 projects were analyzed using BAAQMD's construction screening table.[46] As shown in Table 3.6-14, all the Tier 1 projects would have a less than significant impact at the Project's construction MEISR. However, the impact of these projects with all other sources could result in a potentially significant impact. The impacts of the emissions from the traffic associated with these projects is included in Table 3.6-14, as discussed in the Section 3.5, Transportation, and in CAL3QHCR modeling above.

Tier 2

Tier 2 cumulative projects are still in their planning stages and may not be completed as currently planned or programmed. In some cases, the build-out may not be reasonably foreseeable. Therefore, the evaluation of construction impacts would be speculative given the unknowns relative to scope, timing, and phasing. Construction TACs do not tend to disperse far from the site of release. Provided these Tier 2 projects are not located within 1,000 feet of the Project site, it is unlikely that they would result in a significant health impact. The cumulative HRA combines the Project health impacts with other stationary sources within 1,000 feet of the Project site and traffic in the vicinity including current

[46] BAAQMD, Screening Tables for Air Toxics Evaluation during Construction, Version 1.0, May 2010.

background levels and increases from other projects and growth.[47] These were evaluated for the MEISRs identified for the Project. Due to the existing background traffic, cumulative cancer risk of 167 in a million, the cumulative cancer risk is above BAAQMD significance level of 100 in a million. Furthermore, the $PM_{2.5}$ emissions of 1.3 $\mu g/m^3$ exceed the significance threshold of 0.8 $\mu g/m^3$. This is detailed in Table 3.6-15. All receptors identified with a cancer risk above 100 in a million are provided in Figure 7 of Appendix 3.6-B. Therefore, since sensitive receptors would be exposed to substantial TACs the cumulative impacts would be ***potentially significant.***

Table 3.6-14
Analysis of Air Toxics from Construction of Tier 1 Projects

ID	Type	# of Units or Square Feet	Unit	Distance from Construction MEISR	Minimum Offset Distance		Physical Distance further than Screening Distance?
					By Land Use	By Project	
				m			
Office/Retail/Commercial/Etc							
1	Office	3,800	sf	450	100	200	YES
	Retail	5,096			100		
2	Commercial	110,065		3,700	200	200	YES
3	Medical Office	9,825		4,100	100	100	YES
4	Medical Office	10,166		4,000	100	100	YES
5	Office/Health Club/Restaurant/ Hotel (includes 230 Rooms)	744,304		1,800	300	300	YES
6	Office	23,011		7,700	100	100	YES
7	Office	8,936		2,800	100	100	YES
8	Office	8,970		7,700	100	100	YES
9	Fitness	26,900		3,200	100	100	YES
Residential							
10	Residential	22	du	2,900	125	125	YES
11	Residential	21		700	125	125	YES
12	Residential	7		6,600	100	100	YES
13	Residential	26		3,700	125	125	YES
Mixed Use							
14	Office	14,784	sf	3,800	100	225	YES
	Residential	16	du		125		
15	Commercial	3,635	sf	3,700	100	400	YES
	Residential	108	du		300		

Source: ENVIRON, 2011, Appendix 3.6-X
Note: ID number corresponds with table 3.1-1.

[47] The screening results of the Tier 1 construction health risks are not included as the screening distance is further than the relevant MEISR.

Table 3.6-15
Mitigated Project Health Impacts

Source MEISR	UTMx (m)	UTMy (m)	Source Contribution at MEISR	Lifetime Excess Cancer Risk in a million	Chronic HI	$PM_{2.5}$ Concentration $\mu g/m^3$
Project Construction	574,724	4,148,425	Mitigated West Campus Construction	9.13	0.014	0.09
			West Campus Emergency Generators	0.022	0.000008	4.0E-05
			Project Traffic	0.75	0.0005	0.009
			Other Stationary Sources	0.7	0.002	0.012
			Background Traffic	29	0.011	0.18
			Cumulative Total	**39**	**0.027**	**0.36**
Project Emergency Generator Testing	574,849	4,148,400	Mitigated West Campus Construction	0.40	0.012	0.058
			West Campus Emergency Generators	0.034	0.00001	6.3E-05
			Project Traffic	0.90	0.0006	0.011
			Other Stationary Sources	2.9	0.006	0.015
			Background Traffic	30	0.011	0.19
			Cumulative Total	**35**	**0.039**	**0.32**
Project Traffic	574,734	4,147,461	Mitigated West Campus Construction	0.058	0.0017	0.009
			West Campus Emergency Generators	0.012	0.000004	1.9E-05
			Project Traffic	9.0	0.009	0.156
			Other Stationary Sources	0.5	0.002	0.016
			Background Traffic	167	0.062	1.07
			Cumulative Total	**176**	**0.076**	**1.3**
			BAAQMD Significance Threshold	100	10	0.8

Source: ENVIRON, 2011.
Note: Shaded Cells indicate a significant impact.

MITIGATION MEASURE. The Project's contribution to a significant health impact is less than five percent. In this instance, the receptors identified above the significance threshold would be significant even without the Project. Many of these existing receptors are closer than the recommended 500 foot distance from a freeway or other high traffic roadway as suggested by CARB in its guidance document on air quality and land use, Air Quality and Land Use Handbook: A Community Health Perspective.[48] The CARB guidance acknowledges the need to balance this recommendation with other State and local policies addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. The best solution would be to not have these receptors so close to a freeway, but since they already exist this is not a feasible option. There are no feasible Project-related mitigation measures that will reduce the impact to less than significant. Therefore, the cumulative health impacts remain ***significant and unavoidable***. (SU)

[48] CARB, *Air Quality and Land Use Handbook; A Community Health Perspective,* April 2005.

3.7 GREENHOUSE GAS EMISSIONS

Introduction

This section addresses the effects of the Project on global greenhouse gas (GHG) emissions and the potential for these emissions to contribute to global climate change. There is international scientific consensus that anthropogenic emissions of GHGs[1] have and will continue to contribute to changes in the global climate. Although there is uncertainty concerning the magnitude, rate, and ultimate effects of this change, it is generally accepted that climate change will result in a number of substantial adverse environmental impacts.

Climate change is the cumulative effect of all natural and anthropogenic sources of GHGs on a global scale. The GHG emissions from an individual project, even a very large development project, would not individually generate sufficient GHG emissions to measurably influence global climate change.[2] Consideration of a project's climate change impact, therefore, is essentially an analysis of a project's contribution to a cumulatively significant global impact through its emission of GHGs. While it is possible to examine the quantity of GHGs that would be emitted from individual project sources, it is not currently possible to link these GHGs emitted from a specific source or location to particular global climate changes.

Although environmental impacts associated with climate change cannot be directly linked to individual development projects, the State of California recognizes the link between development activities and GHG emissions and is in the process of developing standards for assessment and, ultimately, regulation of the GHG emissions associated with land use. The State of California, through Assembly Bill (AB) 32 and Executive Order S-3-05, has set Statewide targets for the reduction of GHG emissions. The goal of AB 32 and S-3-05 is to reduce future California GHG emissions in a State that is expected to experience rapid growth in population and economic output. While the California Environmental Quality Act (CEQA) focuses on reducing emissions associated with new development, other regulatory means will need to be implemented to reduce existing emissions.

GHGs would be emitted as the result of Project construction activities, direct and indirect operational sources, and mobile emissions associated with the trips generated by the Project. Emissions from sources such as construction equipment, vehicles, energy consumption, and solid waste generation, are inventoried and discussed quantitatively and qualitatively. Emissions associated with the water supply and wastewater treatment are also discussed. All emissions inventories are presented in metric tons (MT) unless otherwise indicated.

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1 For the purposes of this analysis, the term "greenhouse gases" refers to CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6, those gases regulated under California AB 32 and the Kyoto Protocol of the United Nations Framework Convention on Climate Change.

2 Association of Environmental Professionals (AEP). 2007. Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents. Accessed at: www.califaep.org/userdocuments/File/AEP_Global_Climate_Change_June_29_Final.pdf; and OPR, 2008. Technical Advisory, CEQA and Climate Change: Addressing Climate Change Through CEQA Review, p. 6.

This analysis was prepared based upon a literature review that included advice for preparing CEQA climate change analyses released by the California Office of Planning and Research (OPR[3]), as well as approaches prepared by a number of professional associations and agencies that have published strategies for complying with CEQA's environmental disclosure requirements. Such organizations include the California Attorney General's Office (AGO), the California Air Pollution Control Officers Association (CAPCOA), the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), California Air Resources Board (CARB), Bay Area Air Quality Management District (BAAQMD), California Climate Action Team (CAT), and the Association of Environmental Professionals (AEP).

Sources used for this section include energy forecasts and consumption reports produced by the California Energy Commission (CEC); energy consumption data provided by the Project Sponsor (see Appendix 3.7-B); data from the California Emission Estimator Model (CalEEMod™) version 2011.1.1 software; the transportation impact analysis prepared by DKS Associates (see Appendix 3.7-C); construction information provided by the Project Sponsor (see Appendix 3.7-D); and information from CARB and CAT.

Five comments pertaining to climate change were identified during the scoping meeting held for the Project or were received in response to the Notice of Preparation (NOP) (see Appendix 1). These comments expressed concern over the impacts of sea level rise. These comments have been addressed below, as well as in Section 3.12, Hydrology and Water Quality.

Applicable Plans and Regulations

Executive Order S-3-05. On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, setting Statewide targets for the reduction of California's GHG emissions. The Executive Order S-3-05 states that GHGs should be reduced to:

- 2000 levels by the year 2010,
- 1990 levels by the year 2020, and
- 80 percent below 1990 levels by the year 2050.

The text of Executive Order S-3-05 does not explain how the targets should be applied to individual development projects.

Executive Order S-3-05 also established the CAT for state agencies. After numerous public meetings and review of thousands of submitted comments, the CAT released its first report, *Climate Action Team Report to the Governor and the Legislature*, in March 2006, identifying key carbon reduction recommendations. A second iteration of this report was released in draft version in March 2009 and the latest iteration was released in December 2010.

[3] OPR, Technical Advisory, CEQA and Climate Change: Addressing Climate Change through CEQA Review, 2008.

In April 2007, the CAT released a second report, *Proposed Early Actions to Mitigate Climate Change in California*, which identifies numerous strategies for initiation of other climate action regulations and efforts prior to the 2012 deadline established by AB 32 (discussed below). State agencies are moving ahead on many of these early actions.

Assembly Bill 32. Shortly after the issuance of Executive Order S-3-05, the California State Legislature adopted AB 32, the Global Warming Solutions Act of 2006. AB 32 recognizes that California is the source of substantial amounts of GHG emissions. In the Findings and Declarations for AB 32, the Legislature found that:

> The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and that natural environment, and an increase in the incidences of infectious diseases, asthma and other health-related problems.

To avert these consequences, AB 32 requires CARB to create a plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." AB 32 requires CARB to design and implement emissions limits, regulations, and other measures, such that Statewide GHG emissions would be reduced to 1990 levels by 2020, the same 2020 threshold indicated in Executive Order S-3-05. AB 32 directs CARB to develop early actions to reduce GHG emissions while also preparing a Scoping Plan to identify how best to reach the 2020 limit. The measures and regulations to meet the 2020 target are to be in effect by 2012.

California Air Resources Board Climate Change Scoping Plan.[4] CARB's *Climate Change Scoping Plan* (Scoping Plan), adopted on December 11, 2008, reports that CARB has met the first milestones set by AB 32. As discussed below, CARB was required to prepare a historical emissions inventory and set emissions targets for 2020. In December 2007, CARB approved a 1990 emissions inventory of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) of GHGs. As AB 32 requires that emissions be reduced to 1990 levels by 2020, approval of this inventory effectively determined emissions targets for 2020. As required, CARB has also identified 44 early action measures that could be enforceable on or before 2010. These measures include potential regulations affecting landfills, motor vehicle fuels, refrigerant in cars, port operations and many other sources. Regulatory development for these measures is ongoing.

The Scoping Plan also proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, including:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards;
- Achieving a Statewide renewable energy mix of 33 percent;

[4] CARB, Climate Change Scoping Plan, pp. ES-3 to ES-4, December 2008.

- Developing a California cap-and-trade program that links with other Western Climate Initiative (WCI) partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS); and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The Scoping Plan notes that local governments are "essential partners" in the effort to reduce greenhouse gas emissions, and that they have "broad influence and, in some cases, exclusive jurisdiction" over activities that contribute to GHG emissions. The Scoping Plan encourages local governments to adopt goals for reducing municipal GHG emissions and move towards adoption of a goal for reducing community emissions. These targets should parallel the State's commitment to reduce GHG emissions by approximately 15 percent of current levels by 2020. The Scoping Plan also observes that "[l]ocal governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces greenhouse gases associated with vehicle travel, as well as energy, water, and waste"[5] and that "[i]ncreasing low-carbon travel choices (public transit, carpooling, walking and biking) combined with land use patterns and infrastructure that support these low-carbon modes of travel, can decrease average vehicle trip lengths by bringing more people closer to more destinations."[6] It also notes that regional targets would be set and achieved on a regional basis through the Senate Bill (SB) 375 implementation process, which "maintains regions' flexibility." SB 375 is discussed below.

In August 2011, The Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 Business as Usual (BAU) estimate of 507 MMT, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by CARB.

Senate Bill 375. SB 375, which establishes mechanisms for the development of regional targets for reducing passenger vehicle GHGs, was adopted by the State on September 30, 2008. On September 23, 2010, CARB adopted the vehicular GHGs reduction targets that were developed in consultation with the Metropolitan Planning Organizations (MPOs); the targets require a seven to eight percent reduction by 2020 and between 13 to 16 percent reduction by 2035 for each MPO. SB 375 recognizes the importance of achieving significant GHG reductions by working with cities and counties to change land

[5] CARB, Climate Change Scoping Plan, p. 26, December 2008.
[6] CARB, Climate Change Scoping Plan, p. 48, December 2008.

use patterns and improve transportation alternatives. Through the SB 375 process, MPOs would work with local jurisdictions in the development of Sustainable Communities Strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces GHG emissions while meeting housing needs and other regional planning objectives. The MPOs would prepare their first SCS according to their respective Regional Transportation Plan (RTP) update schedule. To date, no region has adopted an SCS. The first of the RTP updates with SCS strategies are expected in 2012.

Senate Bill 97. The provisions of SB 97, enacted in 2007, amend CEQA to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. In March 2010, the California Office of Administrative Law codified into law CEQA amendments that provide regulatory guidance with respect to the analysis and mitigation of the potential effects of GHG emissions, as found in CEQA Guidelines Section 15183.5. To streamline the analysis, CEQA provides for analysis through compliance with a previously adopted plan or mitigation program under special circumstances.

Executive Order S-13-08. Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive, provides clear direction for how the State should plan for future climate impacts. The first result is the 2009 California Adaptation Strategy (CAS) report which summarizes the best known science on climate change impacts in the State to assess vulnerability and outlines possible solutions that can be implemented within and across State agencies to promote resiliency.

Assembly Bill 1493 (Pavley I). AB 1493 (Pavley) required the CARB to adopt regulations that will reduce GHG emissions from automobiles and light-duty trucks by 30 percent below 2002 levels by the year 2016, effective with 2009 models. By 2020, this requirement will reduce emissions in California by approximately 16.4 $MMTCO_2e$, representing 17.3 percent of emissions from passenger and light-duty vehicles in the State.

Assembly Bill 1493 (Pavley II). California committed to further strengthening the AB 1493 standards beginning in 2017 to obtain a 45 percent GHG reduction from 2020 model year vehicles. By 2020, this requirement will reduce emissions in California by approximately four $MMTCO_2e$, representing 2.5 percent of emissions from passenger/light-duty vehicles in the State.

Executive Order S-1-07 (Low Carbon Fuel Standard). The Low Carbon Fuel Standard (LCFS) requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. This requirement will reduce emissions in California by approximately 15 $MMTCO_2e$, representing 6.9 percent of emissions from passenger and light-duty vehicles in the State.

Renewable Portfolio Standard for Building Energy Use. Senate Bills 1075 (2002) and 107 (2006) created the State's Renewable Portfolio Standard (RPS), with an initial goal of 20 percent renewable energy production by 2010. Executive Order (EO) S-14-08 establishes a RPS target of 33 percent by the year 2020 and requires State agencies to take all appropriate actions to ensure the target is met. The 33 percent RPS by 2020 goal is supported by the ARB, though its feasibility is not certain due to current limitations in production and transmission of renewable energy.

California Code of Regulations (CCR) Title 24. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to increase the baseline energy efficiency requirements. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG. The 2008 standards are the most recent version which went into effect on January 1, 2010.

CCR Title 24, Part 11: California's Green Building Standard Code (CALGreen) was adopted in 2010 and went into effect January 1, 2011. CALGreen is the first Statewide mandatory green building code and significantly raises the minimum environmental standards for construction of new buildings in California. The mandatory provisions in CALGreen would reduce the use of volatile organic compounds (VOC) emitting materials, strengthen water conservation, and require construction waste recycling. All projects in the City submitted for permit application on or after January 1, 2012 will be required to show conformance with CALGreen.

Bay Area Regional Agency Climate Protection Program. The Joint Policy Committee composed of the Association of Bay Area Governments (ABAG), BAAQMD, San Francisco Bay Conservation and Development Commission (BCDC), and Metropolitan Transportation Commission (MTC), approved the Bay Area Regional Agency Climate Protection Program on May 4, 2007 (amended July 20, 2007) to reduce potential effects of climate change. This program includes strategies to:

- Establish management priorities based on impacts, benefits, ease of implementation, and cost-effectiveness;
- Increase public awareness and motivate action through workshops and grass-roots outreach;
- Provide assistance, such as standardization of procedures for determining impacts, maintaining and distributing data, model codes and other tools, funding for demonstration projects, and others;
- Reduce driving and promote alternative modes of transportation through mechanisms such as road pricing, mode competitiveness, and regional development planning;
- Prepare to adapt, because regardless of regional reductions in potential causes contributing to global climate change, the region would be affected by changing environmental conditions; and
- Increase the importance of CEQA review of CO_2 emissions, conduct life-cycle costing of all capital projects, encourage energy-efficient development with sliding-scale permit fees, rebates and expedited permit review processes, and return the region's freeways to a maximum of 55 miles per hour.

Menlo Park Climate Action Plan. The City's Climate Action Plan (CAP) (adopted in May 2009) proposes local emissions reduction strategies designed to help meet AB 32 targets. The emissions reduction strategies are generally focused on City actions, although the City would be expected to

create programs directed towards reducing community emissions. The City subsequently prepared the CAP Assessment Report in July 2011. This report supplements the City's adopted 2009 CAP with revised information including additional information on the City's GHG reduction strategies.

As discussed below, the City's GHG emissions for 2009 are estimated to be 928,347 MT CO_2e. The CAP Assessment Report presents three possible reduction targets: 1) 10 percent by 2020 and 30 percent by 2050; 2) 17 percent by 2020 and 50 percent by 2050; and 3) the AB 32 Reduction goal of 27 percent by 2020 and 80 percent by 2050.

BAAQMD recently stated that jurisdictions, in developing a GHG Reduction Strategy should establish a GHG reduction target that meets or exceed AB 32 goals for consistency with CEQA guidelines and thresholds. Therefore, establishing GHG emissions reduction target for the City is line with regional efforts. These GHG reduction targets could be included in the General Plan update process that is currently planned for 2013-2014.

The CAP Assessment report recommends various community and municipal strategies for near-term and mid-term considerations. A cost benefit analysis of the selected strategies will be presented to City Council prior to implementation.

Menlo Park General Plan. Although the General Plan does not include policies explicitly designed to address GHG emissions and climate change, a number of goals and policies in the General Plan would be expected to contribute to this end. These policies include the following:

> **Goal I-G:** To promote the preservation of open-space lands for recreation, protection of natural resources, the production of managed resources, protection of health and safety, and/or the enhancement of scenic qualities.
>
> *Policy I-H-2:* The use of water-conserving plumbing fixtures in all new public and private development shall be required.
>
> *Policy I-H-3:* Plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscape Ordinance.
>
> *Policy I-H-7:* The use of reclaimed water for landscaping and any other feasible uses shall be encouraged.
>
> *Policy I-H-12:* Street orientation, placement of buildings, and use of shading should contribute to the energy efficiency of the community.
>
> *Policy II-A-12:* The City shall endeavor to provide for the safe, efficient, and equitable use of streets by pedestrians and bicyclists through good roadway design, maintenance, and effective traffic law enforcement.

Goal II-B: To promote the use of public transportation.

Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects.

Policy II-B-3: The City shall promote improved public transit service and increased transit ridership, especially to office and industrial areas and schools.

Goal II-C: To promote the use of alternatives to the single occupant automobile.

Policy II-C-1: The City shall work with all Menlo Park employers to encourage employees to use alternatives to the single occupancy automobile in their commute to work.

Goal II-D: To promote the safe use of bicycles as a commute alternative and for recreation.

Policy II-D-3: The design of streets within Menlo Park shall consider the impact of street cross section, intersection geometrics and traffic control devices on bicyclists.

Policy II-D-4: The City shall require new commercial and industrial development to provide secure bicycle storage facilities on-site.

Existing Conditions

Overview of Climate Change

Global climate change refers to changes in the normal[7] weather of the earth measured by alterations in wind patterns, storms, precipitation, and temperature relative to historical averages. Such changes vary considerably by geographic location. Over time, the earth's climate has undergone periodic ice ages and warming periods, as observed in fossil isotopes, ice core samples, and through other measurement techniques. Recent climate change studies use the historical record to predict future climate variations and the level of fluctuation that might be considered statistically normal given historical trends.

Temperature records from the Industrial Age (ranging from the late 18th century to the present) deviate from normal predictions in both rate and magnitude. Most modern climatologists predict an unprecedented warming period during the next century and beyond, a trend that is increasingly attributed to human-generated GHG emissions resulting from the industrial processes, transportation, solid waste generation, and land use patterns of the twentieth and twenty-first centuries. According to the IPCC, GHG emissions associated with human activities have grown since pre-industrial times, increasing by 70 percent between 1970 and 2004.[8] Increased GHG emissions are largely the result of increasing fuel consumption, particularly the incineration of fossil fuels.

[7] "Normal" weather patterns include statistically normal variations within a specified range.

[8] IPCC, 2007, T. Baker et al. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policy Makers, p. 3.

The IPCC modeled several possible emissions trajectories to determine what level of reductions would be needed worldwide to stabilize global temperatures and minimize climate change impacts. Regardless of the analytic methodology used, global average temperature and sea level were predicted to rise under all scenarios.[9] In other words, there is evidence that emissions reductions can minimize climate change effects, but cannot reverse them entirely. However, emissions reductions can reduce the severity of impacts, which result in lesser environmental impacts. For example, the IPCC predicted that the range of global mean temperature change from year 1990 to 2100, given different emissions-reduction scenarios, could range from 1.1°C to 6.4°C.

Greenhouse Gases

Gases that trap heat in the atmosphere are called GHGs because they transform the light of the sun into heat, similar to the glass walls of a greenhouse. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), ozone, and aerosols. Without the natural heat trapping effect of GHGs, the earth's surface would be about 34°C cooler.[10] However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. Global atmospheric concentrations of CO_2, CH_4, and N_2O have increased markedly since the late 18th century as a result of human activities and, now, far exceed pre-industrial values.

Climate change results from radiative forcings and feedbacks. Radiative forcing is defined as the difference between the radiation energy entering the earth's atmosphere and the radiation energy leaving the atmosphere. GHGs allow solar radiation to penetrate the earth's atmosphere, but slow the release of atmospheric heat. A feedback is an internal process that amplifies or dampens the climate's response to a specific forcing. For example, the heat trapped by the atmosphere may cause temperatures to rise or may alter wind and weather patterns. A gas' or aerosol's global warming potential is defined as its ability to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas."[11]

Individual GHGs have varying global warming potentials and atmospheric lifetimes (see Table 3.7-1). The CO_2e is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. The reference gas for global warming potential is CO_2; CO_2 has a global warming potential of one. By comparison, CH_4's global warming potential is 21, as CH_4 has a greater global warming effect than CO_2 on a mass to mass basis.[12] CO_2e is the mass of a project's emissions of an individual greenhouse gas multiplied by the gas's global warming potential.

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9 IPCC, 2007, R.B. Alley et al. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers, p. 13.

10 U.S. Environmental Protection Agency (EPA). March 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature, p. 7.

11 EPA, The U.S. Greenhouse Gas Emissions and Sinks 1991-2009, p. 2.

12 EPA, 2006, Non CO_2 Gases Economic Analysis and Inventory. Global Warming Potentials and Atmospheric Lifetimes, website: www.epa.gov/nonco2/econ-inv/table.html.

Table 3.7-1
Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12 $\pm$3	21
Nitrous Oxide (N_2O)	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF_4)	50,000	6,500
PFC: Hexafluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: CCAR, 2009.

Of all GHGs in the atmosphere, water vapor is the most abundant, important, and variable. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

Carbon dioxide (CO_2) is an odorless, colorless gas that has both natural and anthropogenic sources. The anthropogenic production and absorption of carbon dioxide occurs through the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste, trees and wood products, and as a result of other chemical reactions, such as those required to manufacture cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. A number of specialized industrial production processes and product uses, such as mineral or metal production, and the use of petroleum-based products, leads to CO_2 emissions.

CO_2 is removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle. Natural sources of CO_2 occur within the carbon cycle where billions of tons of atmospheric CO_2 are removed by oceans and growing plants and are emitted back into the atmosphere through natural processes. When in balance, total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, including burning of oil, coal, and gas and deforestation, increased CO_2 concentrations in the atmosphere by 35 percent as of 2005.[13]

Methane (CH_4) is a flammable gas and is the main component of natural gas. Methane is emitted from a variety of both human-related and natural sources. CH_4 is emitted during the production and transport of coal, natural gas, and oil, from livestock and other agricultural practices, and from the

[13] EPA, *Carbon Dioxide*, April 2011, website: http://www.epa.gov/climatechange/emissions/co2.html, accessed September 19, 2011.

decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global CH_4 emissions are related to human activities. Natural sources of CH_4 include wetlands, gas hydrates,[14] permafrost, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. CH_4 emission levels from a particular source can vary significantly from one country or region to another. These variances depend on many factors, such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes resulting in CH_4 emissions from both human and natural sources. Also, the implementation of technologies to capture and utilize CH_4 from sources, such as landfills, coal mines, and manure management systems, affects the emission levels from these sources.

Nitrous oxide (N_2O), also known as laughing gas, is produced naturally by microbial processes in soil and water. Concentrations of nitrous oxide also began to rise at the beginning of the Industrial Revolution reaching 314 parts per billion (ppb) by 1998. Microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen, produce nitrous oxide. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to the atmospheric load of N_2O.

Nitrogen trifluoride (NF_3) has no natural source, but is synthesized for use in the microelectronics industry. NF_3 is a colorless, toxic, odorless, nonflammable gas with a global warming potential around 17,000. No NF_3 emissions would be associated with the Project.

Chlorofluorocarbons (CFCs) have no natural source, but were synthesized for uses as refrigerants, aerosol propellants, and cleaning solvents. Since their creation in 1928, the concentrations of CFCs in the atmosphere have been rising. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken, and levels of the major CFCs are now remaining static or declining. However, their long atmospheric lifetimes mean that some of the CFCs would remain in the atmosphere for over 100 years. Since they are also a GHG, along with such other long-lived synthesized gases as CF_4 (carbontetrafluoride), SF_6 (sulfurhexafluoride) and NF_3 (nitrogen trifluoride), they are of concern. Another set of synthesized compounds called HFCs (hydrofluorocarbons) are also considered GHGs, though they are less stable in the atmosphere and, therefore, have a shorter lifetime and less of an impact. The uses of these gases are not typically found at commercial office buildings. Therefore, these GHGs are not included further in this analysis.

Greenhouse Gas Emissions Inventories

A GHG inventory is an accounting of the amount of GHGs emitted to or removed from the atmosphere over a specified period of time attributed to activities by a particular entity (e.g., annual emissions and reductions attributed to the State of California). A GHG inventory also provides information on the activities that cause emissions and removals, as well as the methods used to make the calculations. This section summarizes the latest information on global, State, regional, and local GHG emissions.

[14] Gas hydrates are crystalline solids that consist of a gas molecule, usually methane, surrounded by a "cage" of water molecules. (USGS, 1992).

Worldwide Inventories. Worldwide emissions of GHG in 2004 were nearly 30 billion tons of CO_2e per year (including both ongoing emissions from industrial and agricultural sources, but excluding emissions from land-use changes).[15]

United States Inventories. In 2004, the United States emitted 7.1 billion tons of CO_2e. Of the four major sectors nationwide — residential, commercial, industrial, and transportation — transportation accounts for the highest percentage of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion. In 2008, the United States emitted 6.9 billion tons of CO_2e, with transportation accounting for the highest percentage of GHG emissions, approximately 32 percent.[16]

California Inventory. In 2004, California emitted approximately 483 $MMTCO_2e$, or about six percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the fourth lowest per-capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states. In 2008, California's GHG emissions were approximately 478 $MMTCO_2e$, generally attributed to reduced travel and, therefore, transportation emissions.[17]

The CEC found that transportation is the source of approximately 41 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent, and industrial sources at 20 percent. Agriculture and forestry is the source of approximately 8.3 percent, as is the source categorized as "other," which includes residential and commercial activities (CEC, 2007).

Bay Area Emissions. The BAAQMD prepared an updated inventory of GHG emissions in the San Francisco Bay Area Air Basin (Bay Area Basin) in February 2010. Total GHGs emissions within the Bay Area Basin in 2007 were estimated as 95.8 $MMTCO_2e$. Fossil fuel consumption in the transportation sector was the single largest source of the Bay Area Basin's GHG emissions in 2007. The transportation section contributed about 36.4 percent of GHG emissions in the Bay Area Basin. The transportation sector was followed by industrial/commercial (36.4 percent), electricity/co-generation (15.9 percent), residential fuel usage (7.1 percent), off-road equipment (3.1 percent), and agriculture/farming (1.16 percent).[18]

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[15] United Nations Framework Convention on Climate Change, Sum of Annex I and Non-Annex I Countries Without Counting Land-Use, Land-Use Change and Forestry (LULUCF). Predefined Queries: greenhouse gas total without LULUCF (Annex I Parties). Bonn, Germany, website: http://unfccc.int/ghg_emissions_data/predefined_queries/items/3814.php, accessed May 2, 2007.

[16] EPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. EPA# 430-R-10-006, April 2011.

[17] EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. EPA# 430-R-10-006, April 2011.

[18] BAAQMD, 2010, Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2007.

City of Menlo Park Inventory. The City's CAP Assessment Report[19] states that approximately 723,480 MT of CO_2e were emitted by the City in 2009. According to this estimate, 99.9 percent of this total constitutes "community" emissions, emissions attributed to vehicles on City roads and highways (62 percent); commercial, residential, and direct energy use (33 percent); and the Bayfront Park Landfill and other solid waste sources (five percent). The remaining emissions are municipal emissions, emissions generated by City buildings and vehicles, waste, streetlights, and electricity for pumping water and stormwater.

The 2011 CAP Assessment Report includes a forecast for 2020. This forecast assumes, without reduction strategies (i.e., BAU), that community emissions would increase by 204,867 MT CO_2e by 2020, for a total of 928,347 MT CO_2e. This represents a 28.3 percent increase from 2009.

Project Area Inventory. The Project site consists of a 56.9-acre East Campus and a 22-acre West Campus. The existing development on the East Campus includes nine buildings, totaling approximately one million square feet (sf), primarily office uses, multiple cafés, and fitness center. The existing development on the West Campus includes two office buildings totaling 127,246 sf, a surface parking lot with 347 parking stalls, landscape features, a basketball court, and a guard house. However, since those buildings are not currently in use, the existing development on the West Campus is not considered to generate GHG emissions. Thus, the discussion and data that follow do not include the West Campus.

An inventory of the GHG emissions generated by existing uses at the East Campus is provided in Table 3.7-2, below. To estimate total existing emissions, the emissions of the individual gases were estimated, then converted to their CO_2e using the individually determined global warming potential of each gas. Thus, total GHG emissions equals total CO_2 emissions plus total CO_2e emissions from CH_4 and N_2O. The inventory includes the following emissions:

- *Area Source Emissions.*[20] Area source emissions are direct emissions sources including existing emissions from landscaping equipment. These emissions were estimated using the CalEEMod version 2011.1.1 model.
- *Emissions Associated with Energy Use.* The generation of electricity through the combustion of fossil fuels typically yields CO_2, and to a much smaller extent, CH_4 and N_2O. By consuming electricity, existing facilities generated indirect GHG emissions. The combustion of natural gas on-site for heating, cooking and other purposes in buildings generates direct emissions of CO_2 and, to a much smaller extent, CH_4 and N_2O. Existing electricity and natural gas usage, which was used to estimate GHG emissions from existing facilities, is based upon the actual building usage as obtained from available records in 2008.
- *Emissions Associated with Water Supply.* GHG emissions are also generated by the infrastructure used to distribute and treat the domestic water supply and by infrastructure used

[19] City of Menlo Park, Climate Action Plan Assessment Report, July 2011, website: http://service.govdelivery.com/docs/CAMENLO/CAMENLO_121/CAMENLO_121_20110816_en.pdf, accessed November 11, 2011.

[20] Also known as "areawide" emissions.

to collect and treat wastewater. By consuming water and generating wastewater, development in the Project area contributes to these emissions. Emissions associated with the water supply were estimated based on per gallon electricity consumption rates reported in the CEC report *Refining Estimates of Water Related Energy Use in California*. The GHG emissions factors provided by the City to represent the carbon intensity of Pacific Gas & Electric (PG&E) supplied electricity were applied to this total. Existing water usage at the East Campus is based on operation assumptions by BKF.

- *Fugitive Solid Waste Disposed Emissions*. According to the United States Environmental Protection Agency's (EPA's) emissions reporting protocol, emissions of CO_2 from solid waste interment are considered to be biogenic GHGs and part of the carbon cycle and, as such, are typically not included in GHG emission inventories.[21] Nevertheless, fugitive CH_4 emissions associated with solid waste management have been estimated for use in this Draft EIR based on the method used by CalEEMod™.
- *Vehicular Emissions*. Employee and visitor vehicle trips associated with existing land uses represent the largest portion of the existing emissions inventory. Existing trips and corresponding GHG emissions were estimated using vehicle miles traveled (VMT) provided by DKS based on the number of trips and the Transportation Demand Management (TDM) program for 25 percent reduction in vehicle trips which reflect the permitted occupancy at the East Campus and the default vehicle emission factors for San Mateo County and year 2010 in the CalEEMod™ model.

It is believed that the above sources represent the vast majority of the GHG emissions associated with existing development on the East Campus. Existing facilities may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment;[22] however, the contributions of these emissions to the total inventory are likely quite small. PFCs and SF_6 are typically used in industrial activities that are not conducted at the Project site. Ozone has characteristics of a GHG; however, unlike regulated GHGs, ozone in the troposphere is relatively short-lived, and, therefore, has localized rather than global effects. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides [NO_X] and reactive organic gases [ROGs]) to global warming.[23] Facilities in the Project area do not emit CFCs, another gas with GHG characteristics, because CFCs are banned under federal regulations. Therefore, the inventory presented in Table 3.7-2, represents an estimate of all emissions directly and indirectly associated with current on-site operations at the East Campus.

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[21] EPA, 1995, AP 42, Fifth Edition: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources.

[22] Godwin, David S., Marian Martin Van Pelt and Katrin Peterson. no date. Modeling Emissions of High Global Warming Potential Gases. Environmental Protection Agency.

[23] CARB, 2004, Fact Sheet, Climate Change Emission Control Regulations.

The total GHG emissions currently generated by existing development in the Project area on an annual basis are 27,413 MT of CO_2e. Specific characteristics used to estimate CO_2e emissions are summarized in Tables 1 through 5 of Appendix 3.7-A. Sources of emissions described in Table 3.7-2 are consistent with sources described above.

Table 3.7-2
Existing Annual Operational Greenhouse Gas Emissions Within the Project Area

Source of Emissions	Emissions (MT CO_2e) Total
Area	>0.01
Energy Use	17,720[a]
Water and Wastewater	30[b]
Solid Waste	471[c]
Vehicular	9,192[d]
Total	**27,413**

Source: ENVIRON, Table 14 of Appendix 3.7-A.

Notes:

a. 17,720 MT CO_2e for energy use = 61,352,800 kWh per year of electricity use and 33,146,900 kBTU per year of natural gas use.

b. 30 MT CO_2e for water and wastewater = 20,159,700 gallons per year.

c. 471 MT CO_2e for solid waste = 1,035 tons per year.

d. 9,192 MT CO_2e for vehicle trips = 20,375,770 vehicle miles traveled.

Predicted Effects of Climate Change

Climate change could have a number of adverse effects. Although these effects would have global consequences, in most cases they would not disproportionately affect any one site or activity. In other words, many of the effects of climate change are not site-specific. Emission of GHGs would contribute to the changes in the global climate, which would in turn, have a number of physical and environmental effects. A number of general effects are discussed below.

Sea Level Rise and Flooding. Measurements taken in the San Francisco Bay (Bay) indicate that the current rate of sea level rise is about 3.5 inches per century at Alameda and 8.4 inches per century at San Francisco.[24] Climate change effects on sea levels could lead to even higher rates of sea level rise (accelerated sea level rise).

Different scenarios and models used to predict sea level rise result in different estimates of the magnitude of sea level rise. For example, the California Climate Change Center predicts that accelerated sea level rise could result in a sea level rise in California of 4.3 to 27.6 inches above the

[24] Floyd, M., M. Anderson, M. Roos, R. Peterson, M. Perrone, and D. Todd. 2006, Chapter 2: Potential Impacts of Climate Change on California's Water Resources, Table 2-6 Relative Sea Level Trends for Eight Tide Gauges Along the Coast of California with 50 Years or More of Record. p. 2-43. In: California Department of Water Resources, Progress on Incorporating Climate Change into Planning and Management of California's Water Resources Technical Memorandum Report, prepared July 2006.

existing mean sea level (msl) by 2099.[25] CAT projects that sea levels could rise between 20 and 55 inches by the year 2099.[26]

In October 2011, BCDC adopted the latest amendment to the Bay Plan. The Bay Plan states that the Bay will rise 10 to 17 inches by 2050, 17 to 32 inches by 2070, and 55 to 69 inches by the end of the century.[27]

Additionally, alterations in the flow regime and subsequent flood potential could also occur from effects of climate change on local and regional precipitation patterns. These issues are addressed in Section 3.12, Hydrology and Water Quality.

In the future, precipitation events are predicted to vary in terms of timing, intensity and volume according to many climate change models.[28] Extreme storm events may occur with greater frequency.[29] The effect on peak runoff is not known because most climate change models have not used a temporal (or spatial) scale necessary to identify effects on peak flows, and existing precipitation/runoff models for assessing the effects of climate change do not yet adequately predict rainfall/runoff scenarios.[30] Changes in rainfall and runoff could affect flows in surface water bodies, causing increased flooding and runoff to the storm drain system (Refer to Section 3.12, Hydrology and Water Quality).

Water Supply. California Health and Safety Code Section 38501(a) recognizes that climate change "poses a serious threat to the economic well-being, public health, natural resources, and the environment of California," and notes, "the potential adverse impacts of [climate change] include…reduction in the quality and supply of water to the State from the Sierra snowpack." As most of the State, including the Bay Area, depends on surface water supplies originating in the Sierra Nevada, this water supply reduction is a concern.

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[25] Cayan, D. P. Bromirski, K. Hayhoe, M. Tyree, M. Dettinger, and R. Flick. 2006. Projecting Future Sea Level: Table 3 Projected global sea level rise (SLR) (cm) for the SRES A1fi, A2, and B1 greenhouse gas emission scenarios. SLR for A2 and B1 scenarios is estimated by combining output recent global climate change model simulations with MAGICC projections for the ice melt component. SLR estimates for A1fi estimated from MAGICC based on A2 temperature changes scaled according to those in A1fi. A Report From the California Climate Change Center CEC-500-2005-2002-SF. p. 19.

[26] San Francisco Bay Conservation and Development Commission, Climate Change, 2007, www.bcdc.ca.gov/planning/climate_change/climate_change.shtml.

[27] San Francisco Bay Conservation and Development Commission, "Resolution No. 11-08: Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies," website: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf, accessed October 31, 2011.

[28] EPA, 2008, Climate Change Science: Precipitation and Storm Changes. Accessed September 20, 2011 at: www.epa.gov/climatechange/science/recentpsc.html.

[29] EPA, 2008, Climate Change Science: Precipitation and Storm Changes. Accessed September 20, 2011 at: www.epa.gov/climatechange/science/recentpsc.html.

[30] Anderson. M. 2006. Chapter 6: Climate Change Impacts on Flood Management p. 6-22 and 6-27. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report from Climate Change Center CEC-500-2005-195-SF.

Most of the scientific models addressing climate change show that the primary effect on California's climate would be a reduced snow pack and a shift in stream-flow seasonality. A higher percentage of the winter precipitation in the mountains would likely fall as rain rather than as snow in some locations, thereby reducing the overall snowpack. Further, as temperatures rise, snowmelt is expected to occur earlier in the year resulting in peak runoff that would likely come a month or so earlier. The end result of this would be that the State may not have sufficient surface storage to capture the resulting early runoff and, so, absent construction of additional water storage projects, a portion of the current supplies would be lost to the oceans, rather than be available for use in the State's water delivery systems.

Water Quality.[31] Climate change could have adverse effects on water quality, which would, in turn, affect the beneficial uses (habitat, water supply, etc.) of surface water bodies and groundwater. The changes in precipitation discussed above could result in increased sedimentation, higher concentration of pollutants, higher dissolved oxygen levels, increased temperatures, and an increase in the amount of runoff constituents reaching surface water bodies. Sea level rise, discussed above, could result in the encroachment of saline water into freshwater bodies.

Ecosystems and Biodiversity.[32] Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep sea habitat. As temperatures and precipitation change, seasonal shifts in vegetation would occur; this could affect the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that "20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2 to 3°C (3.6 to 5.4°F) relative to pre-industrial levels."[33] Shifts in existing biomes could also make ecosystems vulnerable to invasive species encroachment. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts.[34] Climate change may also increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects, such as malaria, dengue fever, yellow fever, and encephalitis. Cholera, which is associated with algal blooms, could also increase. While these health impacts would largely affect tropical areas in other parts of the world,

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[31] IPCC, 2007: Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Parry, Martin L., Canziani, Osvaldo F., Palutikof, Jean P., van der Linden, Paul J., and Hanson, Clair E. (eds.)]. Cambridge University Press, Cambridge, United Kingdom, 1000 pp.

[32] EPA, 2008, Climate Change – Ecosystems and Biodiversity, website: www.epa.gov/climatechange/effects/eco.html, accessed September 20, 2011.

[33] IPCC, 2007: Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Parry, Martin L., Canziani, Osvaldo F., Palutikof, Jean P., van der Linden, Paul J., and Hanson, Clair E. (eds.)]. Cambridge University Press, Cambridge, United Kingdom, 1000 pp.

[34] EPA, 2008, Climate Change – Health and Environmental Effects, website: www.epa.gov/climatechange/effects/health.html#climate, accessed September 20, 2011.

effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency, and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact with regard to GHGs and climate change, based on the 2010 amendments to the CEQA Guidelines if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant effect on the environment.
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

BAAQMD considers GHG impacts to be exclusively cumulative and, as such, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Therefore, this section does not include a separate cumulative discussion of the Tier 1 and Tier 2 projects.

Climate Change Analysis Methodology

The analysis of climate change impacts involves determining a GHG emission inventory for the Project sources, which then can be used as a comparison to thresholds of significance to determine if the Project would result in cumulative impacts. This section describes the methodology that was used to develop the GHG emissions inventories associated with the Project. Separate emission inventories are presented for both the East Campus and West Campus. As recommended by the BAAQMD CEQA guidelines,[35] these inventories consider the following categories of GHG emissions: construction, area sources, energy use, water use, waste disposed, traffic, and stationary source emissions (which, in this case, consist solely of emergency generator testing). Electrical power would be supplied to the Project site by PG&E. Accordingly, indirect GHG emissions from electricity usage are calculated using the PG&E carbon-intensity factor used by the City of 0.568 pounds per kilowatt hour (lb/kWh).

PG&E would also supply natural gas to the Project site. Since natural gas emissions do not vary by provider as indirect electricity emissions do, the EPA AP-42 emission factors[36] for natural gas of 11.7 pounds per therm was used. Legislation and rules regarding climate change, as well as the scientific

[35] BAAQMD, *California Environmental Quality Act Air Quality Guidelines*, May 2011, p. 4-6.

[36] The EPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. More information is available at http://www.epa.gov/ttnchie1/ap42/.

understanding of the extent to which different activities emit GHGs, continue to evolve; as such, the inventories in this report are a reflection of the guidance and knowledge currently available.

ENVIRON, the preparers of this section, primarily utilized the CalEEMod™[37] to assist in quantifying the GHG emissions in the inventories presented in this report for the Project. CalEEMod™ is a Statewide program designed to calculate both criteria and GHG emissions from development projects in California. This model was developed under the auspices of the South Coast Air Quality Management District (SCAQMD), which received input from other California air districts, including BAAQMD, and is a currently accepted model by BAAQMD for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod™ utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources, such as the EPA AP-42 emission factors,[38] CARB's on-road and off-road equipment emission models, such as the EMission FACtor model (EMFAC) and the Off-road Emissions Inventory Program model (OFFROAD),[39] and studies commissioned by California agencies such as the CEC and CalRecycle. With respect to the estimation of GHG emissions, CalEEMod™ is not only more current than URBEMIS 9.2.4 and the BAAQMD GHG model (BGM), but it also includes all of the GHG emission source categories required for a comprehensive GHG impacts analysis and updated vehicle emission factors that incorporate recent regulations described earlier in this section, such as Pavley I and the LCFS and incorporates state-of-the-science methods for quantifying mitigation and project design features not available in URBEMIS 9.2.4 or BGM.[40]

ENVIRON used San Mateo County CalEEMod™ defaults in the model runs unless otherwise noted in the methodology descriptions below. Details regarding the specific methodologies used by CalEEMod™ can be found in the CalEEMod™ User's Guide and associated appendices.[41] The CalEEMod™ output files are provided for reference in Appendix 3.7-E to this report and relevant CalEEMod™ inputs can be found in Tables 1 through 5 of Appendix 3.7-A.

Construction Emissions

This section describes the estimation of GHG emissions from construction activities at the West Campus. There are four major construction phases for an urban redevelopment: demolition, site preparation, grading, and building construction. The building construction phase can be broken down into three subphases: building construction, architectural painting, and asphalt paving. GHG emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting. No GHG emissions that may be associated with landfilling of construction waste

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37 Available at: http://caleemod.com.

38 The EPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. More information is available at http://www.epa.gov/ttnchie1/ap42/.

39 OFFROAD refers to CARB's emissions estimation model and off-road refers to equipment that operate off the road.

40 See the Frequently Asked Questions (FAQs) available at www.caleemod.com for a list of differences between CalEEMod and URBEMIS.

41 Available at: http://www.caleemod.com.

are included in this estimate. The City requires that 60 percent of construction and demolition waste be diverted from landfills.

ENVIRON used CalEEMod™ to assist in quantification of the construction emissions. The construction schedule and equipment list are based on information provided by the Project Sponsor.[42] The CalEEMod™ output includes details on the parameters used to run the emissions estimation program and contains estimated emissions. The Off-road equipment emissions were adjusted from the emissions estimate contained in the CalEEMod™ output to account for a 33 percent reduction attributable to overestimation of load factors, which CARB has indicated to be appropriate.[43] The GHG emissions associated with construction of the West Campus total 1,711[44] MT of CO_2e and are shown in Table 3.7-3 with further details on equipment and vehicle operations emissions associated with construction contained in Tables 6 to 8 of Appendix 3.7-A.

Operational Emissions

Direct emissions from traffic and area sources and indirect emissions from energy, water use, wastewater, and waste management, would occur every year after build out. Emergency generator testing would also occur. This section outlines the operational GHG emissions associated with the Project. ENVIRON used CalEEMod™ to assist in quantification of the operational emissions except for emergency generator testing, which was based on the emission factor from OFFROAD2007 for diesel generators. Where available, site-specific information was used in CalEEMod™, as shown in Tables 1 and 5 of Appendix 3.7-A. For informational purposes only the average carbon intensity emission factor (GHG emissions per activity metric such as kilowatt hours, VMT, etc) for the various source categories that results from using site-specific information can be found in Appendix 3.7-H.

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42 Justin Murphy, Development Services Manager, City of Menlo Park Community Development Department, Planning Division, electric communication with ENVIRON, July 14, 2011. Attachments: Facebook_ Construction_Data_Request_11-07-13.pdf and SCBI_EIR_Response _11-07-13.pdf.

43 In September 2010, the ARB announced that its methods used to estimate the load factor for off-road equipment were incorrect and led to an overestimate of emissions by a factor of at least 33 percent. ARB is currently revising their emissions model, OFFROAD, which has not yet been released. In the meantime, we have received direction from ARB to reduce the load factors by a 33 percent to take into account this error and this will be accounted for into the analysis whether using OFFROAD directly or CalEEMod, which is based on OFFROAD. The slides from the ARB workshop discussing this change are available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/emissions_inventory_presentation_full_10_09_03.pdf.

44 Use of newer model engines and higher Tier (i.e., lower emitting) off-road equipment would only serve in most cases to reduce the GHG emissions. The exceptions are the use of compressed natural gas vehicles which could increase the GHG emissions from off-road vehicles slightly, and the use of diesel particulate filters, which have a small energy penalty associated with them.

Table 3.7-3 Summary of Construction GHG Emissions			
Construction Phase	CO_2e Emissions		
	Equipment	Vehicles	Total
		MT	
Demolition I	56	26	82
Demolition II	108	48	156
Grading I	35	2	38
Grading II	19	2	21
Grading III	13	218	231
OTHER I	64	4	69
OTHER II	26	15	40
Building Construction I	66	44	110
Building Construction II	48	119	167
Building Construction III	49	25	74
Building Construction IV	104	259	363
Building Construction V	53	215	268
Paving	12	14	25
Site Preparation	37	25	63
Coating	1.7	2.7	4.4
Total	**693**	**1,018**	**1,711**

Source: ENVIRON, Table 8 of Appendix 3.7-A. Supporting information in Tables 6 and 7 of Appendix 3.7-A.

Energy use was provided by the Project Sponsor for the baseline usage at the East Campus and the anticipated usage at the East Campus and West Campus.[45] The anticipated energy usage takes into account adjustments in energy use due to higher employee occupancy, improved building system energy use based on the TIs, adjustments to account for California's current building codes and the Project Sponsor's commitment to sustainable efficiencies beyond current building code thresholds. Table 9 of Appendix 3.7-A contains the details of estimating GHG emissions in units of CO_2e associated with electricity and natural gas usage in the buildings. Water usage was based on the water supply assessment found in Appendix 3.7-F of this Draft EIR. Table 10 of Appendix 3.7-A contains the details of estimating GHG emissions in units of CO_2e associated with the water used in the buildings. The quantity of solid waste disposed for both the baseline and the Project was based on a trash analysis provided by the Project Sponsor through the City.[46] Table 11 of Appendix 3.7-A contains the details of estimating GHG emissions in units of CO_2e associated with the amount of waste generated by the occupants of the buildings. The VMT and trips were provided by DKS Associates[47] and the Project Sponsor,[48] respectively. DKS also provided an analysis of employee commute VMT in conjunction with the TDM program (including shuttle buses and vanpools). The weekend trips and

[45] KEMA. Facebook Menlo Park Campus Energy Demands. Memorandum between Erik Dyrr, KEMA and City of Menlo Park. August 2, 2011.

[46] Justin Murphy, Development Services Manager, City of Menlo Park Community Development Department, Planning Division, electric communication with ENVIRON, August 31, 2011. Attachments: Trash Analysis_revised_8_29_11.xlsx.

[47] Paul Stanis, DKS Associates, electronic communication with ENVIRON, October 26, 2011.

[48] Fehr & Peers. Transportation Demand Management Program. August 2011.

VMT were assumed to be 10 percent of the weekday trips provided. Table 12 of Appendix 3.7-A contains the details of estimating GHG emissions in units of CO_2e associated with the traffic from the Project.

As described in Table 13 of Appendix 3.7-A, there would be three diesel-fired emergency generators at the West Campus and there are nine diesel-fired emergency generators at the East Campus for a total of 12 emergency generators of varying sizes. The East Campus emergency generators, if assumed to be tested for 20 hours in a year (as shown in the BAAQMD permits in Appendix 3.7-G), result in 30 MT of CO_2e per year, which would be the same for both the baseline and the Project. The West Campus emergency generators, if assumed to be tested for 30 minutes each month (as specified by the Project Sponsor and shown in Appendix 3.7-G), result in 23 MT of CO_2e per year. Table 13 of Appendix 3.7-A contains the details of estimating the GHG emissions in CO_2e associated with the emergency generator testing.

A summary of GHG emissions from the sources described above is contained in Table 14 of Appendix 3.7-A and Tables 3.7-4 and 3.7-5 below. Based on the methods described above and as shown in the CalEEMod™ output contained in Appendix 3.7-E, the baseline emissions for the East Campus are 27,413 MT of CO_2e per year. The total East Campus emissions are 30,990 MT of CO_2e per year, resulting in incremental East Campus emissions of 3,577 MT of CO_2e per year.

The West Campus emissions are 12,169 MT of CO_2e per year. Therefore, the Project emissions are 3,577 and 12,169 MT of CO_2e per year for the East Campus and West Campus, respectively for a total of 15,747 of MT of CO_2e per year. With the amortized construction emissions included, the Project emissions are 3,577 and 12,226 MT of CO_2e per year for the East Campus and West Campus, respectively for a total of 15,804 MT of CO_2e per year. The detailed information is shown in Table 3.7-4 and Table 3.7-5.

Table 3.7-4
Summary of Operational Emissions

Emission Category	Units	East Campus Increment	West Campus
Area		<0.01	<0.01
Energy Use		-10,638	2,043
Water Use		29	30
Waste Disposed		369	357
Traffic	MT CO_2e/yr	13,817	9,740
Total Emissions		**3,577**	**12,169**
Construction Amortized[a]		NA	57
Total Plus Amortized Emissions		3,577	12,226
Emergency Generator Testing		0	23

Source: ENVIRON, Table 14 of Appendix 3.7-A.
Note:
a. Construction emissions are amortized over a 30-year project lifetime. Total construction emissions are 1,711 MT of CO_2e divided by 30 years is equal to 57 MT/yr.

Table 3.7-5
Summary of GHG Emissions

Category	Units	East Campus Baseline	East Campus	East Campus Increment	West Campus Increment	Total Project Increment
Area		0	0	0	0	0
Energy Use		17,720	7,083	-10,638	2,043	-8,595
Water Use		30	59	29	30	59
Waste Disposed	MT CO_2e/yr	471	840	369	357	726
Traffic		9,192	23,008	13,817	9,740	23,557
Construction Amortized[a]		NA	NA	NA	57	57
Total Emissions		**27,413**	**30,990**	**3,577**	**12,226**	**15,804**
Service Population	SP	3,600	6,600	3,000	2,800	5,800
Emissions per Service Population	**MT CO_2e/SP/yr**	**--**	**--**	**1.2**	**4.4**	**2.7**
BAAQMD Efficiency Metric Significance Threshold				**4.6**		
Emergency Generators	MT CO_2e/yr	30	30	0	23	23
BAAQMD Stationary Source Significance Threshold	MT CO_2e/yr			10,000		

Source: ENVIRON, Table 14 of Appendix 3.7-A.

Note:

a. Construction emissions are amortized over a 30-year project lifetime. Total construction emissions are 1,711 MT of CO_2e divided by 30 years is equal to 57 MT/yr. There are no construction emissions for the TIs for the East Campus.

The GHG emissions shown in Table 3.7-4 reflect Project design features associated with building energy use, water use, and waste disposal. These building design features include an improvement of 20-30 percent above Title 24-2008 energy code for the West Campus, open designed parking structure to reduce the need for fans, Energy Star rated computer equipment and appliances, and a 20 percent reduction in lighting energy used for the East Campus. The emissions associated with traffic reflect the daily trip caps, as well as the TDM program. The discrepancy in scale between the East Campus Increment and West Campus emissions is primarily due to the fact that the existing emissions on the East Campus were removed in the East Campus Increment.

Effects of Climate Change

The effects of climate change are evaluated for two impacts. The first impact is based on the GHG emission inventory according to the methodology outlined above. The second impact is based on consistency with applicable plans, policies, and regulations related to reducing GHG emissions.

Environmental Analysis

CC-1 ***Greenhouse Gas Emissions.*** *The Project, at both the East Campus and West Campus, would result in a net increase in GHG emissions. However, the increase would not exceed the BAAQMD's standards of significance, resulting in a less-than-significant impact. (LTS)*

BAAQMD has adopted thresholds of significance for operational emissions of GHGs for both stationary sources that require a district permit to operate, and projects other than stationary sources.[49] BAAQMD has not adopted a threshold of significance for construction-related emissions, but state in their CEQA Guidelines that the lead agency should quantify and disclose GHG emissions that would occur during construction and make a determination on the significance of these construction generated GHG impacts.[50] While there is no guidance on how to determine the significance of construction GHG emissions in the BAAQMD CEQA guidelines, the SCAQMD has recommended that construction emissions be amortized over a 30 year period and then combined with the operational emissions and compared to the operational emission threshold.[51] This approach is used in this document.

The stationary source threshold for permitted sources is 10,000 MT of CO_2e per year and is used to evaluate the emergency generator testing emissions. For project emissions other than permitted stationary sources, BAAQMD has three options that can be used for comparison based on the lead agency's discretion:[52]

- Compliance with a qualified GHG Reduction Strategy;
- Annual emissions less than 1,100 MT of CO2e per year; or
- 4.6 MT of CO2e per service population[53] per year (MT CO2e/SP/yr).

The BAAQMD Guidelines describe a qualified CAP adopted by a local jurisdiction as including the following:

- GHG Inventory for Current Year and Forecast for 2020 (and for 1990 if the reduction goal is based on 1990 emission levels);
- An adopted GHG Reduction Goal for 2020 for the jurisdiction from all sources (existing and future) which is consistent with AB 32's goals and the AB 32 Scoping Plan;

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49 BAAQMD, *Adopted Air Quality CEQA Thresholds of Significance*. June 2, 2010. website: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Adopted%20Thresholds%20Table_December%202010.ashx?la=en.

50 BAAQMD, *California Environmental Quality Act Air Quality Guidelines*, May 2011. p.p. 2-6.

51 SCAQMD, Draft *Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. October. p.p. 3-8, 2008, website: http://www.aqmd.gov/ceqa/handbook/GHG/2008/oct22mtg/GHGguidance.pdf, accessed November 3, 2011.

52 BAAQMD, *California Environmental Quality Act Air Quality Guidelines*. May 2011, p.p. 2-4.

53 Service population is the sum of residents and employees of a land use development project.

- Identification of feasible reduction measures to reduce GHG emissions for 2020 to the identified target including application of relevant reduction measures included in the AB 32 Scoping Plan that are within the jurisdiction of the local land use authority (such as building energy efficiency, etc.);
- Quantification of the reduction effectiveness of each of the feasible measures identified including disclosure of calculation method and assumptions;
- Identification of implementation steps and financing mechanisms to achieve the identified goal by 2020;
- Procedures for monitoring and updating the GHG inventory and reduction measures at least twice before 2020 or at least every five years;
- Identification of responsible parties for implementation and a schedule for implementation; and
- A certified CEQA document or equivalent.

No relevant jurisdiction (the City, the County, etc.) has a qualified GHG reduction strategy, as described in the BAAQMD Guidelines. Accordingly, compliance with a qualified GHG reduction strategy is not an option. However, for information purposes, the City's CAP, which is not a qualified plan, is described in more detail below. Emissions from a Project of this magnitude are not appropriate to compare to the second threshold, 1,100 MT of CO_2e per year. Accordingly, BAAQMD guidance recommends comparison of emissions from large residential and commercial projects with the third threshold, which is a GHG efficiency metric. GHG efficiency metrics were developed from the emissions rates at the State level for the land use sector that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020).[54] For this Project, the efficiency goal of 4.6 MT CO_2e/SP/yr has been selected by the City, as the Lead Agency, as the threshold of significance for the land use related emissions of the Project combined with the amortized construction emissions.

Consistent with BAAQMD guidance, the threshold of 10,000 MT of CO_2e per year has been selected for emissions associated with the operation of the stationary sources at the Project, which are solely associated with emergency generator testing.

The GHG efficiency metric is calculated separately for the East Campus, the West Campus, and the Project as a whole. For the East Campus, because the Project is related only to increasing traffic at the site and not to any change in use, the efficiency metric is calculated based on the incremental GHG emissions from the incremental service population increase. For

[54] BAAQMD. *Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance*. October 2009, p. 48, website: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Revised%20Draft%20CEQA%20Thresholds%20%20Justification%20Report%20Oct%202009.ashx?la=en, accessed November 3, 2011.

the West Campus, the calculated efficiency metric is based on its Project emissions and service population. For the Project as a whole, the efficiency metric is based on the sum of the incremental GHG emissions at the East Campus and the emissions at the West Campus divided by the sum of the incremental service population at the East Campus and the new service population at the West Campus.

Table 3.7-5 summarizes the GHG emissions and the comparison to the applicable threshold of significance. The emergency generator testing emissions of 23 MT of CO_2e per year for the West Campus[55] are less than the stationary source threshold of 10,000 MT of CO_2e per year. The operational and amortized construction emissions[56] result in 1.2 and 4.4 MT of CO_2e per service population per year for the East Campus and West Campus, respectively, and the combined total for both Campuses of 2.7 MT of CO_2e per service population per year, which is less than the threshold of 4.6 MT of CO_2e per service population per year.

Since the stationary source, amortized construction and operational emissions for the Project are all less than the applicable thresholds of 4.6 MT of GHG emissions per service population or less than 10,000 MT of GHG emissions for the stationary sources, the impact of GHG emissions is ***less than significant***.

Based on the justification that BAAQMD utilized in establishing its threshold of significance for GHGs, it is not necessary to consider the impacts of other foreseeable projects such as the Tier 1and Tier 2 projects. As stated on page 2-1 of BAAQMD's CEQA Guidelines:

> The combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts. BAAQMD's approach to developing a *Threshold of Significance* for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move us towards climate stabilization. If a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant.

As stated above, the Project would not generate GHG emissions above the threshold and, therefore, in combination with present and future projects, would not contribute to a significant cumulative impact.

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55 The East Campus generator already exists and is not a part of this analysis.

56 Construction associated with the TIs for the East Campus are not a part of this Project. Accordingly, only the West Campus's construction emissions are amortized into the operational emissions.

CC-2 ***Conflicts with Applicable Plans and Policies.*** *The Project, at both the East Campus and West Campus, would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, resulting in a less-than-significant impact. (LTS)*

The Project would not pose any explicit conflict with the applicable list of CARB GHG reduction strategies outlined in the Climate Change Scoping Plan designed to meet the objectives of AB 32 to reduce GHG emissions to 1990 levels by 2020. Many of the reduction strategies outlined in the Scoping Plan require Statewide action by government, industry, or both. Some of the measures are applicable to the Project that do not require government action, such as improving building energy use, green buildings, water use efficiency, and solid waste reduction through recycling, all of which have been incorporated as part of the Project.

The Project is consistent with AB 32 goals by virtue of the City's reliance on the BAAQMD's AB 32 derived per-capita efficiency threshold of 4.6 MT of CO_2e per service population per year under Impact CC-1, above. The BAAQMD threshold was based on the 1990 GHG emission level divided by the service population for 2020. Since the Project's GHG emissions fall below this BAAQMD threshold derived from AB 32 attainment goals, the Project would not conflict with AB 32 and its associated planning efforts.

The City's General Plan does not include policies explicitly designed to address GHG emissions and climate change. However, a number of goals and policies in the General Plan would play a role in planning efforts to reduce GHG emissions. The Project would be consistent and would not conflict with a variety of General Plan policies, as listed earlier in this document under Applicable Plans and Regulations.

In 2009, the City published a CAP that outlines a number of municipal and community emissions reduction strategies. In 2011, a CAP Assessment Report was published, which evaluates the recent GHG emissions and suggests new GHG reduction strategies to consider. On July 26, 2011, the City Council approved that the strategies listed in this new assessment replace the strategies from the 2009 CAP. The Project would not conflict with implementation of the CAP. In fact, many sustainability strategies incorporated by the Project would be consistent with the CAP. Table 3.7-6, presents the community strategies contained in the CAP and correlates each to a specific element or mitigation measure of the Project that address the strategy. A review of the table indicates that the Project is consistent with all of the strategies that would reasonably be applicable to a land use development project.

For example, the Project would aim to reduce automobile dependence by improving bicycle infrastructure. This goal would help reinforce the CAP's strategies to implement bike improvements and to implement TDM strategies. Another strategy included in the Project relates to the CAP's goal to encourage larger local businesses to install recharging stations for electric vehicles and plug-in hybrid electric vehicles.

Beyond the goals of AB 32, Executive Order S-3-05 sets a goal of reducing emissions to 80 percent below 1990 emissions by 2050. AB 32 met one of S-3-05 objectives of reducing GHG emissions to 1990 levels by 2020. At this time, no specific strategies have been identified to reach the 2050 goal. The technologies needed to reach this goal are unknown and speculative but will likely be a result of technologies that reduce building energy use, water use, improve vehicle economy and decarbonization of the fuel supply for vehicles and electricity generation. Furthermore, it is unknown if the Project would be around at this time or have been modified from the use and design evaluated in this Draft EIR, as land uses may change within this time frame. Therefore, it is too speculative at this time to assess if the Project is consistent with the GHG emission goal for 2050.

MTC and ABAG are responsible for developing the local SCS which implements SB 375 GHG reductions. The SCS has not been developed at this time and, therefore, there is nothing to compare the Project to for consistency with this regulation and plan.

Based on the discussion above, the Project would not conflict with any applicable plans or policies that do not require speculation as to future emission reductions that could occur based on technologies not yet developed. Therefore, the Project's impact relative to conflicts with applicable Plans and Policies would be ***less than significant***.

Table 3.7-6
Climate Action Plan Strategies to be Implemented at the Community Level

CAP Strategies	Project Compliance
Energy Efficiency	
Consider adopting Sustainable Development/ Green Building standards that exceed California's 2010 Green Building Code (CalGreen) for Residential and Commercial	The Project would implement the mandatory CalGreen requirements and would exceed the mandatory requirements in some of the categories of the Code. The Project incorporates sustainability strategies reflected in the Leadership in Energy and Environmental Design (LEED) rating system developed by the U.S. Green Building Council. These programs would reduce energy consumption beyond current code requirements.
Consider actively marketing and providing additional incentives for residents to participate in the new Regional Energy Upgrade California Program	This strategy is not applicable to local development as it is a City-sponsored education program designated for further study.
Expand Menlo Park Municipal Water District Conservation Programs	This strategy designated for further study would implement further water conservation programs such as installation of artificial turf at playing fields and gray-water recycling. LEED designated construction strategies proposed by the Project would install low flow water facilities in new and redeveloped construction and would not conflict with this pending effort to reduce water demand.
Consider developing an Energy Efficiency/ Renewable Energy Program for Residential sector	This strategy is not applicable to local development as it is a City sponsored program designated for residential sector and not commercial.

Table 3.7-6
Climate Action Plan Strategies to be Implemented at the Community Level

CAP Strategies	Project Compliance
Develop a commercial energy efficiency program to encourage businesses to participate in a free energy efficiency audit when business license is issued or renewed	This strategy is not applicable to local development as it is a City-sponsored program designated for further study.
Consider local energy efficiency and renewable energy financing program	This strategy is not applicable to local development as it is a City-sponsored program designated for further study.
Consider development of an ordinance for energy and water efficiency standards for transfer of title transactions	This strategy is not applicable to local development as it is a City-sponsored program designated for further study.
Transportation	
Consider amending the City's General Plan to include new sustainability policies, goals and programs	These strategies are designated for further study and would be City-sponsored policies, goals and programs that are not developed at this time and therefore not applicable to the Project.
Consider social marketing programs/ campaigns to promote alternative transportation (walking, biking, public transit, etc.)	This strategy is not applicable to local development as it is a City-sponsored education program designated for further study. The Project's TDM program already includes this.
Consider implementation for City Car Sharing Program	The Project would have parking spaces available for the implementation of car share programs.
Implement Bike Improvements	The Project would include bicycle storage facilities and showers and changing rooms.
Solid Waste	
Consider adopting a Zero Waste Policy with 75% diversion by 2020 and 90% diversion by 2030.	These strategies are designated for further study and would be City-sponsored infrastructure and/or ordinance efforts to reduce solid waste disposal that would not be applicable to a land use project.
Consider adopting a mandatory Commercial Recycling Ordinance	These strategies are designated for further study and would be City-sponsored infrastructure and/or ordinance efforts to reduce solid waste disposal that would not be applicable to a land use project. The Project would have recycling.
Other	
Establish Climate Action Plan monitoring and progress reporting program	These strategies are designated for further study and would be City-sponsored policies, goals, and programs that are not applicable to the Project.
Expand Green Business Certification Program/Include Green Business education to new business permit applicants	This strategy is not applicable to local development as it is a City-sponsored education program designated for further study.
Consider amending the City's General Plan to include a "GHG Reduction Strategy" as outlined in the new CEQA Guidelines	These strategies are designated for further study and would be City sponsored policies, goals and programs that are not developed at this time and therefore not applicable to the Project.
Develop social marketing campaign to educate residents on reducing their personal greenhouse gas emissions.	This strategy is not applicable to local development as it is a City sponsored education program designated for further study.
Develop a promotion and education program to encourage local and or organic food production	This strategy is not applicable to local development as it is a City sponsored education program designated for further study.

Table 3.7-6
Climate Action Plan Strategies to be Implemented at the Community Level

CAP Strategies	Project Compliance
Consider an educational program and/or local ordinance to limit vehicle idling	This strategy is not applicable to local development as it is a City-sponsored program and ordinance designated for further study. Additionally, the California Air Resources Board has already implemented a heavy-duty truck idling emission reduction program that restricts truck idling to five minutes.
Research opportunities to improve methane capture at Marsh Road Landfill (Methane Emissions Mitigation)	These strategies are designated for further study and would be City-sponsored infrastructure and/or ordinance efforts to reduce emissions from solid waste disposal at a specific facility that would not be applicable to a land use project.

Source: ENVIRON, 2011; City of Menlo Park, 2009.

3.8 NOISE

Introduction

This section describes the ambient, or background, noise conditions in the vicinity around the Project area and key noise sources (primarily traffic noise along Bayfront Expressway and Willow Avenue) that contribute to those ambient conditions. This section also evaluates the potential for noise and ground-borne vibration impacts resulting from construction and operation of the Project. More specifically, the evaluation addresses the potential for the Project to cause a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the Project area. In addition, the analysis considers whether the Project would cause exposure to off-site residents and schools (e.g., in the Belle Haven neighborhood) or nearby businesses to noise levels or ground-borne vibration in excess of standards established in the City of Menlo Park General Plan (General Plan) and Noise Ordinance, or any other applicable standards.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. The main issue that was identified pertains to traffic noise generated by the Project. This issue is addressed in the section.

Applicable Plans and Regulations

Local

City of Menlo Park General Plan. The California Government Code requires that a noise element be included in the general plan of each county and city in the State. The noise element establishes the local government's goals, objectives, and policies relating to noise control.

The Noise Element of the General Plan[1] establishes goals and policies for assuring that existing and proposed land uses are compatible with their noise environments. To this end, the City has adopted quantitative exterior noise compatibility criteria for various land uses. The purpose of these criteria is to reduce the potential adverse effects of noise on people, including sleep disturbance, interference with speech communication, and the general sense of dissatisfaction that is often associated with high noise exposure. Under the City's Noise Element, noise levels up to 60 dBA Community Noise Equivalent Level (CNEL) are considered normally acceptable for residential and hotel uses, while noise levels are conditionally acceptable up to 70 dBA CNEL for these uses, as long as noise insulation features are included in the design to reduce interior noise levels. For parks, noise levels up to 60 dBA CNEL are normally acceptable and 65 dBA are conditionally acceptable. For office and industrial uses, noise levels up to 70 dBA CNEL are considered normally acceptable, and 75 dBA CNEL are conditionally acceptable.

The Noise Element aims "to prevent the escalation of noise levels in areas where noise-sensitive uses are located," and requires that pre-development environmental studies "analyze in detail the potential

[1] City of Menlo Park, Menlo Park General Plan, Noise Element, adopted November 14, 1978.

noise impacts of any actions that the City may take or act upon which could significantly alter noise levels in the community."

The following goal and policies from the Noise Element of the City's General Plan pertain to the Project.

> **Goal:** To prevent the escalation of noise levels in areas where noise-sensitive uses are located.
>
> *Policy:* Analyze in detail the potential noise impacts of any actions that the City may take or act upon which could significantly alter noise level in the community.
>
> *Policy:* Encourage creative solutions when potential conflicts between noise levels and land use arise.
>
> *Policy:* Control unnecessary, excessive and annoying noises within the City where not preempted by Federal or State control.
>
> *Policy:* Enforce applicable Federal and State laws.

City of Menlo Park Municipal Code. In addition to the General Plan, noise regulations are also contained in the City of Menlo Park Municipal Code (Municipal Code). Chapter 8.06 of the Municipal Code contains noise limitations and exclusions for land uses within the City. The Noise Ordinance addresses noise limits that would constitute a noise disturbance, primarily as measured on residential land uses. The following regulations would be applicable to the Project:

8.06.030 Noise Limitations

a. Except as otherwise permitted in this chapter, any source of sound in excess of the sound level limits set forth in Section 8.06.030 shall constitute a noise disturbance. For purposes of determining sound levels from any source of sound, sound level measurements shall be made at a point on the receiving property nearest where the sound source at issue generates the highest sound level.

    1. For all sources of sound measured from any residential property:

        A. "Nighttime" hours—fifty (50) dBA

        B. "Daytime" hours—sixty (60) dBA

8.06.040 Exceptions

a. Construction Activities

    1. Construction activities between the hours of eight (8) a.m. and six (6) p.m. Monday through Friday.

    4. Notwithstanding any other provision set forth above, all powered equipment shall comply with the limits set forth in Section 8.06.040(b).

b. Powered Equipment

1. Powered equipment used on a temporary, occasional or infrequent basis operated between the hours of eight (8) a.m. and six (6) p.m. Monday through Friday. No piece of equipment shall generate noise in excess of eighty-five (85) dBA at fifty (50) feet.

c. Deliveries

1. Deliveries to food retailers and restaurants.
2. Deliveries to other commercial and industrial businesses between the hours of seven (7) a.m. and six (6) p.m. Monday through Friday and nine (9) a.m. to five (5) p.m. Saturdays, Sundays and holidays.

8.06.050 Exemptions

a. Sound Generated by Motor Vehicles. Sound generated by motor vehicles, trucks and buses operated on streets and highways, aircraft, trains, and other public transport.

1. This exemption shall not apply to the operation of any vehicle including any equipment attached to any vehicle (such as attached refrigeration and/or heating units or any attached auxiliary equipment) for a period in excess of ten (10) minutes in any hour while the vehicle is stationary, for reasons other than traffic congestion.

Existing Conditions

Fundamentals of Sound and Environmental Noise

Sound. Sound is created when objects vibrate, resulting in air pressure variations characterized by their amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude is the decibel (dB).[2] The pitch of the sound is related to the frequency of the pressure variation. The human ear's sensitivity to sound is frequency dependent. The A-weighted decibel scale ("dBA") modifies the dB levels to better approximate the frequencies heard by a human ear.

Environmental Noise. Noise is "unwanted" sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background is the noise from individual distinguishable local sources, such as aircraft overflights or traffic on adjacent roadways. Table 3.8-1 identifies representative environmental noise levels.

[2] The decibel scale is logarithmic rather than arithmetic. In an arithmetic sequence, the numbers in the sequence follow a pattern of adding a fixed number from one number to the next in the sequence. For example, in the following sequence, the number 3 is added from one number to the next: 1, 4, 7, 10, 13. In a logarithmic sequence, the numbers in a sequence represent a fixed base number raised by consecutive exponents. Because the base is multiplied by exponents, the difference between numbers in the sequence is not constant. For example, the logarithm of 10 to base 10 is 1, the logarithm of 100 to base 10 is 2, and the logarithm of 1000 to base 10 is 3. So this sequence to base 10 would be: 10, 100, 1000. When adding two noise sources, the noise levels cannot be added arithmetically. Two noise sources generating 65 dBA do not result in a nose level of 130 dBA. A doubling of sound level results in an increase in sound level of 3 dBA.

Table 3.8-1
Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Threshold of Human Hearing	—0—	Threshold of Human Hearing

Source: California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, October 1998.

Several descriptors are commonly used to gauge the noise exposure of individuals and communities. These descriptors are sensitive to noise intensity over time and, in some cases, to the time of day when the noise occurs. Those that are applicable to this analysis are described below.

- **Equivalent Energy Noise Level (L_{eq})**,the equivalent energy noise level, is the average acoustic energy content of noise over any chosen exposure time. The L_{eq} is the constant noise level that would deliver the same acoustic energy to the ear as the actual time-varying noise over the same exposure time. L_{eq} does not depend on the time of day during which the noise occurs.
- **Day-Night Average Noise Level (L_{dn})**, the day-night average noise level, is a 24-hour average L_{eq} with a 10 dBA "penalty" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for increased nighttime noise sensitivity. Because of this penalty, the L_{dn} is always higher than its corresponding 24-hour L_{eq} (e.g., a constant 60 dBA noise over 24 hours would have a 60 dBA L_{eq}, but a 66.4 dBA L_{dn}).

- **Community Noise Equivalent Level (CNEL)**, similar to Ldn, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and an additional 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. L_{dn} and CNEL are typically within one dBA of each other and, for all intents and purposes, are interchangeable.[3]

The decibel level of a sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a single point source such as a piece of mechanical equipment, the sound level normally decreases by about 6 dBA for each doubling of distance from the source. Sound that originates from a linear, or "line" source such as a heavily traveled traffic corridor, attenuates by approximately 3 dBA per doubling of distance, provided that the surrounding environment is "hard" (i.e., streets, concrete areas, etc.). Noise from less heavily traveled roadways in "soft" environments (i.e., vegetation) attenuates more rapidly, at about 4.5 dBA for each doubling of distance. Other factors that typically affect sound propagation in an outdoor environment are structural barriers and atmospheric conditions.

Community noise environments are generally perceived as "quiet" when the 24-hour average noise level is below 45 dBA, "moderate" in the 45 to 60 dBA range, and "loud" above 60 dBA. Very noisy urban residential areas are usually around 70 dBA L_{dn}/CNEL. Along major thoroughfares, roadside noise levels are typically between 65 and 75 dBA L_{dn}/CNEL. Three to five dBA increments to existing one-hour L_{eq}, or to the L_{dn}/CNEL are commonly used as thresholds for an adverse community reaction to a noise increase. However, there is evidence that incremental thresholds in this range may not be sufficiently protective in areas where noise sensitive use are located and L_{dn}/CNEL is already high (i.e., above 60 dBA); in these areas, limiting noise increases to 3 dBA or less is recommended.[4] Noise intrusions that cause short-term interior levels to rise above 45 dBA at night can disrupt sleep. Eight-hour or longer exposures to noise levels greater than 85 dBA can cause permanent hearing damage.

Ground-borne Vibration. Vibrating objects in contact with the ground radiate energy through that medium; if a vibrating object is massive enough and/or close enough to the observer, its vibrations are perceptible. Ground-borne vibration is measured by its peak particle velocity (PPV). The PPV is normally described in inches per second. PPV is appropriate for determining potential structure damage, but does not evaluate human response to vibration. The ground motion caused by vibration is also given in decibel notation, referenced as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration relative to human response.[5] The general human response to different levels of ground-borne vibration velocity levels is described in Table 3.8-2. The rumbling sound caused by the vibration of room surfaces is called ground-borne noise. Like broadband noise, ground-borne noise is measured in dBA. The sound level accompanying vibration is generally

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[3] City of Menlo Park, *City of Menlo Park General Plan Noise Element*, November 1978.

[4] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

[5] Federal Railroad Administration, *High Speed Ground Transportation Noise and Vibration Impact Assessment,* October 2005.

25 to 40 dBA lower than the vibration velocity level in VdB. Due to the low-frequency components of ground-borne noise, ground-borne noise sounds louder than broadband noise with the same noise level. Ground-borne vibration levels of 65 VdB can result in ground-borne noise levels up to 40 dBA, which can disturb sleep. Ground-borne vibration levels of 85 VdB can result in ground-borne noise levels up to 60 dBA, which can be annoying to daytime noise sensitive land uses such as schools.[6]

Table 3.8-2
Human Response to Different Levels of Ground-borne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06, May 2006.

The background vibration velocity level in residential areas such as the Belle Haven neighborhood is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are heavy construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

Existing Noise Levels

The East Campus and West Campus are separated by Bayfront Expressway/State Route (SR) 84, which runs in an east-west direction between the two campuses. The East Campus is bound by the tidal mudflats and marshes of the San Francisco Bay (Bay) and Ravenswood Slough to the north and west, and Bayfront Expressway to the east and south, including the Bay Trail that runs along the southern portion of the East Campus, directly adjacent to Bayfront Expressway. The West Campus is bound by Bayfront Expressway to the north, Willow Road and a vacant lot to the east, the Dumbarton Rail Corridor to the south, and the TE Connectivity site to the west. The Dumbarton Rail Corridor is currently not in use for any railroad operations. Therefore, the rail corridor is not an existing source of noise in the area. South of the Dumbarton Rail Corridor are noise sensitive land uses, such as the Belle Haven neighborhood west of Willow Road, the residences in East Palo Alto east of Willow Road, Willow Oaks Elementary School, Belle Haven Elementary School, Beechwood School, Mid-Peninsula High School, and Caesar Chavez Elementary School. Vehicular traffic is the primary source of noise in the Project vicinity.

[6] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* FTA-VA-90-1003-06, May 2006.

Existing daytime noise levels were measured at five locations around and within the Project area on July 26, 2011. These locations were selected to represent existing noise levels at the Project site and existing sensitive receptors (i.e., land uses that are particularly sensitive to changes in the noise environment, such as residences, schools, convalescent homes, and churches) within the Project vicinity. These locations are identified in Figure 3.8-1. Each measurement location is described and the average, minimum, and maximum noise levels measured at each of these locations are presented in Table 3.8-3. These short-term noise measurements were used as noise reference levels to calibrate the Federal Highway Administration (FHWA) traffic noise model (FHWA Highway Noise Prediction Model (FHWA-RD-77-108)) that was used to determine existing daily average noise exposure and the future impacts of added traffic from the Project and other development.

Table 3.8-3
Daytime Noise Levels Measurements at Selected Locations in/around the Project Area

			Noise Level Statistics[a,b]		
	Noise Measurement Location/Time	**Primary Noise Sources**	L_{eq}	L_{min}	L_{max}
#1	Bayfront Expressway at the entrance to West Campus; start time: 8:59:00 AM	Traffic on Bayfront Expressway	78.1	63.0	93.8
#2	Marsh Road at Florence Street; residential neighborhood; start time: 9:10:00 AM	Traffic on Marsh Road	79.6	65.1	94.4
#3	Willow Road at Alberni Street; residential neighborhood; start time: 7:33:00 AM	Traffic on Willow Road	75.2	62.7	89.5
#4	Willow Road between O'Keefe Street & South Perimeter Road; on Willow Oaks Elementary School campus; start time: 9:54:00 AM	Traffic on Willow Road	75.0	60.6	88.6
#5	University Avenue at Notre Dame Avenue; residential neighborhood; start time: 8:05:00 AM	Traffic on University Avenue	75.3	64.9	88.4

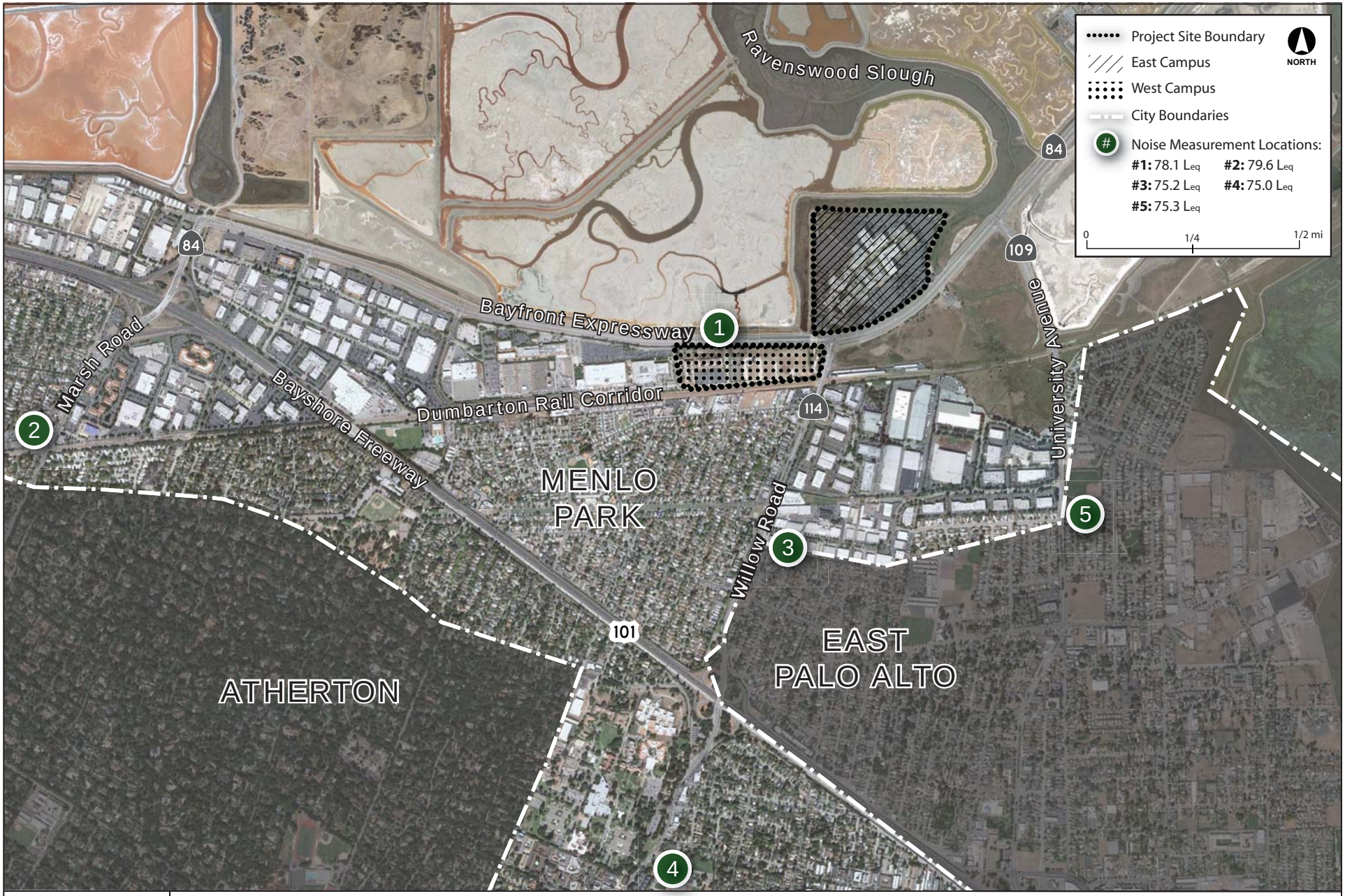
Source: Atkins, 2011. See Appendix 3.8 for data sheets.

Notes:

a. Measurements were taken on July 26, 2011. Each measurement was 15 minutes in duration and was conducted during the AM peak period. Noise levels are assumed to be similar during the PM peak period.

b. L_{eq} is the average noise level over the measurement period, L_{min} is the minimum instantaneous noise level measured during the 15-minute period, while L_{max} is the maximum instantaneous noise level measured during the 15-minute period.

The FHWA Highway Noise Prediction Model was used to calculate the existing 24-hour traffic noise levels (CNEL) at noise-sensitive uses close to where the noise measurements were taken; the modeled CNEL at these locations is presented in Table 3.8-4. The traffic noise levels vary from the measured CNEL because the traffic noise levels represent the CNEL at the sensitive receptor closest to the centerline of the roadway, while some of the noise measurements were taken at a greater distance from the roadway centerline. The existing traffic-generated CNEL are above the City's 60 dBA CNEL standard, described below under Applicable Plans and Regulations, at all of the noise-sensitive locations modeled due to the high volumes of traffic on these roadways, particularly heavy trucks and buses. The noise level at the West Campus boundary is above the City's normally acceptable standard of 70 dBA CNEL for office land uses, but does not exceed the conditionally acceptable standard of 75 dBA CNEL.



Source: Google Earth; Atkins, 2011.

ATKINS

FIGURE 3.8-1
Noise Measurement Locations

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Menlo Park Facebook Campus Project

Table 3.8-4
Existing (Year 2011) Traffic Noise Levels at Selected Locations in the Vicinity of the Project Area (CNEL)

Location/Roadway	CNEL (dBA)[a,b,c]
Bayfront Expressway (Chrysler Drive to Chilco Street)	
At a point 75 feet from centerline of Bayfront Expressway, the distance of the West Campus boundary from the roadway centerline	73
Marsh Road (Scott Drive to Bohannon Drive)	
Residences 50 feet from centerline of Marsh Road	**82**
Willow Road (O'Brien Drive to Newbridge Street)	
Residences 75 feet from centerline of Willow Road	**77**
Willow Road (Durham Street to Coleman Avenue)	
Willow Oaks Elementary School playground, 75 feet from centerline of Willow Road	**72**
University Avenue (O'Brien Drive to Kavanaugh Drive)	
Residences 50 feet from centerline of University Avenue	**75**

Source: FHWA Highway Noise Prediction Model. See Appendix 3.8 for model output.

Notes:

a. Measurements rounded to the nearest decibel.

b. Peak hour intersection traffic volumes provided by DKS Associates were utilized to determine segment volumes near the sensitive receptors. Peak hour volumes were multiplied by ten, based on the assumption that peak hour volumes account for approximately 10 percent of daily traffic.[7] The vehicle mix was adjusted to calibrate the model to reflect the measured noise levels in Table 3.8-3. Section N-2231 of the Caltrans Technical Noise Supplement was used to convert the measured L_{eq} to CNEL.[8] The estimated CNEL is almost equal to the measured Leq, which is typical.[9]

c. Instances where existing exterior noise exposures exceed applicable normally acceptable and conditionally acceptable City Noise Element standards for the specific land use are shown in **bold**.

Existing Ground-borne Vibration Levels

The most common sources of ground-borne vibration in the Project area and the City are construction activities and roadway truck traffic. Heavy trucks currently transport goods and materials along the streets surrounding the Project area (i.e., Bayfront Expressway, University Avenue, Willow Road). Large delivery trucks typically generate ground-borne vibration velocity levels around 63 VdB at 50 feet from the source, and these levels could reach 72 VdB where trucks pass over an uneven road surface.[10] As described above, the vibration velocity level threshold of perception for humans is approximately 65 VdB, and 75 VdB is the approximate dividing line between barely perceptible and

[7] Federal Highway Administration, *Travel Model Improvement Program - Time-of-Day Modeling Procedures Report*, February 1997.

[8] California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, October 1998.

[9] California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, October 1998.

[10] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

distinctly perceptible levels. Therefore, existing traffic vibration is neither distinctly nor generally perceptible. Additionally, vibration velocity levels around 63 Vdb would generally not produce ground-borne noise that would disturb sleep.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinances, or the applicable standards of other agencies.
- Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the Project vicinity above existing levels.
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above existing levels.
- Be located within an airport land use plan or, where such a plan has not been adopted, a public or private airstrip within two miles of the Project site, and expose people residing or working in the Project area to excessive noise levels from an airport.

Methodology

Analysis of the existing and future noise environment is based on noise level monitoring, noise prediction computer modeling, and empirical observations of receptor noise exposure characteristics. Existing noise levels were monitored at selected locations on and around the Project area (see Table 3.8-3) using a Larson-Davis Model 820 sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Noise modeling procedures involved the use of the FHWA Highway Noise Prediction Model to calculate existing and future vehicular noise levels at the Project site and selected noise-sensitive uses in the Project vicinity, especially off-site residences and schools. Noise sensitive uses were selected based on their proximity to the projected routes for Project-related traffic, which include Bayfront Expressway, University Avenue, Willow Road, and Marsh Road. The model calculates the noise level for a particular reference set of input conditions, using site-specific input criteria such as traffic volumes, distances, roadway speeds, and vehicle mix. Peak hour intersection traffic volumes provided by DKS Associates were utilized to determine segment volumes near the sensitive receptors. The vehicle mix (i.e., the proportion of automobiles, trucks, buses, and other vehicles) for future and Project-related traffic was adjusted consistent with the existing conditions vehicle mix, which was adjusted to reflect the measured noise levels in Table 3.8-3.

The Federal Transit Administration (FTA) incremental traffic noise impact criteria are used to assess impacts associated with traffic noise.[11] Rather than establishing fixed criteria to define noise impacts, the FTA's impact criteria become progressively more stringent as the baseline traffic noise levels increase. Thus, these criteria are more protective of communities with high noise exposure, which is typical of the neighborhoods near the Project and where Project-related traffic would pass. Specifically, where the baseline L_{dn} is less than 60 dBA, a permanent increase in roadway traffic noise levels of more than 3 dBA over baseline ambient noise levels is considered to be substantial and, therefore, significant. Where the baseline L_{dn} is between 60 dBA and 65 dBA, a permanent increase in roadway traffic noise levels of more than 2 dBA over baseline ambient noise levels is considered to be substantial and, therefore, significant. Where the baseline L_{dn} is between 65 dBA and 75 dBA, a permanent increase in roadway traffic noise levels of more than 1 dBA over baseline ambient noise levels is considered to be substantial and, therefore, significant. Where the baseline L_{dn} is over 75 dBA, any permanent increase in roadway traffic noise levels over baseline ambient noise levels is considered significant.

This analysis uses the General Plan's land use compatibility guidelines and the City's Noise Ordinance to assess the noise exposure of land uses in the Project vicinity. The General Plan sets the following thresholds for noise impacts: 60 dBA CNEL for residential land use and 70 dBA L_{dn} for office building, business, and commercial areas. The Noise Ordinance establishes a noise level limit of 60 dBA at residential land uses for short-term increases in noise, and a noise level limit of 85 dBA at 50 feet for operation of construction equipment.

Neither the General Plan nor the Noise Ordinance establishes thresholds for ground-borne vibration or noise. The FTA vibration impact thresholds for infrequent events are used to assess vibration. Infrequent events are defined as fewer than 30 vibration events of the same kind per day. These thresholds are 65 VdB at vibration-sensitive land uses and 80 VdB at residences and buildings where people normally sleep (e.g., nearby residences). The thresholds for ground-borne noise are 65 VdB for buildings where people sleep, and 85 Vdb during the day for noise-sensitive land uses.

Impacts Not Evaluated In Detail

The following impacts are not evaluated in detail because there would be no impact as a result of implementing the Project (East Campus and West Campus).

The Project at the East Campus would not include major construction activities such as demolition, grading and ground clearing, foundation installation, or pile driving. No heavy construction equipment would be required. Therefore, no noise impact would result from construction on the East Campus.

The closest airport to the Project site (East Campus and West Campus) is the Palo Alto Airport Terminal, located approximately 2.25 miles southeast of the East Campus. This general aviation airport does not serve commercial aviation and has one runway; the majority of the aircraft operations

[11] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

are small single engine planes.[12] This airport does not have an adopted Airport Land Use Compatibility Plan and the Project site is more than two miles from the airport. Additionally, this airport has noise abatement policies and procedures in place to limit aircraft noise during departures and landings.[13] Therefore, neither the East Campus nor the West Campus would be exposed to excessive noise from this airport. The closest airport with an adopted airport land use plan is the San Carlos Airport, located five miles north of the West Campus. This airport is included in the San Mateo County Comprehensive Airport Land Use Plan, adopted in December 1996. The Project site is not located within the 55 dBA noise contour of this airport.[14] There would be no impact related to operations from public or private airports, and therefore, this impact is not further evaluated.

Environmental Analysis

NO-1 ***Exposure to Excessive Noise Levels.*** *Implementation of the Project, at both the East Campus and West Campus, could result in an increase in the exposure of people to noise potentially in excess of the standards established in the General Plan or Municipal Code:*

- *The increase in vehicular traffic associated with implementation of both the East Campus and West Campus could result in an increase in the exposure of off-site noise sensitive receptors to noise levels potentially in excess of the standards established in the General Plan or Municipal Code. This impact would be potentially significant. (PS)*
- *The East Campus would not increase the exposure of people to noise in excess of the standards established in the General Plan or Municipal Code. This impact would be less than significant. (LTS)*
- *The West Campus could increase the exposure of people to noise in excess of the standards established in the General Plan or Municipal Code. This impact would be potentially significant. (PS)*

Exposure of Off-site Receptors. As noted earlier under the "Existing Conditions," existing residential uses and schools in the Project vicinity, such as along Willow Road, Marsh Road, and University Avenue, are currently exposed to noise levels in excess of the City standards of 60 dBA CNEL for residential uses due to heavy traffic. The addition of Project-related traffic would further increase traffic noise levels above the City's standards for residential uses. Because the existing noise levels along the major arterials in the City are above the City standards, these noise levels would continue to be above the City standards in the near-term and long-term future with the addition of Project-related traffic. As discussed under "Methodology," because existing noise levels are above the City standards, the significance threshold is based on whether the Project's incremental increase would be considered

[12] AirNav.com, "KPAO – Palo Alto Airport of Santa Clara County," website: http://www.airnav.com/airport/KPAO, accessed August 7, 2011.

[13] County of Santa Clara Airports Department, "Noise Abatement Policy/Recommended Procedures," 2007, website: http://www.countyairports.org/PAO_Facts.htm, accessed July 25, 2011.

[14] County of San Mateo, San Carlos Airport Master Plan Update Airport Modernization Project Draft Environmental Impact Report, 2002.

significant. The Project's incremental noise effect is shown in Table 3.8-5. As shown in this table, operation of the Project and the increase in traffic associated with implementation of the Project would result in a maximum noise level increase of 1 dBA. In the short-term, operation of the East Campus would result in a 1 dBA increase on Willow Road compared to existing conditions. The Project would also result in a 1 dBA increase on Marsh Road in the near-term. Similarly, under operation of both the East Campus and West Campus, there would be a 1 dBA increase in the near-term and long-term traffic scenarios. However, using FTA guidance, a 1 dBA increase is considered significant when the noise level without the Project is 75 dBA CNEL or higher. Therefore, the Project would result in a significant incremental increase to noise levels at identified sensitive uses on Marsh Road and Willow Road, and this impact would be considered ***potentially significant.***

Table 3.8-5
Project Increment to Existing and Future Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a]	Traffic Noise Level Without Project	Traffic Noise Level With Project	Increase in Noise Level as a Result of Project	Allowable Increase[b]	Significant Impact?
Existing Conditions and Baseline Traffic Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	73	73	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	82	82	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	**77**	**78**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	72	72	0	1	No
University Avenue - O'Brien Drive to Kavanaugh Drive	75	75	0	0	No
Near Term Project I Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	**82**	**83**	**+1**	**0**	**Yes**
Willow Road - O'Brien Drive to Newbridge Street	**78**	**79**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	73	73	0	1	No
University Avenue - O'Brien Drive to Kavanaugh Drive	75	75	0	0	No
Near Term Project II Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	**79**	**80**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	73	73	0	1	No

Table 3.8-5
Project Increment to Existing and Future Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a]	Traffic Noise Level Without Project	Traffic Noise Level With Project	Increase in Noise Level as a Result of Project	Allowable Increase[b]	Significant Impact?
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No
Long Term Project I Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	79	79	0	0	No
Willow Road - Durham Street to Coleman Avenue	**73**	**74**	**+1**	**1**	**Yes**
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No
Long Term Project II Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	**79**	**80**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	**73**	**74**	**+1**	**1**	**Yes**
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No

Source: FHWA Highway Noise Prediction Model. See Appendix 3.8 for model output.

Notes:

a. Sensitive receptor and receptor distance from roadway centerline are:
   1. Bayfront Expressway (Chrysler Drive to Chilco Street): West Campus boundary, 75 feet from centerline of Bayfront Expressway
   2. Marsh Road (Scott Drive to Bohannon Drive): Residences 50 feet from centerline of Marsh Road
   3. Willow Road (O'Brien Drive to Newbridge Street): Residences 75 feet from centerline of Willow Road
   4. Willow Road (Durham Street to Coleman Avenue): Willow Oaks Elementary School playground, 75 feet from centerline of Willow Road
   5. University Avenue (O'Brien Drive to Kavanaugh Drive): Residences 50 feet from centerline of University Avenue

b. Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

c. Refer to Section 3.5, Traffic and Circulation, for a description of the traffic scenarios.

Significant impacts shown in **Bold.**

Exposure of On-Site Receptors. Operation of the Project would consist of typical office operations. Noise sources associated with office uses include an increase in human activity; heating, ventilation, and air conditioning (HVAC) systems; parking lot and garage noise; truck

pick-ups and deliveries; and emergency generator testing. The potential for these noise sources to exceed the City's noise standards is discussed below.

East Campus

General On-site Activity. The exterior noise levels on the East Campus would incrementally increase, because with implementation of the Project, the East Campus would accommodate up to approximately 6,600 employees, an increase of 3,000 employees over existing conditions. The noise level for commercial areas is approximately 65 dBA.[15] Human activity in a commercial area would be similar to an office park, including normal conversation and people walking to and from their cars. However, noise from human activity on the East Campus would continue to vary throughout the day. Activity would be concentrated in common areas between buildings towards the middle of the site. Activity would mostly occur during the beginning and end of the work day and during lunch hours; however, the outdoor common areas on campus are intended to encourage informal gatherings throughout the day. Exterior activity and noise levels would be minimal when most employees are inside working and outside of working hours. Additionally, noise would be limited to the center and northwest areas of the East Campus where the office buildings and common areas are located.

Trucks used for pick-up and deliveries at the East Campus would also result in intermittent noise, such as engines idling and beeping from backing warning signals. Truck deliveries are an existing condition; however, the increase in employment would result in an increase of on-site activity that could potentially require additional deliveries. Nonetheless, truck deliveries to the East Campus would involve small-scale deliveries of supplies to the offices, pop-up retail, and food service amenities. Trucks are exempted from the City's short-term noise level limit of 60 dBA at residential land uses, provided the trucks do not idle for more than 10 minutes. State law currently prohibits heavy-duty diesel delivery trucks from idling more than five minutes.[16] Additionally, given the short duration and relative infrequency of truck trips to the campus, truck deliveries would not be a source of excessive ambient noise. Therefore, impacts related to truck deliveries would be ***less than significant.***

Assuming an existing noise level of 65 dBA at the campus structures during the peak activity hours, doubling the number of employees on the campus would generate a noise level of approximately 68 dBA during high activity hours. Doubling of a sound level results in an increase of approximately 3 dBA, because noise levels are added logarithmically.[17] At this level, noise from human activity would be reduced to 56 dBA at the southern Project boundary. Therefore, human activity on the East Campus would not exceed the City's 60 dBA CNEL noise compatibility standard or the 60 dBA Noise Ordinance limit off-site. Additionally, the

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[15] California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, October 1998.

[16] California Air Resources Board, *Final Regulation Order – Requirements to Reduce Idling Emissions from New and In-Use Trucks, Beginning in 2008*, October 16, 2006.

[17] National Institute for Occupational Safety and Health (NIOHS), Criteria for a Recommended Standard: Occupational Noise Exposure, June 1998.

East Campus is separated from the nearest off-site receptors (the commercial and industrial uses along the Dumbarton Rail Corridor) by Bayfront Expressway, which currently generates noise level of 73 dBA CNEL near the roadway. Existing traffic noise would further diminish the Project's contribution to the ambient noise level. Therefore, the increase in human activity on the East Campus would not be audible to off-site land uses due to distance and existing noise levels, and would not expose persons to noise in excess of standards. Therefore, this impact would be ***less than significant***.

Other On-site Noise Sources. The remaining noise sources associated with operations at the East Campus, including HVAC systems, parking lots, emergency generator testing, and use of the existing sport field and basketball court, would continue to operate as they do under existing conditions. The Project would not result in any additional noise sources besides an increase in employees. Therefore, operational noise associated with the East Campus would not expose persons to noise in excess of City standards. This impact would be ***less than significant.***

Exposure of On-site Receptors. The Project at the East Campus would include office uses and outdoor common areas, which would be subject to the City's 70 dBA CNEL compatibility standard. The primary noise source would be from traffic on Bayfront Expressway, which runs along the southern border of the East Campus. The buildings and common areas on the East Campus are set back farther from Bayfront Expressway; a minimum of 325 feet from the roadway centerline. At this distance, future roadway traffic would be reduced to 67 dBA CNEL and would not exceed the City's noise compatibility standards, resulting in a ***less-than-significant*** impact.

West Campus

General On-site Activity. The West Campus would result in a human activity noise level increase because the West Campus is currently unoccupied. As discussed above, noise from human activity would mostly occur during the beginning and end of the work day and during lunch hours. Similar to the East Campus, the outdoor common areas and amenities provided on the West Campus are intended to encourage informal (and, on occasion, formal) gatherings throughout the day.

The closest sensitive receptors to the West Campus are the residences along Hamilton Avenue, south of the Dumbarton Rail right-of-way, approximately 350 feet from the southern border of West Campus. Assuming a noise level of 65 dBA from human activity on the West Campus during the peak activity hours, the distance to the nearest sensitive receptors would attenuate this noise level to 48 dBA at the residences. Human activity on the West Campus would not exceed 60 dBA at the nearest noise sensitive land use and would not exceed the Noise Ordinance limit for residential land uses or the City's General Plan compatibility standard. A noise level of 65 dBA would also not exceed the City's compatibility standard of 70 dBA for the adjacent office and commercial land uses. Additionally, ambient noise levels along Bayfront Expressway and other busy roadways in the area are currently higher than 65 dBA

due to high traffic volumes. Therefore, noise from the increase in human activity would not be audible over roadway noise at sites near busy roadways, such as the TE Connectivity site along Bayfront Expressway, and the increase in human activity would not expose persons to noise in excess of standards. This impact is ***less than significant***.

HVAC Systems. The new buildings and parking structure on the West Campus would require HVAC systems. Mechanical HVAC equipment located on the ground or on rooftops of new buildings have the potential to generate noise levels that average 72 dBA CNEL at a distance of 50 feet when equipment is operating continuously for 24 hours.[18] Noise from the HVAC systems would be reduced to 55 dBA CNEL at the nearest noise sensitive land uses, the residences south of the West Campus, based solely on distance. The closest land use to the proposed structures is the existing TE Connectivity site, adjacent to the western boundary of the West Campus. The parking structure is located approximately 75 feet from the TE Connectivity parking lot at its nearest location. At this distance, noise from the HVAC systems would be reduced to 69 dBA CNEL and would not exceed the City standard of 70 dBA CNEL. Additionally, as discussed above, traffic on Bayfront Expressway currently exceeds 70 dBA CNEL. At 69 dBA, HVAC noise would not be audible over traffic. Therefore, the new HVAC systems would not expose persons to noise in excess of standards, resulting in ***less-than-significant*** impacts.

Emergency Power Generators. Stand-by emergency power generators would be located in several buildings on the West Campus, including the parking structure, Building 2, and Building 3. The emergency generators create temporary and periodic noise from testing. Sound levels from these generators vary depending on the type of generator and the noise attenuation that has been incorporated into its design and placement. The generators would be tested monthly for approximately 30 minutes. Given the temporary and periodic nature of emergency generator testing, generators would be subject to the City's Noise Ordinance standard of 60 dBA for residential land uses only and would not permanently increase ambient noise levels. Without any noise attenuation, the emergency generators may generate sound levels of up to 97 dBA at 23 feet (7 meters) from the generator.[19]

The closest generator to a residence is the generator on the northwest corner of Building 3, approximately 600 feet away from the nearest residence. At this distance, emergency generator testing could result in noise levels up to 69 dBA. Noise attenuation would be provided to some residences by the intervening commercial uses south of the West Campus and north of the residential neighborhood. Additionally, emergency generators may not be audible over traffic noise at the residences near existing major roads such as Willow Road. However, emergency generator testing could exceed the City's Noise Ordinance if a noise attenuation

[18] City of Santa Ana, City of Santa Ana Transit Zoning Code (SD 84A and SD 84B) Final Environmental Impact Report (SCH No. 2006071100), prepared by PBS&J, May 2010.

[19] Cummins Power Generation, Sound Data - 1500DQGAB, website: http://www.cumminspower.com/www/common/templatehtml/technicaldocument/SoundDataSheets/na/msp-1034.pdf, accessed July 29, 2011.

enclosure were not installed surrounding the emergency generators. Accordingly, this impact is considered ***potentially significant***.

Parking Garage. The West Campus would include a new parking structure on the western side of the campus, and parking in the undercroft of Buildings 4 and 5. Noise sources from parking structures would include human speech, vehicle door slams, car starts, tire squeals, accidental car alarms, and other automotive noise. Quantification of parking structure noise is difficult to predict due to many variables. Variation in sound levels depends on such factors as parking structure design and the number of vehicles moving through the structure at any given time. However, noise from parking garages is characterized as temporary and periodic noise. These temporary and periodic noise sources within the garage would be different from each other in kind, time, duration, and location, so that the overall effects would be separate and, in most cases, would not affect the same receptors at the same time. Therefore, this type of noise associated with parking structures is considered a nuisance noise effect that would result in a ***less-than-significant*** impact.

Truck Deliveries. Trucks used for pick-up and deliveries of supplies would result in intermittent noise, such as engines idling and beeping from backing warning signals. However, operation of the West Campus would not involve large-scale commercial services, manufacturing, or similar work that would require regular, frequent truck deliveries and pick-ups. Truck deliveries to the West Campus would be deliveries of supplies to the offices, pop-up retail, and food service amenities. Simultaneous truck deliveries to the same structure are not anticipated and simultaneous deliveries to the campus as a whole would be expected to occur only occasionally, due to varying delivery schedules. Trucks are exempted from the City's short-term noise level limit of 60 dBA at residential land uses, provided the trucks do not idle for more than 10 minutes. State law currently prohibits heavy-duty diesel delivery trucks from idling more than five minutes.[20] Additionally, given the short duration and relative infrequency of truck trips to the campus, truck deliveries would not be a source of excessive ambient noise. Therefore, impacts related to truck deliveries would be ***less than significant.***

Exposure of On-site Receptors. The proposed development at the West Campus would include office uses and outdoor common areas, which would be subject to the City's 70 dBA CNEL compatibility standard. The primary noise source would be traffic on Bayfront Expressway, which runs along the northern boundary of the West Campus. The roadway currently generates noise levels in excess of the 70 dBA standard at the West Campus site. As shown in Table 3.8-5, traffic on this roadway currently generates a noise level of 73 dBA at the West Campus boundary (75 feet from the roadway centerline), and is estimated to generate a noise level of 74 dBA in the long term. The nearest buildings to the roadway (Buildings 1, 2, and 3) would be located approximately 125 feet from the roadway centerline. At this distance, long-term traffic noise on Bayfront Expressway would be reduced to 72 dBA CNEL. However, the City considers noise levels of up to 75 dBA compatible with office uses if noise

[20] California Air Resources Board, *Final Regulation Order – Requirements to Reduce Idling Emissions from New and In-Use Trucks, Beginning in 2008*, October 16, 2006.

insulation standards are included in the building design. According to the City's Noise Element, conventional construction, but with closed windows and a fresh air supply system or air conditioning, will normally suffice to meet this requirement. Construction at the West Campus would be required to comply with all California Building Code requirements for modern construction and all buildings would include noise insulated HVAC systems, as discussed above. While sustainability strategies identified to reduce the Project's energy use would allow for operable windows, it is not anticipated that the windows would be open during the majority of business days. It is also anticipated that site design and architectural features incorporated as part of the Project would further reduce exterior ambient noise levels for the occupants of the newly constructed buildings. Therefore, a noise level of 75 dBA would be acceptable on site. The traffic noise level would be reduced to 67 dBA CNEL at Buildings 4 and 5 and would not exceed the 70 dBA CNEL thresholds.

The common areas are outside; however, the common area and other activity areas are set back approximately 225 feet from the centerline of Bayfront Expressway. At this distance, future roadway noise would be reduced to approximately 69 dBA. Therefore, noise level in the common areas would not exceed the 70 dBA CNEL threshold. Additionally, the common area is screened from traffic noise on Bayfront Expressway by Buildings 1 and 2, which would provide some noise attenuation. Therefore, employees at the West Campus would not be exposed to excessive noise from Bayfront Expressway, resulting in a ***less-than-significant*** impact.

MITIGATION MEASURES. The Project would result in a potentially significant increase in traffic noise on Marsh Road between Scott Drive and Bohannon Drive and Willow Road between O'Brien Drive and Newbridge Street. There are no feasible mitigation measures that could reduce or eliminate the impact related to traffic noise, other than reducing traffic. Typical sound mitigation consists of walls or other barriers that would attenuate noise to the sensitive receptors behind the barrier. This measure would require installation of a noise wall within private property or within a designated right-of-way, which may not be allowed by an affected property owner or by the City. The feasibility of noise walls is restricted by access requirements for driveways, presences of local cross streets, underground utilities, other noise sources in the area, and safety considerations.[21] For example, a noise wall would be ineffective on the impacted segment of Marsh Road because existing residential driveways directly access Marsh Road, and Rolison Road merges with Marsh Road along this segment. Breaks in the noise wall for access would not provide any noise attenuation and would render the wall ineffective. Additionally, for safety reasons, Caltrans states that noise barriers should not exceed 14 feet in height.[22] Due to the high existing noise level, a noise barrier of more than 14 feet would be required to reduce noise levels along these roadways segments to an acceptable noise level for residential land uses. Finally, sensitive receptors along Marsh Road and Willow Road are currently oriented toward these roadways. Construction of a noise barrier would wall off these uses from the surrounding community, which could result in

[21] California Department of Transportation, *Traffic Noise Analysis Protocol,* May 2011.
[22] California Department of Transportation, *Traffic Noise Analysis Protocol,* May 2011.

adverse impacts to aesthetics[23] and potentially public safety because the noise walls would limit the visibility of the homes from the surrounding area. Natural surveillance is one of the four principles of Crime Prevention through Environmental Design.[24] Therefore, installation of a noise wall along these segments would not be feasible.

As mentioned above, there are no other feasible mitigation measures that could reduce or eliminate the impact related to traffic noise, other than reducing traffic. As noted in Section 2, Project Description, the Project includes a TDM program that sets forth a variety of measures designed to reduce the number of daily trips. However, the TDM program may not reduce trips enough to reduce the Project's contribution to traffic noise to a less-than-significant level. Therefore, the increase in noise level on Marsh Road and Willow Road as a result of Project-generated traffic is considered to be ***significant and unavoidable***. (SU)

Operation of the West Campus would involve new emergency generator testing that would have the potential to exceed the Noise Ordinance noise level limit for residential land uses. Mitigation Measure NO-1.1 would require emergency generators to be shielded in order to reduce the sound level from emergency generator testing to less than 60 dBA at the nearest noise sensitive land uses. Mitigation Measure NO-1.2 would limit generator testing to daytime hours only. Implementation of these mitigation measures would reduce this impact to a ***less-than-significant*** level. (LTS)

NO-1.1 *Install Sound Enclosures Around Emergency Generators on the West Campus.* The Project Sponsor shall reduce the sound level from the operating generators to a maximum sound level of 88 dBA at 23 feet (7 meters) from the enclosure. Measures that could accomplish this standard include, but are not limited to, installing sound enclosures around all emergency generators, or purchasing equipment that meets this standard.

NO-1.2 *Limit Generator Testing to Daytime Hours on the West Campus.* The Project Sponsor shall limit generator testing to between the hours of 8:00 a.m. and 6:00 p.m.

NO-2 ***Temporary Increases in Ambient Noise Level.*** *The Project at the West Campus could result in levels of vibration that would disrupt operations at nearby vibration-sensitive land uses. This impact is potentially significant. (PS)*

Construction of the West Campus is anticipated to start in January 2013 and would last approximately 18 months. The West Campus construction would require the demolition of the existing buildings and surface parking lots, removal of trees and other landscaping, site grading, and building and parking garage construction. The construction of all the buildings would conclude in July 2014 phasing the occupation of the building for a four-month period. The construction of the buildings would be phased so that each building is constructed in sequence, with each building

[23] Federal Highway Administration, *Noise Barrier Design Handbook,* website: http://www.fhwa.dot.gov/environment/noise/noise_barriers/design_construction/design/design00.cfm, accessed September 20, 2011.

[24] National Crime Prevention Council, *Crime Prevention Through Environmental Design Guidebook,* October 2003.

being approximately six to eight weeks apart. The parking garage construction would be scheduled to ensure completion prior to occupancy of the first building.

Ground-borne Vibration. Typical equipment that would be used during construction at the West Campus would include, but not be limited to, concrete crushers, cranes, tractors, excavators, pile drivers, forklifts, off-highway tractors and trucks, material handling equipment, pavers, pumpers, rollers, bulldozers, surfacing and grading equipment, backhoes, and trenchers. Project construction activities would have the potential to generate low levels of ground-borne vibration (other than during pile driving).

Construction-related vibration has three potential effects. First, vibration at high enough levels can interfere with sleep. Thresholds for this vibration have been developed by the FTA, which has determined that any vibration over 80 VdB can be a significant impact at places where people sleep. Second, vibration at relatively low levels can disturb vibration-sensitive research and manufacturing equipment, such as electron microscopes and high resolution lithographic equipment. Even normal optical microscopes will sometimes be difficult to use at vibration levels well below the human annoyance level. The FTA has developed a vibration threshold of 65 VdB, based on acceptable vibration for moderately vibration-sensitive equipment, such as optical microscopes and electron microscopes with vibration isolation systems. Third, ground-borne vibration can potentially damage the foundations and exteriors of existing, older structures. Ground-borne vibration that can cause this kind of damage is typically limited to impact equipment, especially pile-drivers. The FTA damage thresholds indicate that, for buildings not extremely sensitive to vibration, a damage threshold of between 0.2 in/sec to 0.5 in/sec would apply depending on the type of building.

Table 3.8-6 identifies various vibration velocity levels for the types of construction equipment that are expected at the Project area during construction. As shown in this table, construction equipment would have the potential to interfere with vibration-sensitive equipment or disturb people trying to sleep in close proximity to construction activities. Structural damage to existing buildings due to construction vibration would only be an issue during pile-driving, because pile-driving can produce PPV values of up to 1.5 at 25 feet. Impact pile drivers produce a high level of vibration for short periods (0.2 second) with sufficient time between impacts to allow a building's resonant effects to decay before the next vibration event.[25]

[25] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

Table 3.8-6
Vibration Source Levels for Construction Equipment

Construction Equipment	At 25 feet		At 100 feet	
	Approximate VdB	Peak Particle Velocity (in/sec)	Approximate VdB[a]	Peak Particle Velocity (in/sec)[b]
Large Bulldozer	87	0.089	69	0.011
Loaded Trucks	86	0.076	68	0.010
Jackhammer	79	0.035	61	0.004
Small Bulldozer	58	0.003	40	0
Caisson Drilling	87	0.089	69	0.011
Roller	94	0.210	76	0.026
Pile Driver (impact, upper range)	112	1.518	94	0.190
Pile Driver (sonic, upper range)	105	0.734	87	0.011

Source: FTA, 2006.

Notes:

a. Based on the formula $PPV_{equip} = PPV_{ref} * (25/D)^{1.5}$ provided by the FTA (2006).

b. Based on the formula VdB = VdB(25 feet) – 30log(d/25) provided by the FTA (2006).

The nearest residential uses to the West Campus are along Hamilton Avenue, south of the Dumbarton Rail right-of-way, approximately 350 feet from the southern border of West Campus. Based on the information presented in Table 3.8-6, vibration levels from construction activities, including the construction of internal roads and pile driving, would not exceed 80 VdB at a distance of 350 feet. The most vibration-intensive activity, pile-driving, would not exceed 78 VdB at 350 feet, while internal road construction would not exceed 76 VdB. Therefore, exposure of residential areas to excessive ground-borne vibration during construction would be ***less than significant***.

Existing occupied office and commercial uses are directly west of the West Campus and south of the Dumbarton Rail Corridor. Office and commercial uses are generally not considered sensitive receptors; however, because of the nature of the businesses that are present in the vicinity, these uses may include vibration-sensitive equipment, such as could be used for computer chip manufacturing. Some manufacturing does take place at the TE Connectivity site to the west of the West Campus. Therefore, the adjacent buildings are assumed to include vibration-sensitive uses. The closest buildings to the West Campus are the easternmost TE Connectivity site building and the commercial buildings south of the campus. These buildings are located approximately 100 feet from the nearest property boundary.

Based on the information in Table 3.8-6, vibration levels from construction activities could reach up to 76 VdB for normal construction activities and up to 94 VdB during pile driving. These vibration levels would be above the FTA recommended threshold for vibration-sensitive equipment of 65 VdB. Construction activities would take place throughout the West Campus

and varying distances from the adjacent land uses. Based on the information in Table 3.8-6, vibration levels from normal construction activities, such as internal road building could exceed 65 VdB up to 225 feet away, and up to 900 feet away from pile-driving activities. Therefore, construction throughout the West Campus would have the potential to result in vibration levels exceeding 65 VdB at nearby vibration-sensitive uses, resulting in a ***potentially significant*** impact.

If pile driving resulted in vibration levels in excess 0.2 in/sec to 0.5 in/sec, the Project could result in damage to adjacent structures. As shown in Table 3.8-6, at a distance of 100 feet, peak vibration levels during pile driving would be below the FTA thresholds. Therefore, vibration from construction activities would not result in damage to existing off-site buildings. Buildings on the Project site would be constructed in sequence, so that some buildings would be completed while others are under construction. However, all pile-driving and foundation activities would be completed prior to construction of any buildings. The closest point between two buildings is approximately 50 feet between Buildings 1 and 2. General construction activities would not generate vibration that exceeds 0.2 in/sec at distance of 50 feet. Therefore, construction activities would not result in excessive vibration to any on-site structures.

Ground-borne Noise. As discussed above, vibration levels from normal construction activities could exceed 65 VdB up to 225 feet away, and up to 900 feet away from pile-driving activities. Vibration levels of 65 VdB can produce ground-borne noise levels up to 40 dBA and result in sleep disturbance. The nearest residences to the Project site are located 350 feet south of the West Campus. Therefore, these residences would be located within the 900 foot screening distance for pile-driving activities. However, construction activities would take place during the day in accordance with the City's Noise Ordinance. No nighttime construction would be required or allowed; therefore, no impacts related to sleep disturbance would occur. Ground-borne vibration levels of 85 VdB can result in noise levels up to 60 dBA, which can result in a disturbance to quiet daytime activities in noise-sensitive land uses. Vibration levels from normal construction activities would not exceed 85 VdB more than 50 feet from the source, and pile-driving activities would not exceed 85 VdB more than 200 feet from the source. The nearest sensitive receptors to the Project site are the residences located 350 feet away from the West Campus. Therefore, construction activities on the West Campus would not result in a disturbance to daytime uses. Ground-borne noise impacts would be ***less than significant.***

In summary, construction of the West Campus would not result in significant impacts related to sleep disturbance or damage during pile driving. However, impacts to buildings within 225 feet of general construction activities and 900 feet of pile-driving activities could occur if they include vibration-sensitive equipment. It is assumed that there is vibration-sensitive equipment within these distances, and thus the Project's impact to vibration-sensitive equipment is ***potentially significant***.

MITIGATION MEASURES. Construction of the West Campus would have the potential to result in significant ground-borne vibration that would disturb vibration-sensitive land uses. Mitigation Measure NO-2.1 would require the notification of nearby businesses of potential impacts to

vibration-sensitive equipment, in order to identify any vibration-sensitive equipment in the Project vicinity, and implement best management practices, as described in Mitigation Measure NO-2.2, to help reduce impacts to buildings with vibration-sensitive equipment. However, even though implementation of these measures would reduce ground-borne vibration impacts from construction, vibration-sensitive equipment at the TE Connectivity site, the Menlo Science and Technology Park (AMB's Park along Willow Road), and other commercial facilities (if identified), could still be exposed to excessive construction-generated vibration levels. Therefore, this impact is considered to be ***significant and unavoidable***. (SU)

NO-2.1 *Notify Nearby Businesses of Construction Activities on the West Campus that Could Affect Vibration-Sensitive Equipment*. The Project Sponsor shall provide notification to property owners and occupants of vibration-sensitive buildings within 225 feet of general construction activities and 900 feet of pile-driving activities, prior to the start of construction at the West Campus, informing them of the estimated start date and duration of vibration-generating construction activities, such as would occur during site preparation, grading, and pile driving. This notification shall include information warning about potential for impacts related to vibration-sensitive equipment. The Project Sponsor shall provide a phone number for the property owners and occupants to call if they have vibration-sensitive equipment on their sites. A copy of the notification and any responses shall be provided to the Planning Division prior to building permit issuance.

NO-2.2 *Implement Construction Best Management Practices to Reduce Construction Vibration on the West Campus*. If vibration-sensitive equipment is identified within 225 feet of general construction activities, including internal road construction or 900 feet of pile-driving activities on the West Campus, the Project Sponsor shall implement the following measures during construction:

- To the extent feasible, construction activities that could generate high vibration levels at identified vibration-sensitive locations shall be scheduled during times that would have the least impact on nearby land uses. This could include restricting construction activities in the areas of potential impact to the early and late hours of the work day, such as from 8:00 am to 10:00 a.m. or 4:00 p.m. to 6:00 p.m. Monday to Friday.
- Stationary sources, such as construction staging areas and temporary generators, shall be located as far from nearby vibration-sensitive receptors as possible.
- Trucks shall be prohibited from idling along streets serving the construction site where vibration-sensitive equipment is located.

NO-3 ***Substantial Permanent Increase in Noise Level.*** *Operation of the Project, at the East Campus and West Campus, would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. This would be a potentially significant impact. (PS)*

Potential permanent increases in noise levels associated with the Project include roadway noise, an increase in human activity, and HVAC systems. The noise levels associated with these sources are discussed under Impact NO-1. As discussed there, roadways in the Project area would experience an increase in traffic noise levels associated with buildout of the Project (East Campus and West Campus). The changes in future noise levels at selected noise-sensitive locations along roadways in the Project vicinity are identified in Table 3.8-5. As shown, the Project would result in a significant increase in local traffic noise levels on Marsh Road and Willow Road, based on FTA's guidance. This would be a ***potentially significant*** impact of the Project.

Operational noise sources at the East Campus would be the same as existing conditions, with the exception of the increase in human activity. Activity on the East Campus would not generate noise levels that would exceed the City's noise standards on-site or at the nearest land uses. Noise from the increase in human activity and use of new HVAC systems at the West Campus would not exceed the City's noise standards on-site or at the adjacent land uses. Therefore, this impact would be ***less than significant***.

MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. As described under Impact NO-1, no feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. This impact would be ***significant and unavoidable***. (SU)

NO-4 ***Substantial Temporary Increase in Noise Level.*** *Construction of the Project at the West Campus would generate a short-term substantial increase in noise levels that would exceed ambient noise levels in the area. This would be considered a potentially significant impact. (PS)*

Construction of the West Campus would require the use of heavy equipment for building demolition, site grading and excavation, pile-driving, paving, and building fabrication. Construction activities would also involve the use of smaller power tools, generators, mechanical equipment, and other noise sources. During each construction stage, there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of the construction activity. Noise levels associated with the operation of heavy construction equipment typically range from about 65 to 88 decibels at 50 feet from the source, as shown in Table 3.8-7.[26] The noise-generating characteristics of specific types of construction equipment are presented in Table 3.8-8.

[26] Bolt, Baranek and Newman, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, prepared for the U.S. Environmental Protection Agency, December 31, 1971.

Table 3.8-7
Noise Level of Typical Construction Phases

Construction Phase	Noise Level in dBA L_{eq} at 50 feet[a] – Minimum Required Equipment	Noise Level in dBA L_{eq} at 50 feet[a] – All Pertinent Equipment Present at Site
Ground Clearing	83	83
Excavation	75	88
Foundations	81	81
Building Construction	65	81
Finishing	72	88

Source: Bolt, Baranek and Newman, 1971.

Note:

a. Machinery equipped with noise-control devices or other noise-reducing design features do not generate the same level of noise emissions as that shown in this table.

Table 3.8-8
Noise Level of Typical Construction Equipment

Construction Equipment	Noise Levels in dBA L_{eq} at 50 feet[a]
Front Loader	79
Dozer	80
Trucks	91
Cranes	83
Vibrator	76
Saws	78
Pneumatic Impact Equipment	86
Jackhammers	88
Pumps	76
Generators	78
Compressors	81
Concrete Mixers	85
Concrete Pumps	82
Back Hoe	85
Pile Driving (peaks)	101
Tractor	80
Scraper/Grader	88
Paver	89

Source: FTA, 2006.

Note:

a. Machinery equipped with noise-control devices or other noise-reducing design features do not generate the same level of noise emissions as that shown in this table.

Construction noise in the City is subject to Section 8.06.040 of the Noise Ordinance. Construction noise is exempted from the City's 60 dBA noise level limit for noise disturbances to residences; however, the Noise Ordinance prevents a substantial increase in ambient noise from construction equipment by prohibiting operation of equipment that would generate noise levels in excess of 85 dBA at 50 feet from the construction site, and limiting construction activities to between the hours of 8:00 a.m. and 6:00 p.m., Monday through Friday.

Assuming the worst-case construction noise level for general construction activities of 88 dBA at 50 feet from the construction site, construction noise would have the potential to exceed the threshold established in the Noise Ordinance. Additionally, pile drivers would be required for the building foundations. As shown in Table 3.8-8, pile-driving equipment generates the highest noise level of the listed general construction equipment, and resulting noise levels would be approximately 101 dBA at 50 feet. Pile driving would only be required at the building locations. The nearest building to the West Campus boundary would be the parking structure, which would be located a minimum of 45 feet from the Project boundary. At an attenuation rate of 6 dBA per doubling of distance to a receiver, the resulting noise level at 50 feet from the Project site would be approximately 95 dBA and would exceed the 85 dBA threshold.

Construction equipment would operate throughout the Project site on a daily and monthly basis and would only occasionally be operating on the edges of the construction site closest to the adjacent commercial uses and nearby residences. Construction would generally not result in the worst case scenario noise level because all construction equipment would not be operating simultaneously all day. Pile-driving activities would only be required for a few weeks of the 18-month construction period. Nevertheless, the potential exists for general construction activities to exceed the City's Noise Ordinance for construction equipment, a ***potentially significant*** impact.

Vehicle trips from construction traffic, including trucks hauling export material and worker trips, would temporarily increase noise levels along area roadways, primarily Bayfront Expressway, and the segments of Marsh Road, Willow Road, and University Avenue between the Project site and US 101. A maximum of 210 truck trips would be necessary per day. A maximum of 250 workers would be necessary on-site during construction. It is assumed that every worker would generate four trips per day, two related to commuting and two related to their lunch break. Therefore, construction would result in a maximum increase of 1,210 daily trips on Bayfront Expressway. Table 3.8-9 shows the existing noise level along the roadway segments of concern for construction traffic, and the noise level with the addition of construction trips. During construction of the West Campus, the increase of 1,210 ADT would not increase the noise level above existing conditions. Although individual truck pass-bys may be audible to nearby land uses, no changes in ambient noise levels during construction would occur on the Project site or at sensitive receptors along the probable construction truck routes. Therefore, noise impacts from truck trips and construction workers trips would be ***less than significant***.

Table 3.8-9
West Campus Construction Increment to Existing Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a,b]	Existing Traffic Noise Level Without Project	Traffic Noise Level With Construction Traffic	Increase in Noise Level as a Result of Project	Allowable Increase[c]	Significant Impact?
Bayfront Expressway - Chrysler Drive to Chilco Street	73	73	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	82	82	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	77	77	0	0	No
University Avenue - O'Brien Drive to Kavanaugh Drive	75	75	0	0	No

Source: FHWA Highway Noise Prediction Model. See Appendix 3.8 for model output.

Notes:

a. Sensitive receptor and receptor distance from roadway centerline are:
   1. Bayfront Expressway (Chrysler Drive to Chilco Street): West Campus boundary, 75 feet from centerline of Bayfront Expressway
   2. Marsh Road (Scott Drive to Bohannon Drive): Residences 50 feet from centerline of Marsh Road
   3. Willow Road (O'Brien Drive to Newbridge Street): Residences 75 feet from centerline of Willow Road
   4. Willow Road (Durham Street to Coleman Avenue): Willow Oaks Elementary School playground, 75 feet from centerline of Willow Road
   5. University Avenue (O'Brien Drive to Kavanaugh Drive): Residences 50 feet from centerline of University Avenue

b. Refer to Section 3.5, Transportation, for a description of the traffic scenarios.

c. Federal Transit Administration. Transit Noise and Vibration Impact Assessment. May 2006.

In summary, vehicle trips during construction would not result in significant noise impacts; however, operation of heavy construction equipment would generate a substantial increase in ambient noise and would potentially exceed the City's Noise Ordinance standards. The impact is considered ***potentially significant***.

MITIGATION MEASURE. Construction of the West Campus would have the potential to result in noise levels that would exceed the City's Noise Ordinance standards for construction equipment. Implementation of the following measure would reduce construction noise associated with the Project to a ***less-than-significant*** level. (LTS)

NO-4.1 *Implement a Construction Noise Plan to Reduce Construction Noise on the West Campus*. The Project Sponsor shall submit a Construction Noise Plan for review and approval by the Planning and Building Divisions prior to the issuance of the demolition permit. The Project Sponsor shall implement the following measures during demolition and construction of the Project:

- To the extent feasible, the noisiest construction activities shall be scheduled during times that would have the least impact on nearby residential land uses. This would include restricting typical demolition and exterior construction activities to the hours of 8:00 a.m. to 6:00 p.m. Monday to Friday.

- Equipment and trucks used for Project construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for Project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.
- Prior to any pile-driving activities, notification shall be sent to all surrounding property owners and occupants within 300 feet of the Project site informing them of the estimated start date and duration.
- Construction contractors, to the maximum extent feasible, shall be required to use "quiet" gasoline-powered compressors or other electric-powered compressors, and use electric rather than gasoline or diesel powered forklifts for small lifting.
- Stationary noise sources, such as temporary generators, shall be located as far from nearby receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.
- Install temporary plywood noise barriers eight feet in height around the construction site to minimize construction noise to 90 dBA as measured at the applicable property lines of the adjacent uses, unless an acoustical engineer submits documentation that confirms that the barriers are not necessary to achieve the attenuation levels.
- Trucks shall be prohibited from idling along streets serving the construction site.
- Implement "quiet" pile driving technology (e.g., vibratory pile driving or pre-drilled pile holes), where feasible, in consideration of geotechnical and structural requirements and conditions.
- Monitor the effectiveness of noise attenuation measures by taking noise measurements during pile driving activities.

Cumulative Analysis

The geographic context for the cumulative noise analysis from localized construction and stationary source noise includes areas immediately surrounding the Project site, as noise diminishes rapidly with distance (3 dBA for each doubling of distance). For cumulative vehicular noise impacts, the cumulative context is based on the cumulative context for the traffic analysis, which includes existing and future developments, including other current projects, probable future projects, and projected future growth within the City through the year 2025.

C-NO-1 ***Cumulative Exposure to Excessive Noise.*** *The Project, in combination with other development within the City, could result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code. The Project's contribution would be cumulatively significant. (PS)*

Tier 1 and Tier 2

Exposure of Offsite Receptors – Stationary Noise Sources. Similar to the Project, operation of the cumulative projects would also have the potential to increase ambient noise levels above the City's compatibility standards of 60 dBA CNEL for residential areas and 70 dBA for commercial and industrial uses. This potential impact is limited to cumulative projects in the immediate vicinity of the Project site, because projects dispersed throughout the City would not combine to increase noise levels. This is due to distance and intervening buildings that provide noise attenuation, as well as existing traffic volumes that exceed the noise standards.

As described in Section 3.1, Tier 1 cumulative projects consist of reasonably foreseeable development projects identified by the City and within City limits. Three cumulative projects listed in Table 3.1-1 are in the immediate vicinity of the West Campus: a new 21 unit residential building at 297 Terminal Avenue, a police and City services building at 1283 Willow Road, and Menlo Gateway at 100-155 Constitution Drive and 100-190 Independence Drive. Noise from residential projects is generally limited to intermittent nuisance noise such as a dog barking or loud music. Therefore, the project at 297 Terminal Avenue would not contribute significantly to an increase in ambient noise levels. Similar to the Project, the new City Services building, and the office and hotel uses west of the West Campus would increase human activity in the area and would include HVAC systems that would have the potential to permanently increase noise levels in the Project vicinity. However, similar to the Project, the noise level of human activity would not exceed existing ambient noise levels due to heavy traffic on Bayfront Expressway and Willow Road. Noise from stationary or point sources, including regular human speech or crowd noise, is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. Existing homes in California generally provide a reduction of

exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.[27]

Noise levels are not strictly additive. Rather, when adding a noise level to an approximately equal noise level, the total noise level increases 3 dBA. For example, doubling the traffic on a highway would result in an increase of 3 dBA. Conversely, reducing traffic by one half would reduce the noise level by 3 dBA. Second, when two noise levels are 10 dBA or more apart, the lower value does not contribute significantly (less than 0.5 dB) to the total noise level. For example, 60 dBA + 70 dBA ≈ 70 dBA.

This can also be expressed by the following equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL_{1/10}} + 10^{SPL_{2/10}} + \ldots 10^{SPL_{n/10}}]$$ [28]

Utilizing the above equation, it can be reasonably assumed that noise levels from stationary point sources in the Project vicinity from cumulative development would not increase significantly, would remain below City compatibility standards, and would not combine to exceed noise standards. Therefore, a cumulative impact would not occur as a result of the Tier 1 cumulative projects. However, as discussed under Impact NO-1, operation of the West Campus would not result in an increase in noise levels from stationary sources above ambient noise levels. Therefore, the cumulative impact of the Project on stationary noise levels would be ***less than significant.***

Exposure of Offsite Receptors – Vehicular Noise Sources. Cumulative growth in the City could lead to increased noise levels from vehicular traffic, although there is the possibility that future traffic noise could be decreased through implementation of TDM measures and a focus on transit-oriented development that would reduce vehicle trips. For areas of the City where noise levels already exceed significance thresholds, cumulative development would result in a significant cumulative impact. The traffic model used to predict future traffic levels assumed approved development and City growth through the year 2025. Table 3.8-10 compares noise levels with implementation of the cumulative projects to existing noise levels. The increase from existing noise levels would be significant under cumulative conditions if the increase would exceed the 1 dBA threshold for roadways currently generating noise levels between 65 and 75 dBA, and any increase would be considered significant for roadways generating noise levels above 75 dBA. As shown in Table 3.8-10, cumulative development would have the potential to exceed these thresholds along Marsh Road, Willow Road, and University Avenue and there would be a significant cumulative impact from vehicular noise.

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[27] U.S. Department of Housing and Urban Development, *Noise Guidebook*, 1985.

[28] SPL = Sound Pressure Level. If the number of SPLs to be added is N, and SPL1, SPL2, and ... SPLn represent the first, second, and nth SPL. Equation from Caltrans *Technical Noise Supplement*, November, 2009.

Table 3.8-10
Project Increment to Existing and Future Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a]	Existing Noise Level[b]	Traffic Noise Level Without Project – Long Term Project I Scenario[b] (Cumulative without Project)	Traffic Noise Level With Proposed Project – Long Term Project II Scenario (East Campus and West Campus) [b]	Cumulative Increase in Noise Level	Allowable Increase[c]	Significant Cumulative Impact?	Increase in Noise Level as a Result of Project	Cumulatively Considerable Contribution?
Bayfront Expressway - Chrysler Drive to Chilco Street	73	74	74	+1	1	No	0	No
Marsh Road - Scott Drive to Bohannon Drive	82	83	83	+1	0	Yes	0	No
Willow Road - O'Brien Drive to Newbridge Street	77	79	80	**+3**	**1**	**Yes**	**+1**	**Yes**
Willow Road - Durham Street to Coleman Avenue	72	73	74	**+2**	**1**	**Yes**	+1	No
University Avenue - O'Brien Drive to Kavanaugh Drive	75	76	76	**+1**	**0**	**Yes**	0	No

Source: FHWA Highway Noise Prediction Model. See Appendix 3.8 for model output.

Notes:

a. Sensitive receptor and receptor distance from roadway centerline are:

1. Bayfront Expressway (Chrysler Drive to Chilco Street): West Campus boundary, 75 feet from centerline of Bayfront Expressway
2. Marsh Road (Scott Drive to Bohannon Drive): Residences 50 feet from centerline of Marsh Road
3. Willow Road (O'Brien Drive to Newbridge Street): Residences 75 feet from centerline of Willow Road
4. Willow Road (Durham Street to Coleman Avenue): Willow Oaks Elementary School playground, 75 feet from centerline of Willow Road
5. University Avenue (O'Brien Drive to Kavanaugh Drive): Residences 50 feet from centerline of University Avenue

b. Refer to Section 3.5, Traffic and Circulation, for a description of the traffic scenarios.

c. Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

Significant impacts shown in **Bold.**

One cumulative project listed in Table 3.1-2, Cumulative Projects for the Tier 2 Analysis, is located in the immediate vicinity of the West Campus: the Dumbarton Rail Corridor Project. Commuter trains have the potential to generate noise levels of 92 dBA at 50 feet from the track, and train horns can generate noise levels of 110 dBA at 50 feet from the track.[29] Therefore, the Dumbarton Rail Corridor Project would have the potential to result in a substantial increase in ambient noise levels and a potentially significant cumulative impact could occur.

[29] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

As noted above, for the purposes of this analysis, in areas where the existing noise level exceeds the City's standards, the significance of the Project's impacts are based on the Project's incremental increase. Future noise levels in the year 2025 with and without the Project are shown in the long-term traffic scenarios in Table 3.8-5 of this section. The increase attributable to the Project would exceed the threshold on Willow Road; therefore, the Project's contribution to exceedance of noise thresholds from vehicular traffic would be cumulatively considerable. The cumulative impact as a result of increased traffic noise would be ***potentially significant.***

Exposure of On-site Receptors. As noted above under Impact NO-1, the noise level on the West Campus currently exceeds the City's normally acceptable standard for office uses, but is below the conditionally acceptable standard. With the addition of future traffic noise, noise levels would continue to be below the conditionally acceptable noise level of 75 dBA, as shown in Table 3.8-10. As discussed above, noise levels from cumulative development of the Tier 1 projects would not contribute to an exceedance of the City's conditionally acceptable noise standards. For uses that fall within the conditionally acceptable exterior noise limits, the interior noise levels for office and residential uses can be reduced to acceptable levels with incorporation of noise-insulating materials. Conventional building methods are generally sufficient, according to the City's General Plan. Therefore, there would be no significant cumulative impact as a result of implementation of Tier 1 projects. The Project, and all cumulative projects, would be constructed using conventional building methods consistent with the most recent building code and would comply with the City's interior and exterior noise standards.

The Dumbarton Rail Corridor Project, a Tier 2 project, would have the potential to result in a cumulatively considerable increase in ambient noise level on the Project site. The Dumbarton Rail Corridor Project would be subject to CEQA and would be required to mitigate impacts to the extent feasible. As discussed under Impact NO-1, the Project itself would not generate noise levels that would result in an increase in ambient noise levels above the City's noise standards. When taken together, the additive effect of other contributions (specifically the Dumbarton Rail Corridor Project) to this impact is significant. However, since the Project's contribution is not considerable, the cumulative impact with respect to stationary noise sources is ***less than significant.***

MITIGATION MEASURE. Implementation of the Project would result in a cumulatively considerable increase in noise levels from vehicular traffic on Marsh Road and Willow Road. As described under Impact NO-1, Mitigation Measure NO-1.1 would reduce noise levels to below the existing noise level along Willow Road. However, installation of a noise wall would not be feasible and no other feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. Therefore, the Project's cumulative impact would be ***significant and unavoidable.*** (SU)

C-NO-2 ***Cumulative Exposure to Ground-borne Vibration.*** *Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to excessive ground-borne vibration. The Project's cumulative impact would be less than significant. (LTS)*

Tier 1 and Tier 2

The most common sources of ground-borne vibration in the Project area and the City are construction activities and roadway truck traffic. Heavy trucks currently transport goods and materials along the streets surrounding the Project area (i.e., Bayfront Expressway, University Avenue, Willow Road). Large delivery trucks typically generate ground-borne vibration velocity levels around 63 VdB at 50 feet from the source, and these levels could reach 72 VdB where trucks pass over an uneven road surface.[30] As described above, the vibration velocity level threshold of perception for humans is approximately 65 VdB, and 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Therefore, existing traffic vibration is neither distinctly nor generally perceptible. Additionally, vibration velocity levels around 63 Vdb would generally not produce ground-borne noise that would disturb sleep. Cumulative development in the City would not result in the exposure of people to or the generation of excessive groundborne vibration due to the localized nature of vibration impacts and the fact that construction throughout the City would not occur at the same time. High groundborne vibration at each of the construction sites would continue to be isolated and only affect receptors within close proximity to the individual pieces of construction equipment. Therefore, cumulative development would not result in a significant cumulative vibration impact.

Typical equipment that would be used during construction at the West Campus would include, but not be limited to, concrete crushers, cranes, tractors, excavators, pile drivers, forklifts, off-highway tractors and trucks, material handling equipment, pavers, pumpers, rollers, bulldozers, surfacing and grading equipment, backhoes, and trenchers. Project construction activities would have the potential to generate low levels of ground-borne vibration (other than during pile driving). The nearest residential uses to the West Campus are along Hamilton Avenue, south of the Dumbarton Rail right-of-way, approximately 350 feet from the southern border of West Campus. Based on the information presented in Table 3.8-6, vibration levels from construction activities, including pile driving, would not exceed 80 VdB at a distance of 350 feet. The most vibration-intensive activity, pile-driving, would not exceed 78 VdB at 350 feet. Therefore, exposure of residential areas to excessive ground-borne vibration during construction would be less than significant. As such, the vibration impact of the Project, in conjunction with vibration from other cumulative development, would result in a ***less-than–significant*** cumulative impact.

[30] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

C-NO-3 ***Cumulative Permanent Increase in Noise Levels.*** *Operation of the Project, in combination with other development in the City, would result in a substantial permanent ambient noise level increase in the Project vicinity. The Project's contribution would be cumulatively significant. (PS)*

Tier 1 and Tier 2

As described above under Impact C-NO-1, cumulative increases in traffic would result in substantial noise level increases from vehicular traffic at four of the selected locations because the increase would exceed the FTA significance thresholds that the City is utilizing for this Draft EIR. The Project's contribution would be cumulatively considerable on Willow Road. No feasible mitigation is available to reduce this impact to a less-than-significant level; therefore, the Project's cumulative impact for increased noise levels from vehicular traffic would be ***potentially significant.***

MITIGATION MEASURE. Implementation of the Project would have the potential to result in a significant increase in noise level on Marsh Road and Willow Road. No feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. Therefore, cumulative impacts would be ***significant and unavoidable***. (SU)

C-NO-4 ***Cumulative Temporary Increase in Noise Levels.*** *Construction activities associated with Project-related development and other future development in the City would not expose sensitive receptors to a substantial temporary increase in ambient noise level. The Project's cumulative impact would be less than significant. (LTS)*

Tier 1 and Tier 2

Cumulative development in the City would not result in the exposure of people to a substantial temporary increase in ambient noise level during construction due to the localized nature of construction noise impacts and the fact that construction throughout the City would not occur at the same time. The construction activity with the potential to generate the highest noise levels, pile driving, would not exceed the construction noise threshold of 85 dBA more than 250 feet from the source. None of the cumulative projects are located within 250 feet of the Project site, with the exception of the Dumbarton Rail Corridor Project. The Dumbarton Rail Corridor Project is in the preliminary stages of planning and would not be constructed at the same time as the Project. Therefore, construction noise from the cumulative projects would not combine to exceed the City's Noise Ordinance standards for construction. As such, the Project would have a ***less-than-significant*** cumulative impact due to temporary increases in ambient noise levels.

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3.9 CULTURAL RESOURCES

Introduction

This section assesses potential effects to cultural resources and human remains that could result from implementation of the Project. This section briefly describes the prehistoric and historic setting of the Project area and describes the results of the archaeological resources investigation conducted for the Project. Applicable local, State, and federal regulations are identified, followed by impact analysis and mitigation measures, where available, to reduce adverse impacts on cultural resources.

This section is based on a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System, a search of the Native American Heritage Commission (NAHC) sacred lands database, and geological information. No comments pertaining to cultural resources were received in response to the Notice of Preparation (NOP) (Appendix 1).

The change in the Conditional Development Permit (CDP) for the East Campus would not result in impacts to cultural resources because no construction or ground disturbances are associated. Therefore, Project impacts at the East Campus are not discussed further in this section.

Applicable Plans and Regulations

Federal

National Historic Preservation Act. Federal regulations for cultural resources are primarily governed by Section 106 of the National Historic Preservation Act (NHPA) of 1966, which applies to actions taken by federal agencies. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for determining NRHP eligibility are found in 36 Code of Federal Regulations (CFR) Part 60. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementing regulations, "Protection of Historic Properties," are found in 36 CFR Part 800. The NRHP criteria (contained in 36 CFR 60.4) are used to evaluate resources when complying with NHPA Section 106. Those criteria state that eligible resources comprise districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

a. Are associated with events that have made a significant contribution to the broad patterns of our history;

b. Are associated with the lives of persons significant in our past;

c. Embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or

d. Have yielded or may be likely to yield, information important to history or prehistory.

Archaeological site evaluation assesses the potential of each site to meet one or more of the criteria for NRHP eligibility based upon visual surface and subsurface evidence (if available) at each site location, information gathered during the literature and records searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

Paleontological Resources Preservation Act. The federal Paleontological Resources Preservation Act of 2002 was enacted to codify the generally accepted practice of limiting the collection of vertebrate fossils and other rare and scientifically significant fossils to qualified researchers. These researchers must obtain a permit from the appropriate state or federal agency and agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and to other researchers.

State

California Public Resources Code. Under California Environmental Quality Act (CEQA), public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment."

"Historical resource" is a term with a defined statutory meaning (see Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5 (a) and (b)). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for the purposes of CEQA unless a preponderance of evidence indicates otherwise (Public Resources Code Section 5024.1; California Code of Regulations, Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts on historical resources (Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5 (a)(3)). In

general, an historical resource, under this approach, is defined as any object, building, structure, site, area, place, record, or manuscript that:

a. Is historically or archeologically significant; or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

b. Meets any of the following criteria:

    1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    2. Is associated with the lives of persons important in our past;

    3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

    4. Has yielded, or may be likely to yield, information important in prehistory or history.

As noted above, CEQA also requires lead agencies to consider whether projects will impact "unique archaeological resources." Although CEQA does not define "a unique paleontological resource or site," Public Resources Code Section 21083.2 (g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person" (Public Resources Code Section 21083.2 (g)).

With only slight modification, this definition equally is applicable to recognizing "a unique paleontological resource or site." Additional guidance is provided in CEQA section 15064.5 (a)(3)(D), which indicates "generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history."

Treatment options under Section 21083.2 of the Public Resources Code include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Section 7050.5 (b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

CEQA Guidelines Section 15064.5(e) requires that excavation activities be stopped whenever human remains are uncovered and that the County Coroner be called in to assess the remains. If the County Coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, the lead agency is required to consult with the appropriate Native Americans as identified by the NAHC and direct the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Local

City of Menlo Park General Plan. The following policy from the Land Use Element of the General Plan pertains to the Project.

> *Policy I-H-11:* Buildings, objects, and sites of historic and/or cultural significance should be preserved.

The following goal and policy from the Open Space and Conservation Element of the City's General Plan pertains to the Project.

> **Goal 8:** To preserve historic building, objects, and sites of historic and cultural significance.
>
> *Policy 6:* Protect conservation and scenic areas, historic and cultural sites from deterioration or destruction by vandalism, private actions or public actions.

Existing Conditions

Prehistoric Setting

Prehistoric human occupation and use of the San Francisco Bay Area (Bay Area) occurred roughly 5,000 to 8,000 years ago and possibly longer. The Project area would have provided a favorable environment during the prehistoric period for resource exploitation. Native American archaeological

sites in this area of San Mateo County tend to be situated near the historic margin of the San Francisco Bay (Bay) tidal marshland and along creeks that drain upland terrain bordering the Bayshore plain.

Archaeological information suggests a slow and steady growth in the prehistoric population over time with more permanent settlements being established further inland near creeks that fed into the Bay. Resource exploitation generally appears to have evolved over time into a seasonal system including Bay and inland resources. This change from hunter-collectors to an increasingly sedentary lifestyle is due both to more efficient resource procurement, a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasingly complex social and political systems (e.g., long-distance trade networks).

Ethnographic Setting

The Project area lies within the traditional northern territory of the Native American people collectively known as the Ohlone. Traditionally, the Ohlone are separated into several ethnic groups, generally based on a common language and territory. It has been estimated that, at the time of Spanish settlement, the Ohlone lived in approximately 50 separate, politically autonomous nations or tribes throughout the entire Bay Area. Autonomous tribes consisted of one or more villages and several camps located within its territory.[1] Villages usually consisted of 15 or more households and usually included a ceremonial gathering center, while camps were located at resource acquisition sites and only occupied seasonally. At least seven tribes and 20 villages are documented as existing within the Project vicinity. Each tribe ranged from 50 to 500 people, with an average of 200 people per tribe,[2] making the Bay Area the most densely populated area north of Mexico prior to European settlement.[3]

The Ohlone people scheduled their lives around the seasonal availability of key resources, such as waterfowl, mussels, salmon, and acorns while large mammals, such as deer, elk, and antelope, were available year-round. The Ohlone also tended their environment by a controlled use of fire, which not only reduced the risk of large uncontrolled fires by minimizing the amount of chaparral species, but also promoted the growth of seed-bearing annual plants and provided extensive grazing areas for game animals.[4]

Upon the arrival of the Spanish and the subsequent establishment of the mission system, Native American populations in the region declined greatly. Many Ohlone became associated with Mission San Francisco de Asís (Mission Dolores), Mission Santa Clara de Asís, and/or Mission San Jose in Fremont. Recruitment, forced labor on mission lands, and introduced European diseases were damaging to native populations. However, instead of these factors causing the extinction of a people,

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1 Margolin, M. 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. Berkeley, CA: Heyday Books, pp. 13, 52.

2 Milliken, R.T. 1995. *Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810*. Menlo Park, CA: Ballena Press, pp. 231–261.

3 Margolin, M. 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. Berkeley, CA: Heyday Books, p. 1.

4 Paddison, J., editor. 1999. A World Transformed: firsthand accounts of California before the Gold Rush. Heyday Books, Berkeley, California, page 11.

what occurred instead was the adaptation of native cultures to the rapidly changing times, which has allowed the Ohlone and their descendents to survive.

Historic Setting

Spanish rule came to the Menlo Park area in 1769 when the exploration party led by Don Gaspar de Portola camped near "El Palo Alto" after their discovery of the Bay. The colonization of the San Francisco Peninsula began after the expedition of Juan Bautista de Anza passed through Menlo Park on its way to establishing Mission Dolores and the Presidio of San Francisco in 1776.

The mission padres, explorers, military personnel, travelers, and settlers occupied areas of what is today Menlo Park, developing and populating the land. As a reward for their contribution to the settling movement, some pioneers were granted huge portions of land by the Spanish, and after 1822, by the Mexican government. The largest land grant on the San Francisco Peninsula was the Rancho de las Pulgas, an area of over 35,000 acres, awarded to presidio Comandante Don Jose Dario Arguello in 1795 by Governor Diego de Borica, and endorsed on behalf of his son Luis Arguello in 1820 by Pablo Sola, the last Spanish governor of California. This land extended north and south from San Mateo Creek to San Francisquito Creek, and east and west from the Bay to today's Cañada Road in Woodside. The present boundaries of Menlo Park would have been within this rancho, which became part of the new State of California. The Arguello family obtained legal title to their lands in 1853 and later the land was subdivided.

In August 1854, Menlo Park received its official name when two Irishmen, Dennis J. Oliver and D.C. McGlynn, whose wives were sisters, purchased 1,700 acres (some sources say it was 640 acres) bordering present day El Camino Real, and built two houses with a common entrance. Across the drive they erected a huge wooden gate with tall arches on which the name of their estate "Menlo Park" was printed in foot-high letters. When the railroad came through in 1863, the Menlo Park station was unnamed, so a railroad official looked over at the gates and decided that "Menlo Park" would be officially adopted. This station is now California State Landmark No. 955, the oldest California station in continuous operation.

San Mateo County became independent of San Francisco County in 1856. A county road had been laid from San Francisco to Belmont and soon was extended to San Jose. This opened the San Francisco Peninsula to the residents of San Francisco who wished to establish summer residences in the country. Among the first to buy large tracts of land and build mansions were the Atherton, Hopkins, Flood, Mills, Donohoe, and Felton families. These estates were largely self-sufficient, working farms and some had their own services, such as barber shops, general stores, blacksmith shops, livery stables, saloons, and hotels.

On March 23, 1874, Menlo Park became the second incorporated city in San Mateo County, although only for a short time. The purpose was to provide a quick way to raise money for road repairs. This incorporation, which included Fair Oaks (later Atherton) and Ravenswood (later East Palo Alto), lasted only until 1876.

Menlo Park remained relatively rural until World War I, when it was suddenly populated by 43,000 soldiers in training at Camp Fremont, on land which extended from Valparaiso Avenue to San Francisquito Creek, and El Camino Real to the Alameda de las Pulgas.

Menlo Park reincorporated in 1923 with much the same boundaries as the earlier town. Incorporation planning involving Menlo Park and Atherton culminated in a dramatic race to the County Courthouse to file differing plans. Atherton representatives arrived only minutes before those from Menlo Park, who had wished to include Atherton in their plans. Final incorporation of Menlo Park took place in November 1927.

Project Site

East Campus. The 56.9-acre East Campus, which was formerly occupied by Oracle (formerly Sun Microsystems), contains nine existing buildings, totaling more than one million sf. Prior to occupation, the East Campus historically consisted of tidal marshlands associated with the Bay. The first levees were reportedly constructed around the East Campus in 1946 in connection with the salt evaporation pond construction.[5] The levees were raised in 1960 to an elevation of approximately five feet above mean sea level (msl). During 1968, the sloughs and ditches that traversed the East Campus reportedly were filled with recompacted Bay mud and varying amounts of compacted fill.[6]

The East Campus was formerly owned by Raychem and was referred to as Raychem's East Campus. Raychem, founded in 1957 and now owned by TE Connectivity, was a materials science company that developed and supplied high-performance products for aerospace, automotive, construction, electronics, electrical power, process, and telecommunication industries. Raychem planned to develop the East Campus for commercial use through the 1977 Raychem Master Site Plan and started to prepare the site by raising the levee elevations, importing fill material, and constructing several building pads. In 1982, a concrete utility tunnel and vehicular/pedestrian underpass was constructed under Bayfront Expressway between the proposed East Campus and West Campus.

Although Raychem prepared the East Campus for development with approval from the City, Raychem did not ultimately initiate building construction and the site remained vacant. In 1991, Sun Microsystems proposed an amendment to the approved Master Site Plan to increase the number of parking spaces and employees. The current on-site buildings were constructed beginning in 1993 and were operated by Sun Microsystems until 2010 for office and computer hardware testing purposes.[7]

West Campus. The 22-acre West Campus was formerly owned by General Motors and occupied by companies that have been since been purchased by TE Connectivity (formerly Raychem and Tyco Electronics). The West Campus currently consists of two vacant office buildings, a guard house,

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5 Cornerstone Earth Group. *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*. November 3, 2010.

6 Cornerstone Earth Group. *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*. November 3, 2010.

7 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*, November 3, 2010.

surface parking lots, and 8.5-acres of formerly developed open space and minimal vegetation. Prior to occupation by Raychem, the site was primarily undeveloped marshland with one asphalt batch plant.

In 1965, Raychem purchased approximately 40 acres of land in the area and initiated construction of its manufacturing facility. By 1968, Raychem had increased ownership of land to approximately 82 acres, gradually expanding from Chilco Drive on the west to near Willow Road on the east. The former asphalt batch plant was dismantled between October 1969 and June 1971.[8] The West Campus was part of an area known as Expanded Area 6 (also commonly referred to as the ChemPlant).[9] Operations began in Expanded Area 6 in approximately 1968 and originally included a Hazardous Waste Transfer Depot, an Omega Wastewater Treatment System, several solid waste management units (SWMUs), a process wastewater sump, a Therminol Heater/Dowtherm Boiler, and five buildings (Buildings N, O, P, U, and Y).[10]

Buildings I and J, which are the two existing buildings at the West Campus, were constructed in the 1980s on the site of the former asphalt batch plant.[11] Buildings I and J reportedly were used as office buildings and not for R&D or manufacturing purposes; however, these buildings were vacated after Tyco Electronics acquired Raychem. At this time, Tyco Electronics leased Building I to Interwave Communications (2000 to 2003) and Building J to Applicast, Inc. (2000 to 2002). Buildings I and J are still on the site, while the other buildings have been demolished in order to prepare the site for potential sale and redevelopment. In 2007, Argonaut Holdings, a subsidiary of the GM Corporation, purchased the site with the intent of redeveloping the property with a new auto center.[12] This plan did not succeed and the site remains vacant and only partially developed.

Paleontological Resources

Geology. The West Campus is covered with a layer of artificial fill, ranging from 0 to 6 feet thick. Below the fill are younger sediments, possibly Bay Mud, to a depth of approximately 11 feet, which is underlain by Holocene-age alluvial deposits.[13] At the East Campus, the fill ranges in thickness from 2 to 9 feet and is reportedly underlain by approximately 3 to 11 feet of Bay Mud.[14]

Artificial fill consists of mixed sand, silt, clay, gravel, and man-made debris, deposited mechanically or hydraulically. Bay Mud is an unconsolidated, water-saturated, layered deposit of soft, organic rich

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8 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

9 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

10 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

11 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

12 Cornerstone Earth Group, Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California, November 19, 2010.

13 Cornerstone Earth Group. *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*. November 18, 2010.

14 Cornerstone Earth Group. Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California, November 3, 2010.

clay and silty clay, containing seams of sand, deposited on the bottom of the Bay. The alluvial deposits, generally less than 15 feet thick, consist of interbedded silty and organic clays, sand, and gravel derived from the Santa Cruz Mountains to the west. The deposits formed in poorly drained interfluvial basins, usually at the margins of tidal marshlands, where they interfingered with Bay Mud.[15]

Paleontologic Resources. The fossil-yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks.

No fossils have been reported from artificial fill in the Bay Area.[16] Artificial fill could include sediment from older rocks obtained elsewhere. Therefore, it is possible there could be fossils, but because the fossils would have been transported from their original locations they would lack stratigraphic context and be of limited scientific value. Pollen, plants, and shells have been recovered from Bay Mud, but vertebrate fossils have not been reported.[17] Remains of land mammals (extinct mammoth, bison, and horse) have been reported from localities in younger alluvium along the Bay margin in the Bay Area.[18]

Paleontological Sensitivity. The Conformable Impact Mitigation Guidelines Committee of the Society of Vertebrate Paleontology (SVP) has published Standard Guidelines in response to a recognized need to establish procedures for the investigation, collection, preservation, and cataloguing of fossil-bearing sites. The Standard Guidelines are widely accepted among paleontologists, followed by most investigators, and identify the two key phases of paleontological resource protection as (1) assessment and (2) implementation. Assessment involves identifying the *potential* for a project site or area to contain significant nonrenewable paleontological resources that could be damaged or destroyed by project excavation or construction. Implementation involves formulating and applying measures to reduce such adverse effects. The SVP defines the level of potential as one of three sensitivity categories for sedimentary rocks: High, Moderate, and Low, as listed below.

- *High Sensitivity:* Assigned to geologic formations known to contain paleontological localities with rare, well preserved, and/or critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups. Generally speaking, highly sensitive formations are known to produce vertebrate fossil remains or are considered to have the potential to produce such remains.

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15 Cornerstone Earth Group. *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*. November 18, 2010.

16 San Francisco Redevelopment Agency, Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, SCH No. 2007082168, November 2009, Section III.J (Cultural Resources and Paleontological Resources).

17 San Francisco Redevelopment Agency, Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, SCH No. 2007082168, November 2009, Section III.J (Cultural Resources and Paleontological Resources).

18 San Francisco Redevelopment Agency, Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, SCH No. 2007082168, November 2009, Section III.J (Cultural Resources and Paleontological Resources).

- *Moderate Sensitivity:* Assigned to geologic formations known to contain paleontological localities with moderately preserved, common elsewhere, or stratigraphically long-ranging fossil material. The moderate sensitivity category also is applied to geologic formations that are judged to have a strong, but unproven potential for producing important fossil remains (e.g., Pre-Holocene sedimentary rock units representing low to moderate energy, of marine to non-marine depositional settings).
- *Low Sensitivity:* Assigned to geologic formations that, based on their relative youthful age and/or high energy depositional history, are judged unlikely to produce important fossil remains. Typically, low sensitivity formations may produce invertebrate fossil remains in low abundance.

Based on these criteria, the artificial fill would have low sensitivity for paleontological resources. The Bay Mud would have moderate sensitivity. The Holocene alluvial deposits that underlie the Bay Mud are considered high sensitivity.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Cause a substantial adverse change in the significance of a historical resource.
- Cause a substantial adverse change in the significance of an archaeological resource.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Disturb any human remains, including those interred outside of formal cemeteries.

Methodology

NWIC Records Search. Atkins archaeologist Lora Holland conducted a confidential records search for the Project area and surrounding one-quarter-mile radius at the Northwest Information Center (NWIC) on June 17, 2011 (NWIC Records Search Number 10-1253). The search included a review of the NRHP, the California Historic Resources Inventory, records of previously recorded cultural resources, records of previous field studies, and other historic maps and documents. The records search did not identify any previously recorded prehistoric or historic-era cultural resources or previous studies in the Project area. The records search identified one prehistoric site and one historic/prehistoric archeological site within the one-quarter mile radius.

Native American Consultation. Atkins requested a search of the Native American Heritage Commission (NAHC) sacred lands database on June 15, 2011 to determine if any Native American cultural resources are present in or near the vicinity of the Project area. The NAHC response letter dated July 19, 2011 stated that the search of the sacred lands database failed to indicate the presence of Native American resources in the immediate Project area. The NAHC letter included a list of Native

American organizations and individuals who may have knowledge of cultural resources in the Project area. Letters that included a brief description of the Project and a Project map were sent to each organization/individual identified on the NAHC list. As of the printing of this document, two responses from tribal representatives were received. One response requested monitoring of ground-disturbing activities (see Mitigation Measure CR-2.1, below). The second response asked for additional archaeological information but did not indicate the presence of Native American cultural resources in the area.

Environmental Analysis

CR-1 ***Impacts to Historic Resources.*** *The Project at the West Campus would not cause a substantial adverse change in the significance of a historical resource. (LTS)*

Buildings I and J, which are the two existing buildings at the West Campus, were constructed in the 1980s.[19] Generally, resources must be at least 50 years old to be considered for listing on the California Register. A resource less than 50 years old may be considered for listing in the California Register if it can be demonstrated that sufficient time has passed to understand its historical importance. In addition, buildings can be determined significant if they have made a substantial contribution to the broad patterns of California's history or if they are associated with the lives of important historical figures.[20] There is no scholarly or other information that establishes the historical significance of the structures or other built-features at the West Campus. As such, the impact on historic resources with implementation of the Project would be ***less than significant***.

CR-2 ***Impacts to Archaeological Resources.*** *The Project at the West Campus has the potential to encounter and damage or destroy previously unknown subsurface archaeological resources during construction. This impact would be potentially significant. (PS)*

The Project site lies within an area once occupied by the Costanoan, or Ohlone, group of Native Americans. Native American archaeological sites in this area of San Mateo County tend to be situated near the historic margin of Bay tidal marshland and along creeks that drain upland terrain bordering the Bayshore plain. Although the cultural resources records search and Native American correspondence conducted for the Project revealed no recorded Native American or historic-period archaeological sites within the Project area and the area was subject to ground disturbance by previous development, given the environmental sensitivity of the Project area, there exists a moderate to high possibility of encountering Native American sites during construction at the West Campus. If encountered during construction, such resources could be damaged or destroyed, and this would be considered a ***potentially significant impact***.

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[19] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[20] State of California, Office of Historic Preservation, Bulletin 7 California Register Nomination Instructions, September 2001.

MITIGATION MEASURE. Mitigation Measure CR-2.1, below, would reduce potentially significant impacts on archaeological resources at the West Campus to a ***less-than-significant*** level. (LTS)

CR-2.1 *Perform Construction Monitoring, Evaluate Uncovered Archaeological Features, and Mitigate Potential Disturbance for Identified Significant Resources at the West Campus*. Prior to demolition, excavation, grading, or other construction-related activities on the West Campus, the applicant shall hire a qualified professional archaeologist (i.e., one who meets the Secretary of the Interior's professional qualifications for archaeology or one under the supervision of such a professional) to monitor, to the extent determined necessary by the archaeologist, Project-related earth-disturbing activities (e.g. grading, excavation, trenching). In the event that any prehistoric or historic-period subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian, and/or mortar are discovered during demolition/ construction-related earth-moving activities, all ground-disturbing activity within 100 feet of the discovery shall be halted immediately, and the Planning and Building Divisions shall be notified within 24 hours. City staff shall consult with the Project archeologist to assess the significance of the find. Impacts on any significant resources shall be mitigated to a less-than-significant level through data recovery or other methods determined adequate by the City and that are consistent with the Secretary of the Interior's Standards for Archaeological Documentation. If Native American archaeological, ethnographic, or spiritual resources are discovered, all identification and treatment of the resources shall be conducted by a qualified archaeologist and Native American representatives who are approved by the local Native American community as scholars of the cultural traditions. In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. When historic archaeological sites or historic architectural features are involved, all identification and treatment is to be carried out by historical archaeologists or architectural historians who meet the Secretary of the Interior's professional qualifications for archaeology and/or architectural history.

CR-3 ***Impacts to Paleontological Resources.*** *The Project at the West Campus has the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. This impact would be potentially significant. (PS)*

Impacts on paleontological resources would depend on the depth, extent, and type of soil-disturbing activities that may occur as a result of construction at the West Campus, as well as the paleontological sensitivity of the materials underlying the site.

Site preparation at the West Campus would involve earthwork, such as shallow excavation, grading, trenching, and installation of foundation piles, all of which would encounter artificial

fill. Extensive, deep excavation is not planned at the West Campus. Activities that disturb artificial fill would not result in a significant impact on paleontological resources because, as discussed above, fill is of low paleontological sensitivity.

Fill would be imported to the site and compacted to increase the elevation of the West Campus to provide necessary flood protection (see Section 3.12, Hydrology and Water Quality). While placement of fill would increase the distance between the surface and the underlying Bay Mud, installation of foundation piles for Buildings 1, 2, and 3 could intercept Bay Mud and possibly the alluvial deposits underlying the Bay Mud. If deep utility trenches are necessary, they could also intercept Bay Mud.

According to the Geotechnical Feasibility Evaluation for the West Campus, deep foundations would likely be installed as concrete driven piles or drilled, cast-in-place piles. The length of the piles (i.e., their final depth) would be determined in conjunction with final building designs. Materials brought to the surface by the auger for drilled piles could contain fossils. However, the fossils, if present in Bay Mud or alluvial deposits, would likely be destroyed by the auger drill. If utility trench excavations are deep enough, they could expose undisturbed Bay Mud, which may contain fossils. The trenching could damage or destroy fossils. Because the Bay Mud and alluvial deposits have moderate to high paleontological sensitivity, this is considered a potentially significant impact.

MITIGATION MEASURE. Mitigation Measure CR-3.1, below, would reduce potentially significant impacts on paleontological resources to a ***less-than-significant*** level for the West Campus. (LTS)

CR-3.1 *Conduct Protocol and Procedures for Encountering Paleontological Resources at the West Campus*. Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology (SVP), who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and will follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who will evaluate its significance.

If a fossil is determined to be significant and avoidance is not feasible, the paleontologist will develop and implement an excavation and salvage plan in accordance with SVP standards. Construction work in these areas shall be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan

Report shall be prepared that outlines the results of the mitigation program. The City shall be responsible for ensuring that monitor's recommendations regarding treatment and reporting are implemented.

CR-4 ***Impacts to Human Remains.*** *The Project at the West Campus has the potential to encounter or discover human remains during excavation or construction in the Project area. This impact would be potentially significant. (PS)*

Although the cultural resources records search and Native American correspondence conducted for the Project revealed no recorded Native American or historic-period archaeological sites within the Project area, given the location of the Project site in an archaeologically sensitive area, there exists a moderate to high possibility of identifying Native American sites during construction at the West Campus. If encountered during construction, such resources could be damaged or destroyed, and this would be considered a ***potentially significant impact***.

MITIGATION MEASURE. Mitigation Measure CR-4.1, below, would reduce potentially significant impacts associated with the disturbance of human remains to a ***less-than-significant*** level. (LTS)

CR-4.1 *Comply with State Regulations Regarding the Discovery of Human Remains at the West Campus*. If human remains are discovered during any construction activities, all ground-disturbing activity within 50 feet of the remains shall be halted immediately, and the County Coroner shall be notified immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. Additionally, the Building Division shall be notified. If the remains are determined by the County Coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. The Project Sponsor shall also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. As necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains. The Planning Division shall be responsible for approval of recommended mitigation as it deems appropriate, taking account of the provisions of state law, as set forth in CEQA Guidelines Section 15064.5(e) and Public Resources Code Section 5097.98. The applicant shall implement approved mitigation, to be verified by the Planning Division, before the resumption of ground-disturbing activities within 50 feet of where the remains were discovered.

Cumulative Analysis

The geographic context for the analysis of cumulative impacts associated with cultural resources considers a broad regional system of which the resources are a part of. The cumulative context for this cultural resources analysis is the Bay Area, where common patterns of prehistoric and historic development have occurred. The analysis accounts for anticipated cumulative growth within the nine counties comprising the Bay Area. The cumulative projects considered in this Draft EIR consist of two categories, Tier 1 and Tier 2, as shown in Table 3.1-1 and Table 3.1-2 of Section 3.1. In addition build-out of the General Plans of the nine Bay Area counties and associated cities is considered in the cumulative context.

C-CR-1 ***Cumulative Impacts on Historical Resources.*** *Construction activities on the West Campus and other cumulative development would not result in a significant cumulative impact to historical resources. (LTS)*

Tier 1 and Tier 2

Urban development that has occurred over the past several decades in the Bay Area has resulted in the demolition and alteration of historical resources, and it is reasonable to assume that present and future development activities will continue to result in impacts on historical resources. Because all historical resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. Federal, State, and local laws protect historical resources in most instances. Even so, it is not always feasible to protect historical resources, particularly when preservation in place would prevent implementation of projects. For this reason, the cumulative effects of development in the region on historical resources are considered significant.

Buildings I and J, which are the two existing buildings at the West Campus, were constructed in the 1980s. While these buildings would be demolished with implementation of the Project, there is no scholarly or other information that establishes the historical significance of the structures or other built features at the West Campus. Therefore, the Project would not contribute to any potential cumulative impact on historical resources and the cumulative impact would be ***less than significant***.

C-CR-2 ***Cumulative Impacts on Archaeological, Paleontological Resources, and Human Remains.*** *Construction activities on the West Campus and other cumulative development could result in impacts to archaeological resources. This cumulative impact is potentially significant. (PS)*

Tier 1 and Tier 2

Given the location of the Project site in an archaeologically sensitive area, there exists a moderate- to high-possibility of identifying Native American sites during construction. In particular, the West Campus soil types have moderate to high paleontological sensitivity.

The Project, in combination with other foreseeable development in the identified geographic context, has the potential to encounter and damage or destroy previously unknown subsurface archaeological, paleontological resources, or human remains during construction. All significant archaeological, paleontological resources, and human remains are unique and non-renewable resources. For this reason, the cumulative effects of all development on these resources are considered significant.

As analyzed above, the Project would potentially contribute to the cumulative loss of archeological, paleontological resources, and human remains. Therefore, the Project's contribution could be considerable, resulting in a potentially significant cumulative impact. Mitigation Measures CR-2.1, CR-3.1, and CR-4.1, included above, prescribe discovery procedures for any previously unknown archaeological, paleontological resources, or human remains encountered during Project construction. The discovery procedures are consistent with professional standards and, as they pertain to discovered human remains, are compliant with State law. Compliance with these mitigation measures would reduce the Project's contribution to the cumulative impact to less than cumulatively considerable, and reduce the potentially significant cumulative impacts associated with the loss of archeological, paleontological resources, and the disturbance of human remains to a ***less-than-significant*** level.

3.10 BIOLOGICAL RESOURCES

Introduction

This section describes the biological resources that exist on the Project site. This section is based on a biological resources survey conducted on June 22, 2011 by Atkins, review of lists of special-status plants and wildlife from the California Department of Fish and Game's (CDFG) Natural Diversity Database (CNDDB), the U.S. Fish and Wildlife Service's (USFWS) online species list, and the California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants. The purpose of the biological resources survey was to determine if the Project site contains any wetlands, and/or habitat that could support special-status plant or wildlife species known from the region, and to document any occurrences of those species, if observed during the field survey.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to the facilitation of raptor predation on special-status species occurring in the nearby salt and brackish water marshes, removal and replacement of heritage trees, and disturbance to nesting migratory birds and roosting bats.

The changes in the Conditional Development Permit (CDP) for the East Campus would not result in impacts to biological resources; therefore, Project impacts at the East Campus are not discussed further in this section.

Applicable Plans and Regulations

There are a number of State and federal regulations that relate specifically to the protection and conservation of biological resources. However, many of these concern special status species (Federal and State Endangered Species Acts) or habitats (Clean Water Act, Porter-Cologne Water Quality Control Act) that are not found within the Project area. The following regulations and ordinances are relevant to the Project area.

Federal

Federal Endangered Species Act (FESA). The federal Endangered Species Act was enacted in 1973. Under the FESA, the Secretary of the Interior and the Secretary of Commerce, jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). FESA is administered by both the National Marine Fisheries Service (NMFS) and the USFWS. NMFS is accountable for animals that spend most of their lives in marine waters, including marine fish, most marine mammals, and anadromous fish such as Pacific salmon. The USFWS is accountable for all other federally-listed plants and animals.

Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize

the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). Therefore, Project-related impacts to these species or their habitats would be considered significant and would require mitigation.

The Sacramento Fish and Wildlife Office maintain a list of "species of concern" that receive special attention from federal agencies during environmental review, although they are not otherwise protected under FESA. Project-related impacts to such species would also be considered significant under California Environmental Quality Act (CEQA) Guidelines Section 15380 and would require mitigation.

Projects that would result in "take" of any federally-listed threatened or endangered species are required to obtain authorization from NMFS and/or USFWS through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project. The Section 7 authorization process is used to determine if a project with a federal nexus would jeopardize the continued existence of a listed species and what mitigation measures would be required to avoid jeopardizing the species. The Section 10(a) process allows take of endangered species or their habitat in non-federal activities.

Migratory Bird Treaty Act of 1918. The federal Migratory Bird Treaty Act (MBTA) makes it unlawful to "take" (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. Most of the birds that commonly occur within the Project area, like Brewer's blackbird, western scrub-jay, house finch, and American crow, are protected under the MBTA.

State

California Endangered Species Act (CESA). The California Endangered Species Act was enacted in 1984. Under the CESA, the California Fish and Game Commission (CFGC) has the responsibility for maintaining a list of threatened species and endangered species. CDFG also maintains lists of species of special concern which impacts would be considered significant under CEQA Guidelines Section 15380 and could require mitigation. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the Project area and determine whether the proposed project would have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any Project which may impact a candidate species. CESA prohibits the take of California listed animals and plants in most cases, but CDFG may issue incidental take permits under special conditions.

Sections 3503, 3503.5, 3800 of the Fish and Game Code. These sections of the Fish and Game Code prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." Removal of vegetation is the most common action that can lead to a violation of these code sections.

Local

City of Menlo Park Municipal Code Chapter 13.24. The Project would be subject to the City of Menlo Park Municipal Code (Municipal Code) Chapter 13.24, which establishes regulations for the preservation of heritage trees. The Project could result in a loss of trees protected by Chapter 13.24. The Municipal Code, Chapter 13.24 establishes regulations for the preservation and removal of heritage trees, which are defined as:

- A tree or group of trees of historical significance, special character or community benefit, specifically designated by resolution of the City Council;
- An oak tree (*Quercus* sp.) which is native to California and has a trunk with a circumference of 31.4 inches (diameter of ten [10] inches) or more, measured at fifty-four (54) inches above natural grade. Trees with more than one trunk shall be measured at the point where the trunks divide, with the exception of trees that are under twelve (12) feet in height, which will be exempt from this section; and
- All trees other than oaks which have a trunk with a circumference of 47.1 inches (diameter of fifteen (15) inches) or more, measured fifty-four (54) inches above natural grade. Trees with more than one trunk shall be measured at the point where the trunks divide, with the exception of trees that are less than twelve (12) feet in height, which will be exempt from this section. (Ord. 928 Section 1 (part), 2004).

As required by the City's Municipal Code, a tree survey shall be conducted by a certified arborist, and a tree report and map shall be prepared showing the locations of all pertinent trees within the Project envelope prior to initiation of construction activities. Any work performed within an area ten times the diameter of the tree (i.e., the tree protection zone) shall require submittal of a tree protection plan for review and approval by the Community Development Director or his/her designee prior to issuance of any permit for grading or construction, and shall be prepared by a certified arborist. Removal of heritage trees requires obtaining an appropriate permit from the Director of Public Works and payment of a fee. In keeping with the general intent of Chapter 13.24 to preserve and maintain trees, the Project Sponsor shall retain as many of the native trees as feasible.

Applicants are required to submit a site plan with the Heritage Tree Removal Application Permit even if they have submitted a site plan to the City for a planning or building permit. The site plan facilitates the review by the City Arborist. Also for removals of two or more trees, applicants shall be required to submit a planting plan indicating the species, size and location of the proposed replacement trees on a site plan. Heritage Tree Permits related to construction will also be charged for City-retained arborist expenses.

City of Menlo Park General Plan. The following policy from the Land Use Element of the General Plan pertain to the Project.

> *Policy I-G-8:* The Bay, its shoreline, San Francisquito Creek, and other wildlife habitat and ecologically fragile areas shall be maintained and preserved to the maximum extent possible. The City shall work in cooperation with other jurisdictions to implement this policy.

The following goal and policies from the Open Space and Conservation Element of the City's General Plan pertain to the Project.

> **Goal 7:** To protect and conserve open areas rich in wildlife or of a fragile ecological nature.
>
> *Policy 6:* Protect conservation and scenic areas, historic and cultural, from deterioration or destruction by vandalism, private actions or public actions.
>
> *Policy 7:* Preserve and protect water, water-related areas, wildlife and plant habitat areas to maintain and enhance their open space and conservation purposes.

Existing Conditions

The Project site, which includes the East Campus and the West Campus, is located within the Palo Alto United States Geological Survey (USGS) 7.5 minute quadrangle in San Mateo County. Both the East Campus and West Campus are relatively flat and occur between 9 and 13 feet above mean sea level (msl). The East Campus and West Campus are separated by Bayfront Expressway/State Route (SR) 84, which runs in an east-west direction between the two campuses. Commercial, industrial, and residential development occurs to the south and southeast of the Project site. While the two campuses are currently developed, both sites are built on San Francisco Bay fill lands that formerly consisted of salt and brackish water marshes. Salt and brackish water marshes that border the southern portion of the Bay occur to the north and west of the East Campus are a part of the Don Edwards Bay National Wildlife Refuge (Refuge) and are associated with the South Bay Salt Pond Restoration Project.

East Campus

The East Campus is bound by the tidal mudflats and marshes of the Bay and Ravenswood Slough to the north and west, and Bayfront Expressway to the east and south. The Bay Trail runs along the southern portion of the East Campus, directly adjacent to Bayfront Expressway. The interior of the site consists of a cluster of existing multistory buildings surrounded by paved parking lots, and landscaping. Vegetation consists of ornamental lawns, shrubs, and trees. Tree species observed on the East Campus during the June 22, 2011 survey included river birch (*Betula nigra*), Brisbane box (*Tristania conferta*), thornless honey locust (*Gleditsia triacanthos*), paperbark tree (*Melaleuca quinquenervia*) and coast live oak (*Quercus agrifolia*). Small unidentified birds were observed in the courtyard during the survey, but no other wildlife species appeared to be present during the survey.

West Campus

The West Campus is bound by Bayfront Expressway to the north, Willow Road to the east, the Dumbarton Rail Corridor to the south, and the TE Connectivity site to the west. The Belle Haven neighborhood is located across the Dumbarton Rail Corridor to the south. Approximately half of the West Campus is developed and the entire site is currently unoccupied. Buildings on the western portion of the site are currently abandoned, and the landscaping associated with the development is unmaintained and overgrown with non-native annual grasses and forbs such as ripgut brome (*Bromus*

diandrus), wild oats (*Avena fatua*), prickly lettuce (*Lactuca serriola*) and Italian thistle (*Carduus pycnocephalus*).

The West Campus includes 624 trees on the site, consisting of 36 species. Of these, 233 trees qualify as heritage trees under the City's Tree Ordinance, as explained in more detail below.[1] Tree species observed during the June 22, 2011 survey included species such as Brazilian pepper (*Schinus terebinthifolius*), blue gum eucalyptus (*Eucalyptus globulus*), Mexican fan palm (*Washingtonia robusta*), Aleppo pine (*Pinus halepensis*), Ngaio tree (*Myoporum laetum*), and glossy privet (*Ligustrum lucidum*). According to the arborist report (Appendix 3.3), most trees were in fair to poor condition due to: lack of irrigation in recent years; possible brackish water intrusion; soil compaction and limited soil volumes; and topping for power line clearance.

Wetlands and Other Waters of the United States

Both the East Campus and West Campus were built on Bay fill, and are, therefore, located on historic salt or brackish water marshes. These marshes were filled in the 1960s to create more land for development. While in some cases such bay fill lands can start to revert to wetland conditions, both campuses are currently paved, landscaped, or are otherwise graded and, thus, no wetlands or waters of the U.S. were observed on either site during the June 22, 2011 field survey.

Special-Status Species

The CNDDB research compiled a list of special-status plant and wildlife species that have the potential to occur in the vicinity of the Project area from the sources listed below. The results of these queries are presented in Appendix 3.10. For the purposes of this section, special-status species include:

- Species listed, proposed, or candidate species for listing as Threatened or Endangered by the USFWS pursuant to the federal Endangered Species Act (FESA) of 1969, as amended;
- Species listed as Rare, Threatened, or Endangered by the CDFG pursuant to the California Endangered Species Act (CESA) of 1970, as amended;
- Species designated as Fully Protected under Sections 3511 (birds), 4700 (mammals), and 5050 (reptiles and amphibians) of the California Fish and Game Code;
- Species designated by the CDFG as California Species of Concern; and
- Species not currently protected by statute or regulation, but considered rare, threatened or endangered under CEQA (Section 15380).

[1] SBCA Tree Consulting, "Tree Survey - Facebook West Campus," May 18, 2011, Survey Addendum, July 19, 2011.

Table 3.10-1 presents a list of special-status species derived from the above queries potentially occurring in the region, along with a description of their habitat requirements, protection status and a brief discussion of their likelihood to occur within the Project site. Detailed discussions of those species that could occur near the Project site, and potentially be affected by Project development activities, are also provided. Figure 3.10-1 depicts the locations of the listed special-status species.

Western snowy plover (*Charadrius alexandrinus nivosus*). Western snowy plover is federally listed as threatened, and a California Species of Special Concern. This species occurs in coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. The CNDDB contains two records for western snowy plover within two miles of the Project site, and this species is known to nest in the salt flats near the Project site.

Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*). Saltmarsh common yellowthroat (also known as the San Francisco common yellowthroat) is a CDFG Species of Special Concern. Yellowthroats are found in freshwater marshes, coastal swales, swampy riparian thickets, brackish marshes, salt marshes, and the edges of disturbed weed fields. This yellowthroat occupies the ecotone between moist and upland situations, thus the proximity of various habitat types appears to enhance overall habitat suitability. The saltmarsh common yellowthroat breeds from mid-March to late July. The year-round diet of the common yellowthroat in California is roughly 99.8 percent animal matter, mainly insects and spiders. The CNDDB contains one record for Saltmarsh common yellowthroat within two miles of the Project site.

California black rail (*Laterallus jamaicensis coturniculus*). The California black rail is State-listed as threatened and a Fully Protected Species under the CDFG Code. Historically, California black rail was known from the San Francisco Bay Area (Bay Area) and the delta of the Sacramento and San Joaquin rivers south along the coast to northern Baja California, and in the San Bernardino-Riverside area, at the Salton Sea, and also along the lower Colorado River north of Yuma in California and Arizona. Most recorded occurrences are in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, they are usually found in bulrushes, cattails, and saltgrass. This species breeds as early as mid-March to mid-July. The CNDDB contains one record for California black rail within two miles of the Project site.

California clapper rail (*Rallus longirostris obsoletus*). The California clapper rail is both a federally and State endangered bird and it is also Fully Protected under the CDFG Code. This species range is restricted to tidal and brackish marshes in San Francisco, San Pablo and Suisun Bays, as well as Petaluma and Napa-Sonoma marshes, that are closely associated with pickleweed. Nesting season is from February to August, primarily occurring in the San Francisco estuary, the pair builds a cup nest of vegetation in dense cover above or near the water; nests usually include a domed canopy and an entrance ramp; young leave the nest within hours of hatching. It feeds on aquatic insects, crustaceans and small fish caught by probing, snatching or gleaning from the water, ground or vegetation; seeds, amphibians, worms and other small items may also be eaten. The CNDDB contains two records for California clapper rail within two miles of the Project sites.

Table 3.10-1
Special-Status Species Known in the Vicinity of the Project Area

Scientific Name	Common Name	Fed/State/Other	Habitat	Likelihood of Occurrence at Project Site
Plants				
Centromadia parryi ssp. congdonii	Congdon's tarplant	None/None/ S2	Occurs in valley and foothill grasslands (alkaline). Blooms from May to October/November months. Elevation ranges from 1 to 230 meters.	**Low:** No suitable habitat occurs within or adjacent to Project site. However, there are known occurrence within two miles of the Project site.
Cirsium praeteriens	Lost thistle	None/None/ 1A	Perennial herb that is native to California. Habitat ranges from 0 to 328 feet.	**None:** Presumed extinct.
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	None/None/ S2.2	Coastal salt marsh and swamp habitats ranging from 0 – 10 meters; blooms June – October.	**None:** While there are known occurrences within two miles, the absence of suitable habitat at the Project site precludes the species from occurring.
Stuckenia filiformis	Slender-leaved pondweed	None/None/ S1S2	Assorted shallow freshwater marshes and swamps ranging from 300 – 2150 meters; blooms May – July.	**None:** No suitable habitat occurs within or adjacent to the Project site. However, there are known occurrences within two miles of the Project site.
Invertebrates				
Danaus plexippus	Monarch butterfly	None/None/S3. Winter roosting sites protected by CDFG	Eucalyptus groves used as winter roost sites. Typically use the same groves year after year.	**None:** Eucalyptus trees present, but no records in the CNDDB of this species utilizing the Project area for winter roosting.
Amphibians				
Ambystoma californiense	California tiger salamander	FT/ST/ S2S3/CSC	Valley and foothill grasslands and adjacent oak woodlands; shelters in rodent burrows and breeds in seasonal wetlands such as vernal pools.	**None:** No suitable habitat in or adjacent to the Project site.
Reptiles				
Thamnophis sirtalis tetrataenia	San Francisco garter snake	FE/SE/S2	Utilizes a variety of habitats, preferring grasslands or wetlands near ponds, marshes, and sloughs. May overwinter in upland areas away from water.	**Low:** No suitable habitat at the Project site. However, is known to occur in adjacent salt marshes.
Birds				
Charadrius alexandrinus nivosus	Western snowy plover	FT/None/ CSC S2	Found in coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries.	**Low:** No suitable habitat on either the East or West Campus. However, is known occur in the nearby salt marshes.
Circus cyaneus	Northern harrier	None/None/ S3/CSC	Grasslands and open habitats; typically nests on the ground in dense vegetation.	**None:** No suitable habitat within or adjacent to the Project site.

Table 3.10-1
Special-Status Species Known in the Vicinity of the Project Area

Scientific Name	Common Name	Fed/State/Other	Habitat	Likelihood of Occurrence at Project Site
Laterallus jamaicensis coturniculus	California black rail	None/None/CSC, S2	Occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, usually found in bulrushes, cattails, and saltgrass. Usually found in immediate vicinity of tidal sloughs.	**Low:** No suitable habitat on either the East or West Campus. However, may occur in the nearby salt marshes.
Melospiza melodia pusillula	Alameda song sparrow	None/None/ CSC, S2	Found in marshland within the Bay.	**Low:** While there are known occurrence within two miles, the absence of suitable habitat precludes the species from occurring on the Project site.
Rallus longirostris obsoletus	California clapper rail	None/None/ CSC, S2	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of the Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**Low:** No suitable habitat on either the East or West Campus. However, may occur in the nearby salt marshes.
Sternula antillarum browni	California least tern	FE/SE/S2S3	Nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates. In the Bay region, breeding typically takes place on abandoned salt flats.	**Low:** No suitable habitat on either the East or West Campus. However, may occur in the nearby salt marshes.
Mammals				
Antrozous pallidus	Pallid bat	None/None/CSC, S3	Found in deserts, grasslands, shrub lands, woodlands and forests. Roosts in rock crevices, exterior eaves and cervices of buildings, and bridges in arid regions. Forages over dry land, typically taking prey from the ground or off of foliage.	**Moderate:** May occur in buildings on either campus, but particularly the abandoned buildings on the West Campus.
Dipodomys venustus venustus	Santa Cruz kangaroo rat	None/None/ S1	Chamise-redshank chaparral, coastal scrub, mixed chaparral.	**None:** No suitable habitat on either the East or West Campus and has low likelihood of occurrence due to status. May occur within the adjacent salt marshes.
Lasiurus cinereus	Hoary bat	None/None/S4	Solitary, foliage roosting species that is infrequently observed. Roosts are typically outside of urban areas. Forages in open areas or along habitat edges.	**Moderate:** Potentially suitable habitat in trees at the Project site and in vegetation along the Bay/salt marshes.
Reithrodontomys raviventris	Salt-marsh harvest mouse	FE/SE/CSC, S1S2	Occurs only in the saline emergent wetlands of the Bay and its tributaries. Pickleweed is primary habitat. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	**Low:** No suitable habitat on either the East or West Campus. However, may occur in the nearby salt marshes.
Sorex vagrans halicoetes	Salt-marsh wandering shrew	None/None/CSC, S1	Occurs in uplands immediately adjacent to salt marshes, where vegetation reaches four inches or less in height, with abundant driftwood for cover.	**Low:** No suitable habitat on either the East or West Campus. However, may occur in the nearby salt marshes.
Taxidea taxus	American badger	None/None/ CSC, S4	Occurs in dry, open grasslands, fields, and pastures. They are found from high alpine meadows to sea level.	**None:** No suitable habitat at the Project site.

Table 3.10-1
Special-Status Species Known in the Vicinity of the Project Area

Source: California Department of Fish and Game, Natural Diversity Database, Biogeographic Data Branch, "CNDDB Query for the Palo Alto, Woodside, Mountain View, La Honda, Mindego Hill, Cupertino, Redwood Point, and San Mateo 7.5 minute USCS quadrangle maps," June 4, 2011. (Appendix 3.10 of this Draft EIR)

Notes:

Federal
FE Federally listed as Endangered
FT Federally listed as Threatened

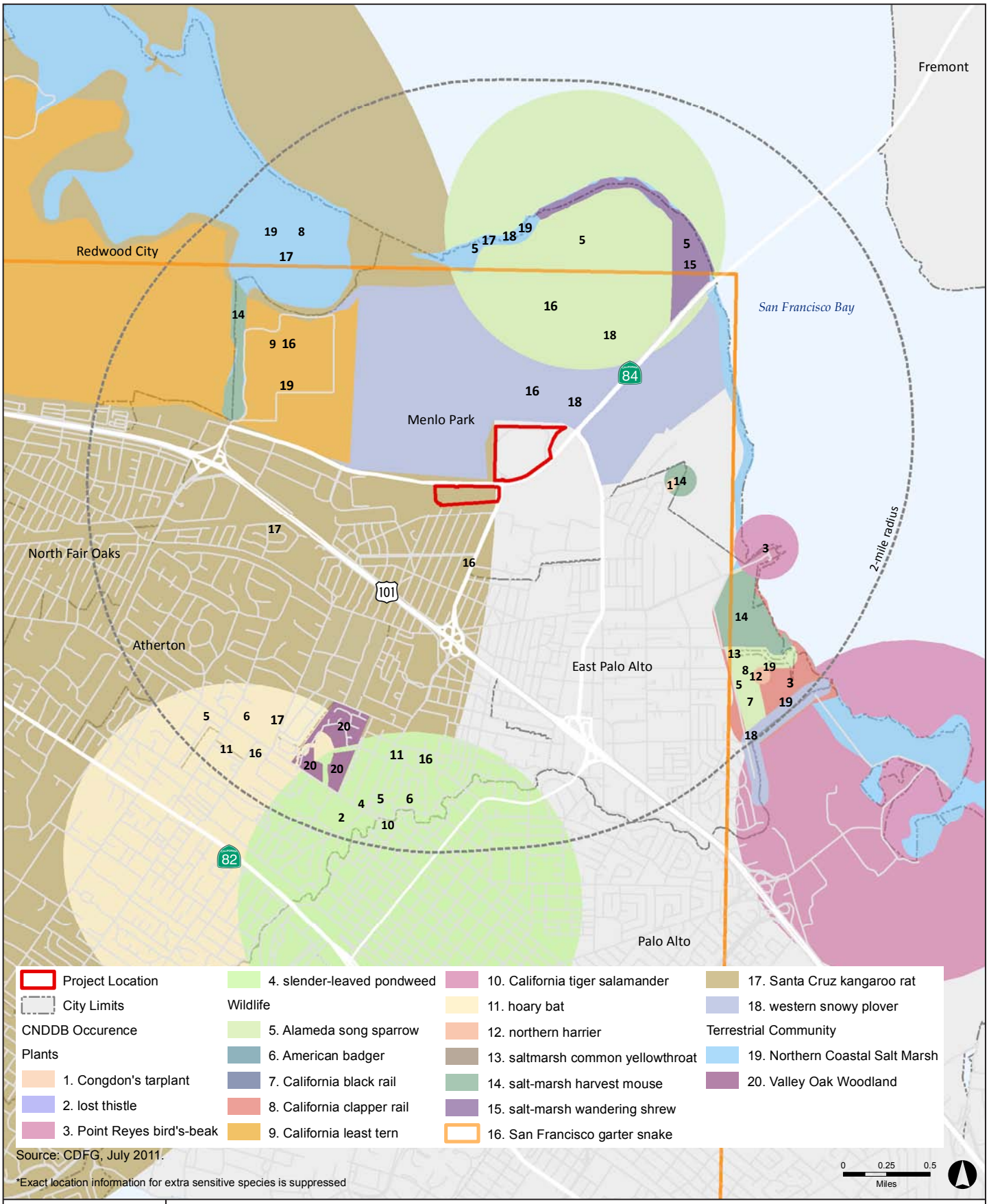
State
SE State listed as Endangered
ST State listed as Threatened
CSC California Department of Fish and Game designated "Species of Special Concern"

S1 - Less than 6 Element Occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres
S1.1 - very threatened
S2 - 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 - very threatened
S3 - 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 - very threatened
S4 - Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.

CNPS
1A Presumed extinct
1B California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California and elsewhere.
2 California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California, but more common elsewhere.
3 Plants about which more information is needed
4 Plants of limited distribution - a watch list

CNPS Threat Code Extension
.1 - Species seriously endangered in California
.2 - Species fairly endangered in California
.3 - Species not very endangered in California

Likelihood of occurrence evaluations:
A rating of "Moderate" indicates that it is not known if the species is present, but suitable habitat exists on-site.
A rating of "Low" indicates that species was not found during biological surveys conducted to date on the site and may not be expected given the species' known regional distribution or the quality of habitats located on the site.
A rating of "None" indicates that the taxa would not be expected to occur on the Project area because the site does not include the known range or does not support suitable habitat.



Source: CDFG, 2011.

ATKINS

FIGURE 3.10-1
CNDDB Special Status Species

California least tern (*Sternula antillarum browni*). California least tern is a federal and State Endangered and a Fully Protected Species under the CDFG Code. As its name implies, the least tern is the smallest of North American terns. It is approximately 8.25 to 9 inches long and its wingspan is approximately 19 to 21 inches. The breeding season begins in May, they are single brooded, but replace lost clutches. They nest in colonies on relatively open beaches kept free of vegetation by natural scouring from tidal action. Nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates. In the Bay region, breeding typically takes place on abandoned salt flats. The nest is a shallow hollow, usually unlined, or sparingly lined with nearby plant material or small pebbles or shell fragments. They mainly eat small fishes, but also eat shrimp and sometimes other invertebrates. The CNDDB contains one record for California least tern within two miles of the Project site.

Pallid bat (*Antrozous pallidus*). Pallid bat is a CDFG Species Of Special Concern, but has no federal status. This species uses hollow trees, caves, and rock crevices for roosting, but also uses man-made structures such as mines, old buildings, and bridges if suitable structure and seclusion are available. Threats include loss of roosting habitat, loss of maternity roosts, and illegal extermination during pest control. The CNDDB contains no records for pallid bat within two miles of the Project site.

Hoary bat (*Lasiurus cinereus*). Hoary bat is a CDFG Species Of Special Concern, but has no federal status. This species is solitary, typically roosting in foliage of riparian trees such as cottonwoods and sycamores, though eucalyptus are also known to be used as well. Roosting trees can occur at the edge of clearings, heavy forests, open wooded glades, and shade trees along urban streets and in city parks. Threats include loss of roosting habitat, loss of maternity roosts, and illegal extermination during pest control. The CNDDB contains one record for hoary bat within two miles of the Project site.

Salt marsh harvest mouse (*Reithrodontomys raviventris*). Salt marsh harvest mouse is both a federal Endangered Species and a California Endangered Species. This species is typically found in and adjacent to emergent salt marsh habitats dominated by dense growths of pickleweed. Salt marsh harvest mouse requires adjacent, upland areas for escape during high tides. Threats include loss of habitat due to conversion to urban development. The CNDDB contains three records for Salt marsh harvest mouse within two miles of the Project site.

Salt-marsh wandering shrew (*Sorex vagrans halicoetes*). Salt marsh wandering shrew is a CDFG Species of Special Concern, but has no federal status. This species is endemic to the salt marshes of the Bay, where they prefer a low, dense cover of pickleweed with abundant scattered driftwood. Threats include loss of habitat due to conversion to urban development. The CNDDB contains one record for salt marsh wandering shrew within two miles of the Project site.

Impacts and Mitigation Measures

Standards of Significance

The Project would have a significant impact with regard to biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Methodology

The Project setting was developed by reviewing available information on special-status species known to occur in the Project vicinity, and on wetlands or their habitat and "other waters of the U.S." This review was supplemented with a field survey on June 22, 2011 to determine which of these species actually occurs or whether potential habitat for these species is present on the Project site. The information review included:

1. A query of the CNDDB and USFWS species list databases for the Palo Alto, Woodside, Mountain View, La Honda, Mindego Hill, Cupertino, Redwood Point, and San Mateo 7.5 minute USGS quadrangle maps; and
2. A review of the habitat requirements of the special-status species determined to have potential to occur in the Project site through the above queries.

As stated in the setting section, results of the CNDDB and USFWS queries are provided in Appendix 3.10. A list of species likely to occur in and/or be affected by the Project was derived from the CNDDB and USFWS database queries, and is provided in Table 3.10-1 and Figure 3.10-1.

Impacts Not Evaluated In Detail

Approximately half of the West Campus is developed, with the remainder vacant, disturbed and largely barren ground. The entire site is zoned M-2, designated General Industrial, and is not a part of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

To the north, across Bayfront Expressway, are salt marshes that are a part of the Refuge. The USFWS is actively pursuing expansion of the Refuge and the protection of the habitats and associated plant and wildlife species contained therein. The USFWS is also closely involved with the South Bay Salt Pond Restoration Project that has active restoration sites near the Project site. However, the West Campus is separated from the Refuge and restoration Project sites by the Bayfront Expressway and a levee. Implementation of the West Campus phase would not involve any construction outside the currently developed/disturbed boundaries. Although all existing buildings and most of the existing landscaping would be removed prior to redevelopment of the site, none of these activities would interfere with the management and/or expansion of the Refuge or with the restoration of the salt ponds. Therefore, there would be ***no impact*** from implementation of the West Campus phase on an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plans.

Environmental Analysis

BR-1 ***Impacts on Special-Status Species at the Project Site.*** *The Project at the West Campus could have a potentially significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (PS)*

Pallid bats and other potential crevice-roosting bat species are the only mammal species that have a moderate likelihood of occurrence in the vicinity of the Project site. Pallid bats could roost in crevices on the exterior of the unoccupied existing buildings on the West Campus and in hollow trees. Hoary bats, which have a moderate likelihood of occurrence, could roost in the foliage of trees at the West Campus. With implementation of the Project, the existing buildings on the West Campus would be demolished and approximately 375 trees[2] and several existing shrubs would be removed prior to redevelopment.

Removal of trees and removal of or modification to buildings containing active bat roots, particularly during the nesting season (typically April through August), could result in the loss of individual bats, bat colonies, or their habitat. While adult pallid and hoary bats may be able to escape during tree removal, if tree and shrub removal is to occur during the maternity season (May 1st through October 1st), young bats that cannot yet fly are likely to be killed or injured during vegetation removal. This would result in a "take" of these species. Loss of individual bats, and disruption of maternity roosting bats, resulting in the abandonment of

[2] Gensler, "Facebook @ Menlo Park West Campus – WL.1 Tree Disposition Plan," October 21, 2011.

young, or the loss of young through vegetation removal would be a ***potentially significant*** impact.

MITIGATION MEASURE. The following measures would reduce the potentially significant impacts to roosting and breeding bats at the West Campus to ***less than significant***. (LTS)

BR-1.1 *Identify and protect roosting and breeding bats on the West Campus.* The Project Sponsor shall implement the following measures to protect roosting and breeding bats found in a tree or structure to be removed with implementation of the Project:

1. Prior to tree removal activities on each site, the Project Sponsor shall retain a qualified biologist to conduct a focused survey for bats and potential roosting sites within buildings to be demolished or trees to be removed. The surveys can be conducted by visual identification and can assume presence of hoary bats or the bats can be identified to a species-level with the use of a bat echolocation detector such as an "Anabat" unit. If no roosting sites or bats are found, a letter report confirming absence shall be sent to the California Department of Fish and Game and no further mitigation is required. If roosting sites or hoary bats are found, then the following monitoring and exclusion measures shall be conducted. The letter or surveys and supplemental documents shall be provided to the City prior to demolition permit issuance.

    a. If bats are found roosting outside of nursery season (May 1st through October 1st), then they shall be evicted as described under (b) below. If bats are found roosting during the nursery season, then they shall be monitored to determine if the roost site is a maternal roost. This could occur by either visual inspection of the roost bat pups, if possible, or monitoring the roost after the adults leave for the night to listen for bat pups. If the roost is determined to not be a maternal roost, then the bats shall be evicted as described under (b). Because bat pups cannot leave the roost until they are mature enough, eviction of a maternal roost cannot occur during the nursery season. A 250-foot (or as determined in consultation with the Department of Fish and Game) buffer zone shall be established around the roosting site within which no construction or tree removal shall occur.

    b. Eviction of bats shall be conducted using bat exclusion techniques, developed by Bat Conservation International (BCI) and in consultation with the Department of Fish and Game that allow the bats to exit the roosting site but prevent re-entry to the site. This would include, but not be limited to, the installation of one way exclusion devices. The devices shall remain in place for seven days and then the exclusion points and any other potential entrances shall be sealed. This work shall be completed by a BCI recommended exclusion professional. The

exclusion of bats shall be timed and carried concurrently with any scheduled bird exclusion activities.

BR-2 ***Indirect Impacts on Special-Status Species Inhabiting the Adjacent Water Marshes.*** *The Project at the West Campus would result in potentially significant indirect effects on special-status bird and mammal species inhabiting the adjacent salt and brackish water marshes due to increased raptor predation. (PS)*

All of the existing buildings on the West Campus would be demolished, and approximately 375 existing trees and several shrubs on the West Campus would be removed prior to construction. This Project would result in a net increase in buildings and possibly tall trees on the West Campus that could serve as new or additional perching or nesting opportunities that would provide raptors or other predatory birds a vantage point from which to prey on special-status species in the adjacent salt marshes such as western snowy plover, salt marsh common yellowthroat, California black rail, California clapper rail, salt marsh harvest mouse and salt marsh wandering shrew. Western snowy plover is known to nest in the nearby salt flats, and the CNDDB contains records for other special-status species near the West Campus that would be vulnerable to raptor predation. Loss of individual western snowy plover, salt marsh harvest mouse or other special-status bird or mammal species as a result of increased predation by raptors or other predatory birds would be a ***potentially significant*** impact.

MITIGATION MEASURE. The following measure would reduce the potentially significant impacts due to increased raptor predation at the West Campus to ***less than significant***. (LTS)

BR-2.1 *Installation of Bird Perching Deterrents on all New Buildings and Other Elevated Structures on the West Campus.* The Project Sponsor shall implement the following measures to reduce impacts to special-status marsh species:

1. For all new buildings to be constructed on the West Campus, the Project Sponsor shall install bird deterrents along suitable perching sites that would allow raptors or other predatory birds a vantage point from which to prey on western snowy plover, salt marsh harvest mouse or other special-status species inhabiting the adjacent salt marshes. Such deterrents may include one or more of the following deterrent devices as appropriate for the individual situation: bird spikes, bird netting, electric shock track, sound deterrents, or other devices approved by CDFG and/or USFWS.

2. Trees used for replacement landscaping shall consist of species that generally do not reach heights of greater than 30 feet in order to limit the distance perching birds could see into the adjacent salt marshes to the north. These trees may include native or non-invasive ornamental species. Species with broad canopies would be preferred, as tall narrow canopies (e.g., palms or conifers) generally provide better hunting perches for raptors.

BR-3 ***Loss of Riparian and Other Habitats, Including Wetlands as Defined by Section 404 of the Clean Water Act.*** *The Project at the West Campus would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or as defined by Section 404 of the Clean Water Act. (LTS)*

The western half of the West Campus consists of the existing, unoccupied buildings, parking facilities and associated landscaping, while the eastern portion is vacant land with a mixture of pavement and disturbed, graded soil and gravel. Ornamental trees and shrubs occur along the perimeter of the eastern portion of the West Campus, and in landscaping associated with the existing buildings and parking facilities in the western portion. Based upon the June 22, 2011 field survey, no natural habitat is present within the boundaries of the West Campus. In addition, based on the field survey, no wetlands or other waters of the U.S. are present on or adjacent to the site.

While salt marshes, which are considered a sensitive habitat, occur near the West Campus to the north, the West Campus is separated from the marshes by the Bayfront Expressway and a levee. Project activities on the West Campus would occur within the existing developed and formerly developed boundaries. All of the existing buildings on the West Campus would be demolished, existing pavement and landscaping would be removed, and the entire site would be developed with new buildings. No improvements or alterations to the levee are proposed with implementation of this phase of the Project. Since there is no riparian habitat, salt marsh, State or federally protected wetlands, and/or other sensitive natural community present in any portion of the West Campus, impacts on any riparian habitat, or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS, are considered ***less than significant***.

BR-4 ***Impacts to Wildlife Corridors or Nursery Sites.*** *The removal of trees, shrubs, or woody vegetation with implementation of the Project at the West Campus would have a potentially significant impact on the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (PS)*

Existing shrubs and trees on the West Campus could provide nesting habitat for a variety of native migratory birds. The existing buildings at the West Campus would be demolished, existing landscaping removed, and the site would be developed with new buildings and landscaping. Therefore, most or all of the existing shrubs along the perimeter of the property, along with those associated with the landscaping around the existing buildings on the West Campus would be removed. If nesting migratory birds are present (i.e., nests containing eggs or youths), tree and shrub removal associated with the redevelopment of the West Campus could result in the loss of those birds caused by the direct mortality of adult or young birds, nest destruction, or disturbance of nesting native migratory bird species resulting in nest abandonment and/or the loss of reproductive effort. Native migratory bird species are protected by both State (CDFG Code Sections 3503 and 3513) and federal (MBTA of 1918) laws.

Disruption of nesting birds, resulting in the abandonment of active nests, or the loss of active nests through structure removal would be a ***potentially significant*** impact.

MITIGATION MEASURE. The following measure would reduce the potentially significant impacts to nesting migratory birds at both the West Campus to ***less than significant***. (LTS)

BR-4.1 *Identify and Protect Nesting Migratory Birds at the West Campus*. The Project Sponsor shall implement the following measures to reduce impacts to nesting migratory birds:

a. To facilitate compliance with State and federal law (Fish and Game Code and the MBTA) and prevent impacts to nesting birds, the Project Sponsor shall avoid the removal of trees, shrubs, or weedy vegetation February 1 through August 31 during the bird nesting period. If no vegetation or tree removal is proposed during the nesting period, no surveys are required. If it is not feasible to avoid the nesting period, a survey for nesting birds shall be conducted by a qualified wildlife biologist no earlier than seven days prior to the removal of trees, shrubs, weedy vegetation, buildings, or other construction activity.

b. Survey results shall be valid for the tree removals for 21 days following the survey. If the trees are not removed within the 21-day period, then a new survey shall be conducted. The area surveyed shall include all construction areas as well as areas within 150 feet outside the boundaries of the areas to be cleared or as otherwise determined by the biologist.

In the event that an active nest for a protected species of bird is discovered in the areas to be cleared, or in other habitats within 150 feet of construction boundaries, clearing and construction shall be postponed for at least two weeks or until the biologist has determined that the young have fledged (left the nest), the nest is vacated, and there is no evidence of second nesting attempts.

BR-5 ***Conflicts with any Local Policies or Ordinances Protecting Biological Resources.*** *The Project at the West Campus would not result in conflicts with Chapter 13.24 of the Municipal Code (Heritage Tree Ordinance). (LTS)*

There are 233 trees on the West Campus that qualify as heritage trees under the City's Heritage Tree Ordinance. These trees consist almost entirely of non-native ornamental species such as thornless honey locust, sweet gum, Brazilian pepper, blue gum eucalyptus, Mexican fan palm, Aleppo pine, and glossy privet. Project designs indicate that approximately 89 of these trees would be removed during clearing of the West Campus for redevelopment. Removal of heritage trees without first obtaining an appropriate permit from the Director of Public Works and payment of a fee is prohibited. As a part of obtaining a tree removal permit, the Project Sponsor must be in compliance with the Heritage Tree Ordinance, as described in more detail below. Since compliance with the tree ordinance is mandatory, this impact would be considered ***less than significant***.

The Project at the West Campus would be required to adhere to Chapter 13.24 of the City's Municipal Code, as follows:

- For trees to be retained near construction activities, concurrent with each demolition permit submittal, the Project Sponsor shall submit a heritage tree preservation plan for any trees to be retained, detailing the location of and methods for all tree protection measures, as described in the arborist report (Appendix 3.3). The Project arborist shall submit a letter confirming adequate installation of the tree protection measures. The Project Sponsor shall retain an arborist throughout the term of the Project (demolition through approval of final building permit inspection for the building shells), and the Project arborist shall submit periodic inspection reports to the Building Division. The heritage tree preservation plan shall be subject to review and approval by the Planning Division prior to demolition permit issuance.
- For those Heritage trees to be removed, the Project Sponsor shall submit a site plan with the Heritage Tree Removal Application Permit even if they have submitted a site plan to the City for a planning or building permit. The site plan facilitates the review by the City Arborist. For removals of two or more trees, the Project Sponsor shall be required to submit a planting plan indicating the species, size, and location of the proposed replacement trees on a site plan. Heritage Tree Permits related to construction shall also be charged for City-retained arborist expenses.
- The heritage tree replacement ratio in the City is determined by the director of Community Development. In general, all commercial applicants who are granted approval to remove a heritage tree are required to replace the lost trees at a ratio of 2 to 1. However, City staff my exercise discretion on the size and number of trees an applicant may be required to install. As such, 20 of the heritage trees to be removed at the West Campus would require a 2 to 1 replacement ratio (for a total of 40 trees) while 69 heritage trees would require a 1.5 to 1 replacement ratio (for a total of 103 trees). Replacement trees must be installed within 30 days after the heritage tree is removed, must be planted at least 10 feet away from any structures, must not be planted under overhead utility wires, and must not be planted over underground utilities.[3]

Cumulative Analysis

Unless otherwise identified below, the geographic context for the analysis of cumulative biological impacts includes the "Region" as defined by the Bay Area. The analysis accounts for all anticipated cumulative growth within this geographic area as represented by full implementation of the County and City General Plans, including the Tier 1 and Tier 2 projects identified in Section 3.1.

[3] City of Menlo Park, Community Development, "Heritage Tree Replacement Procedures," website: http://www.menlopark.org/departments/pln/htree/Htree_Replacement_Pro.pdf, accessed September 9, 2011.

C-BR-1 ***Cumulative Impacts on Roosting Bats****. Removal of buildings, trees, shrubs, or other woody vegetation associated with construction of the Project and other cumulative development would result in impacts to roosting bats. This cumulative impact is less than significant. (LTS)*

Tier 1 and Tier 2

As described above under Impact BR-1, activities that result in the removal of existing buildings, trees, shrubs, or other woody vegetation could adversely affect roosting bats, either by causing the loss of bats or the abandonment of an active roosting area. With future development in the Bay Area, it is reasonable to expect that there would be a loss of buildings, trees, and other woody vegetation that provide nesting and roosting habitat. Disturbance to these habitats, in combination with the potential loss of similar habitat in the Bay Area, would result in a potentially significant cumulative impact. Pallid bats and other crevice-roosting bat species, if present in the vicinity, could roost in crevices on the exterior of the existing buildings. Hoary bats roost in the foliage of trees, usually away from urban areas and along woodland edges and riparian corridors.

The Project at the West Campus would result in the removal of approximately 375 trees out of a total of 624 trees at the site. Removal of trees and removal of or modification to buildings containing active bat roosts, particularly during the nesting season (typically April through August), could result in the loss of individual bats, bat colonies, or their habitat. Project Mitigation Measures BR-1.1 and BR-2.1 would reduce the Project's contribution to this potentially significant cumulative impact to less than cumulatively considerable because they would identify and protect breeding roosting bats on the Project site. The Project's cumulative impact would be ***less than significant.***

C-BR-2 ***Cumulative Indirect Impacts on Special-Status Species Inhabiting the Adjacent Water Marshes.*** *Construction of new multi-story buildings associated with the West Campus and other cumulative development would result in indirect effects on special-status bird and mammal species inhabiting the adjacent salt and brackish water marshes due to increased raptor predation. This cumulative impact is less than significant. (LTS)*

Tier 1 and Tier 2

Cumulative development activities that result in a net increase in buildings and tall trees could serve as new or additional perching or nesting opportunities for birds of prey. In addition, these features would provide raptors or other predatory birds a vantage point from which to prey on special-status species in the adjacent salt marshes such as western snowy plover, salt marsh common yellowthroat, California black rail, California clapper rail, salt marsh harvest mouse and salt marsh wandering shrew. Cumulative development near salt marsh in the Bay could result in increased loss of individual western snowy plover, salt marsh harvest mouse or other special-status bird or mammal species as a result

of increased predation by raptors or other predatory birds. This would be a potentially significant cumulative impact.

The Project site is located adjacent to salt marsh, and new structures on the West Campus could provide nesting and foraging opportunities for birds of prey. It should be noted that 375 out of a total of 624 trees would be removed on the West Campus, but replacement landscaping would likely include new trees that could provide opportunities for foraging raptors. However, the foraging opportunities that would be provided by Project landscaping would represent a small percentage of the habitat provided in the whole of the Bay Area. Implementation of Mitigation Measure BR-2.2 would reduce the Project's contribution to the potentially significant cumulative impact to less than cumulatively considerable, as it would provide for installation of bird-perching deterrents on all new buildings and other elevated structures on the West Campus. Therefore, the Project's cumulative impact is ***less than significant***.

C-BR-3 *Cumulative* ***Loss of Riparian and Other Habitats, Including Wetlands as Defined by Section 404 of the Clean Water Act.*** *The Project at the West Campus, in combination with other cumulative development, would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or as defined by Section 404 of the Clean Water Act. (LTS)*

Tier 1 and Tier 2

As described above under Impact BR-3, while salt marshes, which are considered a sensitive habitat, occur near the West Campus to the north, the West Campus is separated from the marshes by the Bayfront Expressway and a levee. With future cumulative development in the Bay Area, it is reasonable to expect that there could be impacts to riparian habitats, including wetlands. Cumulative impacts could be significant. However, since there is no riparian habitat or other sensitive natural community identified in any portion of the West Campus, the project's contribution to any cumulative impact would be considered ***less than significant***.

C-BR-4 ***Cumulative Impact on Wildlife Corridors or Nursery Sites.*** *Removal of buildings, trees, shrubs, or other woody vegetation associated with construction of the Project and other cumulative development could result in impacts to nesting birds. This cumulative impact is less than significant. (LTS)*

Tier 1 and Tier 2

As described above under Impact BR-4, activities that result in the removal of existing buildings, trees, shrubs, or other woody vegetation could adversely affect nesting birds, either by causing the loss of young birds or the abandonment of an active nest. With future cumulative development in the Bay Area, it is reasonable to expect there would be a loss of

buildings, trees, and other woody vegetation that provide nesting habitat. Disturbance to these habitats, in combination with the potential loss of similar habitat in the Project area, would result in a potentially significant cumulative impact. Native migratory bird species are protected by both State (CDFG Code Sections 3503 and 3513) and federal (MBTA of 1918) laws and it is assumed that all cumulative development would comply with these regulations, reducing the cumulative impact to less than significant. The vegetation removed by the Project would represent a very small percentage of the total nesting opportunities in the Bay Area. In addition, Mitigation Measure BR-4.1 requires identification and protection of nesting migratory birds, reducing the potential impact to less than significant. Therefore, the cumulative impact is ***less than significant***.

C-BR-5 ***Cumulative Conflicts with any Local Policies or Ordinances Protecting Biological Resources.*** *The Project, in combination with other reasonably foreseeable projects, would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (LTS)*

Tier 1 and Tier 2

The cumulative context for an analysis of cumulative impacts regarding conflicts with local policies or ordinances protecting biological resources is the City, as individual jurisdictions have differing criteria to evaluate loss of protected resources. As described above under Impact BR-5, activities that result in the removal of heritage trees could result in conflicts with the City's Heritage Tree Ordinance. With future development in the City, it is reasonable to expect there would be an additional loss of heritage trees. However, compliance with the measures in Chapter 13.24 of the City's Municipal Code would be required by all future development in the City. On the Project site, compliance with Chapter 13.24 would minimize the loss of heritage trees by requiring a certain replacement ratio and requiring tree species best suited to survive and thrive. As such, in combination with other potential projects, the cumulative impact would be ***less than significant***.

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3.11 GEOLOGY AND SOILS

Introduction

This section describes the geologic and seismic setting of the Project site (the East Campus and West Campus), including regional and local geology, soils and groundwater, and the regulatory framework relevant to the Project. The potential environmental effects of the Project related to geology and soils are described. The impacts examined include risks related to geologic hazards, such as earthquakes, landslides, liquefaction, expansive soils, and impacts on the environment related to soil erosion and sedimentation. This section identifies Project-level and cumulative environmental impacts and explains how compliance with the applicable regulations would reduce or avoid the identified impacts.

A preliminary geotechnical investigation was prepared for the West Campus. The information and conclusions from this document are incorporated into this section. Geotechnical documentation has also been prepared for the East Campus, but is not relevant for the purposes of this section since no ground-disturbing activities would occur. Data from technical studies addressing soil and groundwater contamination at the West Campus were also used to supplement the geotechnical investigation data. Additional information was obtained from environmental documents for projects in the vicinity and from government agency websites.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. One comment letter requested that liquefaction hazard be addressed. This issue is addressed in the section.

The change in the Conditional Development Permit (CDP) for the East Campus could result in impacts related to the exposure of additional people to groundshaking as the change from an employee to a trip cap would allow more people on-site. However, this change would not result in any impacts at the East Campus associated with geology or soils. Therefore, Project impacts at the East Campus is not discussed further in this section.

Applicable Plans and Regulations

Federal

Earthquake Hazard Reduction Act of 1977. Federal laws codified in the U.S. Code Title 42, Chapter 86 were enacted to reduce the risks to life and property from earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. Implementation of these requirements are regulated, monitored, and enforced at the state and local level. Key regulations and standards are summarized below.

State

California Building Code. California Code of Regulations (CCR), Title 24, Part 2, the California Building Code (CBC), provides minimum standards for building design in the State. The 2010 CBC, effective January 1, 2011, is the current code and is based on the current (2009) International Building Code (IBC).

Each jurisdiction in California may adopt its own building code based on the 2010 CBC. Local codes are permitted to be more stringent than the 2010 CBC, but, at a minimum, are required to meet all state standards and enforce the regulations of the 2010 CBC beginning January 1, 2011. The City has adopted the 2010 CBC.

Chapter 16 of the CBC deals with structural design requirements governing seismically resistant construction (Section 1604), including, but not limited to, factors and coefficients used to establish seismic site class and seismic occupancy category for the soil/rock at the building location and the proposed building design (Sections 1613.5 through 1613.7). Chapter 18 includes, but is not limited to, the requirements for foundation and soil investigations (Section 1803); excavation, grading, and fill (Section 1804); allowable load-bearing values of soils (Section 1806); and the design of footings, foundations, and slope clearances (Sections 1808 and 1809), retaining walls (Section 1807), and pier, pile, driven, and cast-in-place foundation support systems (Section 1810). Chapter 33 includes, but is not limited to, requirements for safeguards at work sites to ensure stable excavations and cut or fill slopes (Section 3304). Appendix J of the CBC includes, but is not limited to, grading requirements for the design of excavations and fills (Sections J106 and J107) and for erosion control (Sections J109 & J110). Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in Cal-OSHA regulations (CCR, Title 8).

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act became effective in 1991 to identify and map seismic hazard zones for the purpose of assisting cities and counties in preparing the safety elements of their general plans and to encourage land use management policies and regulations that reduce seismic hazards. The intent of this Act is to protect the public from the effects of strong groundshaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, the California Geologic Survey's (CGS) Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation of earthquake-related hazards for projects in designated zones of required investigations, and for recommending mitigation measures as required by Public Resources Code Section 2695(a). Liquefaction hazards mapping has been prepared for the west side of San Francisco Bay (Bay), including the Menlo Park area. As noted above, the Project site is within a mapped liquefaction hazard zone requiring special study.

NPDES Construction General Permit. Under the authority of the federal Clean Water Action Section 402 (National Pollutant Discharge Elimination Program [NPDES]), the State Water Resources Control Board (SWRCB) permits all regulated construction activities under Order No. 2009-0009-DWQ (adopted September 2, 2009), which requires that, prior to beginning any construction activities, the permit applicant must obtain coverage under the Construction General Permit by preparing and submitting a Notice of Intent (NOI) to the SWRCB, and preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP), in accordance with the Construction General Permit requirements, for all construction activities disturbing one or more acre of land surface. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of

best management practices (BMPs) to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges.

Implementation of the permit requirements are necessary (and required) to control erosion during construction activities at the West Campus. Compliance with the State permit is enforced and monitored by the City under Municipal Code Section 7.42 (see below).

Local

City of Menlo Park General Plan. The following policy from the Land Use Element of the General Plan pertains to the Project.

> *Policy I-H-9:* Urban development in areas with geological and earthquake hazards, flood hazards, and fire hazards shall be regulated in an attempt to prevent loss of life, injury, and property damage.

The following policy of the Open Space and Conservation Element of the General Plan pertains to the Project.

> *Policy 9:* Discourage, and in some instances prohibit, urban development in hazardous areas. These hazards include geologic and earthquake hazards, flood hazards, and fire hazards.

The following policies of the Seismic Safety and Safety Element of the General Plan are relevant to the Project.

> *Policy 11:* Require submission of geologic, seismic, and/or soils reports prior to taking action on development proposals for locations identified as potential problem areas in this element.
>
> *Policy 12:* Prohibit structural development in areas where hazards cannot be mitigated by accepted methods to a level of acceptable risk.
>
> *Policy 13:* Require that all new development incorporate adequate hazard mitigation measures to reduce risks from natural hazards.
>
> *Policy 15:* Require that potential geologic, seismic, soils, and/or hydrologic problems confronting public or private development be thoroughly investigated at the earliest stages of the design process, and that these topics be comprehensively evaluated in the Environmental Impact Report (EIR) for each project, by persons of competent geological expertise.

Earthquake Emergency Response. The City is a participant in the Association of Bay Area Governments (ABAG) multi-jurisdictional planning process for natural disaster emergencies. The City has adopted an Emergency Operation Plan that assesses the potential losses associated with earthquakes (among other disasters) and identifies responsibilities for city departments and coordination with San Mateo County and regional emergency response providers.[1] The City has also prepared a Disaster

[1] City of Menlo Park, Emergency Operation Plan, Version 2, January 2011.

Preparedness Manual that is available to the public, which describes actions that residents and businesses can take in the event of an earthquake.

Municipal Code. The following chapters of the Municipal Code pertain to the Project.

Building Code. Chapter 12.06 of the City's Municipal Code implements the 2010 CBC and local amendments thereto.

Grading and Drainage Control Guidelines. The City Engineering Division requires a grading and drainage (G&D) plan whenever more than 500 square feet of the surface of a lot is to be affected by a building project. The basis for the grading and drainage plan requirement is City development policy, Stormwater Ordinance 859 (Chapter 7.42) and the California Regional Water Quality Control Board Municipal Regional Stormwater Permit issued on October 14, 2009 (Order R2-2009-0074, NPDES Permit No. CAS 612008). The focus of these guidelines are to control eroded sediment from construction sites entering waterways.

The City also requires the G&D plan include "Construction Erosion and Sedimentation Control" notes and plans, which must address timing of grading activities during the dry months, if feasible, and minimization of land disturbance, among other items.

Existing Conditions

Regional Setting

Geology and Soils. The Project site is situated along the San Francisco Peninsula, which separates the Bay from the Pacific Ocean. The San Francisco Peninsula is a ridge of rock and sediments in the Santa Cruz Mountains portion of the Coast Ranges geomorphic province, which forms a rugged barrier between the Pacific Coast and inland California. (Geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform.) The Coast Ranges province, which extends approximately 600 miles north from the Santa Ynez River in Santa Barbara County to the Oregon border, owes much of its physiographic character to the San Andreas fault system (in the San Francisco Bay Area (Bay Area), a 44-mile-wide zone of fracturing and folding rock), where two adjoining tectonic plates that form the Earth's surface (the Pacific plate on the west and the North American plate on the east) are moving past each other in opposite directions. One result of this tectonic plate movement is the regional rock deformation and the general northwest trend of valleys and ridges throughout the Coast Ranges. The sedimentary rocks that form most of the plate boundary area were deposited during successive geologic intervals as layers of marine and terrestrial sediments between 70 million (Cretaceous Period) and 200 million years ago (Jurassic Period).

Quaternary alluvial sediment derived from the Santa Cruz Mountains overlies the older Cretaceous and Jurassic sedimentary rocks. The youngest of this alluvial material consists of Holocene-age (11,000 years or younger) unconsolidated clay interbedded with sand and fine gravel. This unit is generally less than 15 feet thick and forms in poorly drained interfluvial basins, usually at margins of tidal

marshlands, where it interfingers with Bay Mud. Overlying this material is artificial fill, which consists of a combination of gravel, sand, and silt, and rock fragments.[2]

Faults. Faults are geologic zones of weakness. Earthquakes are caused by the violent and abrupt release of strain built up along faults. Surface rupture occurs when movement on a fault deep in the earth breaks through to the ground surface. Fault rupture almost always follows preexisting faults. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking.

Figure 3.11-1 shows the locations of regional faults. The closest active and potentially active faults are the Monte Vista-Shannon fault (5.8 miles southwest), the San Andreas fault (7.3 miles southwest), and the Hayward fault (11.6 miles northeast). Other nearby active Bay Area faults include the San Gregorio fault, about 15 miles southwest, and the Calaveras fault, about 16 miles northeast of the Project site.[3] Potentially active, concealed faults of the Quaternary Palo Alto and Stanford faults are a few miles southwest of the Project site. The trace of the San Jose fault is northeast of the site, in the vicinity of East Palo Alto.[4] These Quaternary faults do not show evidence for recent surface displacements (i.e., during the last 10,000 years) that would cause the state of California to categorize them as active.

Earthquake Magnitude. Earthquakes are classified based on the amount of energy released, using logarithmic scales known as the Richter scale and the Moment Magnitude scale (MW). Each whole number of Richter magnitude represents a tenfold increase in the wave amplitude (earthquake size) generated by an earthquake, as well as a 3.16-fold increase in energy released. Thus, a magnitude 6.3 earthquake is ten times larger than a magnitude 5.3 earthquake and releases 31.6 times more energy. In contrast, a magnitude 7.3 event is 100 times larger than magnitude 5.3, and releases 1,000 times more energy. One limitation of the Richter magnitude scale is that it has an upper limit at which large earthquakes appear to have about the same magnitude. As a result, the MW scale, which does not have an upper limit magnitude, was introduced in 1979, and is used to characterize earthquakes greater than magnitude 3.5. Earthquakes of MW 6.0 to 6.9 are classified as “moderate,” MW 7.0 to 7.9 as “major,” and MW 8.0 and larger as “great.”

Earthquake Intensity. The Modified Mercalli Intensity Scale is a scale used for measuring the intensity of an earthquake. The scale quantifies the effects of an earthquake on the Earth's surface, humans, objects of nature, and man-made structures on a scale of I through XII, with I denoting a weak earthquake and XII one that causes almost complete destruction. Table 3.11-1 (Modified Mercalli Intensity Scale) provides abbreviated definitions of the scale ratings. Although this scale is useful in describing earthquake effects for the general public, it is not employed by engineers when designing seismic-resistant structures. The safety standards to which structures must be designed are set forth in the CBC and take into account numerous factors and criteria.

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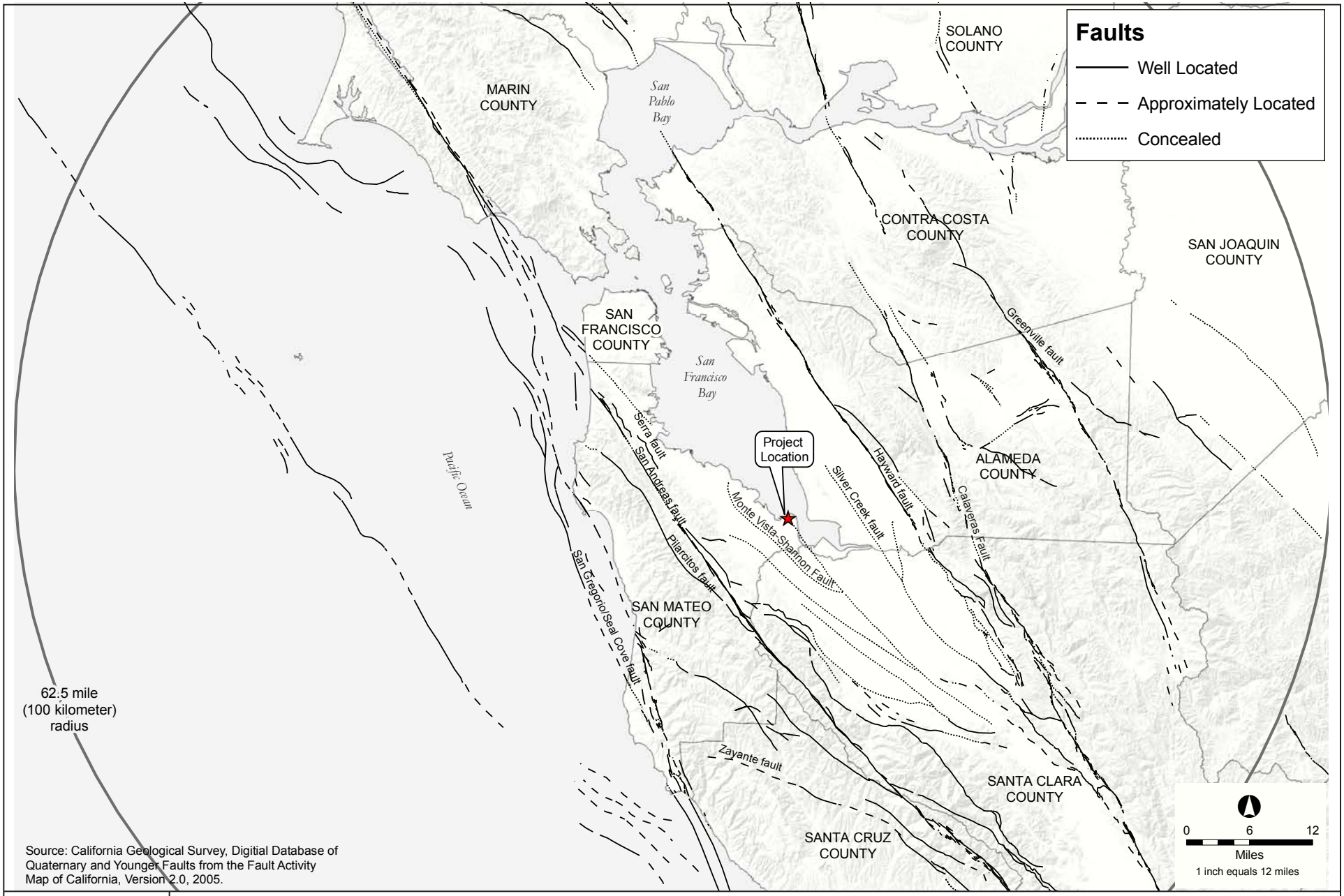
2 Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

3 Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

4 California Geological Survey, 2010 Fault Activity Map of California.



Source: California Geological Survey, Digitial Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0, 2005.

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FIGURE 3.11-1
Regional Faults

***Source*:** California Geological Survey, 2008.

Table 3.11-1
Modified Mercalli Intensity Scale

Scale Rating	Description
I	Not felt.
II	Felt by persons at rest, on upper floors, or favorably placed.
III	Felt indoors; hanging objects swing; vibration like passing of light trucks; duration estimated; may not be recognized as an earthquake.
IV	Hanging objects swing; vibration like passing of heavy truck or sensation of a jolt like a heavy ball striking the walls; standing automobiles rock; windows, dishes, doors rattle; wooden walls and frame may creak.
V	Felt outdoors; direction estimated; sleepers wakened; liquids disturbed, some spilled; small unstable objects displaced or upset; doors swing; shutters, pictures move; pendulum clocks stop, start, change rate.
VI	Felt by all; many frightened and run outdoors; persons walk unsteadily; windows, dishes, glassware broken; knickknacks, books, etc., off shelves; pictures off walls; furniture moved or overturned; weak plaster and masonry D cracked.
VII	Difficult to stand; noticed by drivers of automobiles; hanging objects quiver; furniture broken; weak chimneys broken at roof line; damage to masonry D, including cracks, fall of plaster, loose bricks, stones, tiles, and embraced parapets; small slides and caving in along sand or gravel banks; large bells ring.
VIII	Steering of automobiles affected; damage to masonry C, partial collapse; some damage to masonry B; none to masonry A; fall of stucco and some masonry walls; twisting, fall or chimneys, factory stacks, monuments, towers, elevated tanks; frame houses moved on foundations if not bolted down; loose panel walls thrown out; decayed piling broken off. Branches broken from trees; changes in flow or temperature of sprigs and wells; cracks in wet ground and on steep slopes.
IX	General panic; masonry D destroys; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged; general damage to foundations; frame structures, if not bolted, shifted off foundations; frames racked; serious damage to reservoirs; underground pipes broken; conspicuous cracks in ground and liquefaction.
X	Most masonry and frame structures destroyed with their foundations; some well built wooden structures and bridges destroyed; serious damage to dams, dikes, embankments; large landslides; water thrown out of banks of canals, rivers, lakes, etc.; sand and mud shifted horizontally on beaches and flat land; rails bent slightly.
XI	Rails bent greatly; underground pipelines completely out of service.
XII	Damage nearly total; large rock masses displaced; lines of sight and level distorted; objects thrown in the air.

Source: Pre-Earthquake Planning for Post- Earthquake Rebuilding," Spangle, William E., 1987.

Notes:

Masonry A = Good workmanship and mortar, reinforced designed to resist lateral force.

Masonry B = Good workmanship and mortar, reinforced.

Masonry C = Good workmanship and mortar, unreinforced.

Masonry D = Poor workmanship and mortar and weak materials, like adobe.

Seismicity. The Bay Area is in one of the most seismically active regions. The U.S. Geological Survey's 2007 Working Group on California Earthquake Probabilities estimated that there is a 63 percent probability that one or more MW 6.7 or greater earthquakes will occur in the Bay Area in the next 30 years. The probability of a MW 6.7 or greater earthquake occurring along individual faults was estimated to be 31 percent on the Hayward fault and 21 percent along the San Andreas fault.[5]

Groundshaking. The intensity of the seismic shaking (groundshaking), or strong ground motion, during an earthquake depends on the distance and direction between a particular area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding that area. Earthquakes occurring on faults closest to the Project site probably would generate the largest ground motions.

An earthquake along the entire San Andreas fault is considered capable of generating a MW 7.9 earthquake (similar to the 1906 San Francisco earthquake). An earthquake of this magnitude would generate very strong to violent seismic shaking (Modified Mercalli Intensity VIII and IX) at the site.[6] Groundshaking of this intensity could result in damage to buildings, and can trigger ground failures such as liquefaction, potentially resulting in foundation damage, disruption of utility service and roadway damage.

Hydrogeology. The Project site is near the boundary between major units of two alluvial deposits, as defined by the California Department of Water Resources: San Francisquito Cone and Niles Cone. The San Francisquito deposits are derived from the Santa Cruz Mountains to the southwest, and the Niles Cone deposits are derived from the Diablo Range along the northeastern boundary of the Bay.

The unconsolidated materials in both units consist of four hydrogeologic zones: shallow aquifer, aquitard, deep aquifer, and sediments below the deep aquifer. The shallow aquifer zone ranges in depth from 5 to approximately 100 feet below ground surface (bgs). The zone consists of silt and clay with low permeability interbedded with high-permeability coarse-grained channel deposits.[7]

Local Setting

Site Topography. The Project site ranges from 5 to 9 feet above mean sea level (msl), is relatively level, and slopes gently to the north. There are no immediately adjacent hillsides. The current topography of the East Campus and West Campus reflects filling of the tidal marshland associated with the Bay, as described below.

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5 U.S. Geological Survey 2007 Working Group on Earthquake Probabilities, *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2*), U.S. USGS Open File Report 2007-1437, 2008, website: http://earthquake.usgs.gov/regional/nca/ucerf/.

6 Association of Bay Area Governments (ABAG), Earthquake Hazard Map for Menlo Park/Atherton/East Palo Alto, Scenario: Entire San Andreas Fault System, 2003, website: http://www.abag.ca.gov.

7 GRA Associates, *RFI Report – Soil Investigation (Final) Raychem/Tyco Facility –Expanded Area 6 (Eastern Portion of Site) 300 Constitution Drive Menlo Park California*. March 2002. Section 1.7 (Regional Geology and Hydrogeology).

East Campus. Levees were constructed around the East Campus, beginning in the 1940s when the first salt evaporation pond was constructed. The levees were raised in 1965 to an elevation of approximately five feet msl. In 1968, the sloughs and ditches in the East Campus were filled with recompacted Bay Mud and varying amounts of compacted fill, estimated to be approximately 4 to 8 feet thick. Following a combination of heavy rains, winds, and high tides that caused flooding when water from the Bay breached the levees in 1983, the perimeter levees were raised to an elevation of 10 feet msl, but subsequent settlement lowered the levee elevations to approximately 8.5 feet. The first building pads were constructed on the East Campus in 1975, but the site was not fully developed until the early 1990s.[8]

West Campus. The West Campus was undeveloped marshland and was filled prior to development of the Raychem facilities. The fill source for the West Campus was reported to be from a road cut for Interstate 280 (I-280) construction, just north of Woodside Road (south of Farm Hill Boulevard exit).[9]

Geology. The Project site is near the historic shoreline of the Bay. Similar to other Bay margin sites between San Mateo and San Jose, the Project site is covered with a layer of artificial fill. At the East Campus, the fill is approximately 8.5 to 13 feet thick, and at the West Campus it ranges from 0 to 6 feet thick. Below the fill are younger sediments, possibly Bay Mud, to a depth of approximately 11 feet at the West Campus and 20 feet at the East Campus. The Bay Mud is underlain by interbedded silty clay and silt/sand channel deposits.[10]

Fault Rupture. There are several faults within approximately 15 miles of the site, as noted above. No known surface expression of fault traces are believed to cross the site, and the site is not in an Alquist-Priolo Earthquake Fault Zone[11] nor adjacent to any known active fault. Therefore, fault rupture hazard is not a significant geologic hazard at the Project site.[12]

Groundshaking. The Project site would be expected to be subject to strong groundshaking.[13] Existing buildings at the East Campus were designed and constructed in accordance with then-current building codes for seismic hazards, such as groundshaking. This is an existing condition that would remain

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8 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*, November 3, 2010.

9 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

10 Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*. November 18, 2010.; Cornerstone Earth Group, *Geotechnical Investigation, Facebook Courtyard Improvements, Willow Road/Bayfront Expressway, Menlo Park, California,* July 14, 2011.

11 The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the State Geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Buildings for human occupancy are not permitted to be constructed across the surface trace of active faults.

12 Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

13 Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

unchanged as a result of the Project. The existing buildings at the West Campus are vacant, would be demolished, and would not be re-used. New construction would be required to comply with current seismic safety standards (see Applicable Laws and Regulations, above).

Liquefaction. Liquefaction is a phenomenon in which uniformly sized, loosely deposited, saturated, granular soils (usually fine sand) with low clay content lose strength during strong earthquake-induced groundshaking, which causes the soil to behave as a fluid for a short time. Liquefaction generally occurs at depths shallower than 50 feet below the ground surface (bgs). Soils may lose their ability to support structures, and this loss of bearing strength may cause structures founded on the liquefied materials to tilt or possibly topple over. Light structures such as pipelines, sewers, and empty fuel tanks that are buried in the ground can float to the surface when they are surrounded by liquefied soil. The susceptibility of a site to liquefaction is a function of the uniformity, depth, density, and water content of the granular sediments beneath the site and the magnitude of earthquakes likely to affect the site.

The potential for liquefaction at the Project site is high, based on the soils and depth to groundwater. In addition, the Project site is mapped by the State within a seismic hazard zone for liquefaction.[14]

Lateral Spreading. Lateral spreading (or lurching) occurs as a form of horizontal displacement of relatively flat-lying material toward an open face, such as an excavation, channel, or body of water. Generally, in soils, this movement is due to failure along a weak plane and may often be associated with liquefaction. Although liquefaction potential at the Project site is high, there are no significant steep open faces within 200 feet of the site where lateral spreading could occur. Therefore, the potential for lateral spreading to affect the site appears to be low.[15]

Ground Rupture. Ground rupture can occur when the pore water pressure within liquefiable soil layers are great enough to break through the overlying non-liquefiable layer. Because the potential for liquefaction at the Project site is high, there is a potential for ground rupture.[16]

Differential Compaction. If near-surface materials vary in composition either vertically or laterally, strong groundshaking can cause non-uniform compaction, resulting in movement of the materials and overlying structures. This can also occur gradually over time. Surficial materials underlying the Project site generally consist of undocumented fill materials and younger sediments. Therefore, the potential for differential compaction is high.[17]

Soils. Soils at the Project site from the ground surface to a depth of 90 feet generally consist of artificial fill, organic silty clay, interbedded clay, and coarse-grained channel deposits that are

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[14] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[15] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[16] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[17] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

discontinuous across the site. At the East Campus, the artificial fill ranges in thickness from 2 to 9 feet. Approximately 3 to 11 feet of native, soft compressible clay (Bay Mud) underlies the fill.[18] At the West Campus, the fill (sandy clay and serpentine-rich clayey gravel) ranges in thickness from 0 feet in the southwestern corner to approximately 6 feet near the northeastern corner. Most of the sediment below the fill is a silty clay of high plasticity, ranging in thickness from 1.5 to 11 feet.[19]

Soils at the Project site have been mapped by the Natural Resources Conservation Service (NRCS) as primarily Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes, with lesser amounts of Novato clay, 0 to 1 percent slopes. These units are both generally associated with tidal flats and marshes. The Urban land category is a description for man-made soils and land, usually already developed and covered by paving and structures, consisting of heterogeneous fills of unknown origin. Neither of these soil types are sources of topsoil.[20]

Expansive Soils. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried, and expand and soften when wetted. Soil "plasticity" is an indicator of the shrink-swell potential of soil. The composition of the artificial fill is unknown, but the underlying alluvial sediments are assumed to have moderate to high plasticity because of their clay composition. Therefore, the expansive soil potential at the Project site is considered moderate to high.[21]

Compressible Surface Soils and Fills. Compressible soils can settle or subside as a result of groundshaking or as a result of the loads placed on top of them. Most of the previous improvements at the West Campus have been demolished and removed. It is unknown how excavations created during demolition were backfilled, and if fill materials were compacted. Near-surface, compressible saturated clays are present in some areas of the West Campus and East Campus. Therefore, there is the potential for compressible soils to be present.[22]

Groundwater. The State has mapped historic high groundwater at depths less than 10 feet. Previous investigations indicate first groundwater encountered at 8 feet.[23] Seasonal fluctuations occur in the shallow zone.[24]

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[18] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*, November 3, 2010.

[19] GRA Associates, *RFI Report – Soil Investigation (Final) Raychem/Tyco Facility –Expanded Area 6 (Eastern Portion of Site) 300 Constitution Drive Menlo Park California*, March 2002, Section 1.8 (Site Geology and Hydrogeology).

[20] Natural Resources Conservation Service. San Mateo County, Eastern Part, and San Francisco County, California Survey Area Data: Version 7, Jul 27, 2010. Web Soil Survey website: http://websoilsurvey.nrcs.usda.gov.

[21] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[22] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[23] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[24] GRA Associates, *RFI Report – Soil Investigation (Final) Raychem/Tyco Facility –Expanded Area 6 (Eastern Portion of Site) 300 Constitution Drive Menlo Park California*, March 2002, Section 1.8 (Site Geology and Hydrogeology).

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State of Geologist for the area or based on other substantial evidence of a known fault
  b. Strong seismic groundshaking
  c. Seismic-related ground failure, including liquefaction
  d. Landslides
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- Be located on expansive soil, as defined in Section 1802.3.2 of the 2010 CBC, creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

For the purpose of this Draft EIR, significant geologic hazards would pertain to soil and/or seismic conditions so unfavorable that they could not be overcome by reasonable design, construction, and maintenance practices.

Methodology

A preliminary geotechnical assessment of the West Campus has been completed, and was used for the analysis of West Campus impacts. The preliminary geotechnical assessment provides a summary and compilation of available geotechnical information that was used as part of the analysis of geologic, seismic, and geotechnical issues for this Draft EIR. This preliminary geotechnical assessment describes and evaluates geologic and geotechnical conditions at the Project site to support preliminary planning and conceptual-level design during initial phases of Project planning. Design-level geotechnical studies would be completed during development of construction plans, in accordance with the 2010 CBC and City building permit requirements.

As explained in the Project Description, no new structures would be built at the East Campus, so the geologic and soils hazards that could affect the East Campus (e.g., strong seismic groundshaking and liquefaction) exist regardless of whether the Project is implemented. Therefore, this analysis assumes there would be no substantial physical change from existing conditions.

Impacts Not Evaluated In Detail

The following impacts are not evaluated in detail because there would be no impact as a result of implementing the Project.

As shown in Figure 3.11-1, there are no faults that cross the East Campus or West Campus, nor are these sites within an Alquist-Priolo Earthquake Fault Zone. There would be no impact related to fault rupture, and this impact is not further evaluated.

The East Campus and West Campus are primarily flat and are not adjacent to any hillsides where seismically induced landslides or other downslope movement of rock or soil material that could pose a hazard to the Project site, nor would the Project cause or exacerbate landslide hazard. Exposure of people to landslide hazards is not considered an impact associated with the Project; therefore, this impact is not evaluated.

The West Campus consists of developed land underlain by artificial fill, and there is no topsoil. Because the Project would not result in the loss of topsoil, this impact is not evaluated.

The Project would not include any septic tanks or leach field systems. Wastewater generated at the Project site would be disposed through the existing sanitary sewer system. Consequently, the existence of soils incapable of supporting septic systems is not considered an impact associated with the Project; therefore, this impact is not evaluated.

Environmental Analysis

GS-1 ***Strong Seismic Groundshaking and Seismic-Related Ground Failure.*** *The Project, at both the East Campus and West Campus, would have a less-than-significant potential to expose persons and structures to strong seismic groundshaking and seismic-related ground failure. (LTS)*

East Campus

No new structures are proposed on the East Campus, but the Project would increase the number of people who could be exposed to strong groundshaking and related hazards. The following describes why this would not result in a significant impact.

The existing buildings at the East Campus were developed originally for Sun Microsystems in 1991 as office buildings with hardware-intensive laboratories, with the exception of Building 11, which featured a cafeteria and meeting rooms; Building 18, which also featured a cafeteria; and Building 19, which was used as a sports facility. The buildings at the East Campus were designed for a higher level of earthquake safety than required by the 1991 CBC. Sun Microsystems voluntarily used the higher earthquake engineering design factors with the goal

of having only cosmetic damage in a minor earthquake, and of having a maximum shut-down of two days following a major earthquake. This resulted in the buildings' earthquake-resistant frames to withstand earthquake loads eight times greater than would have been required by the 1991 CBC.[25]

The existing buildings were also constructed to conform to the 1991 CBC occupant load factor. As explained in more detail below, the occupant load factor has not changed and, therefore, does not require the buildings to meet the 2010 CBC structural requirements for a new building.

The designed occupant load for a building is the number of people that are intended to occupy a building at any one time. The CBC provides an Occupant Load Factor that establishes the maximum floor area allowed per occupant based on the building's use. These Occupant Load Factors are derived from studies and counts of the number of occupants in typical buildings. The designed occupant load is used to establish the design for the emergency exiting system.

Different building uses have different Occupant Load Factors. As an example, a business or office use has an Occupant Load Factor of one person per 100 square feet of floor area, whereas a warehouse has an Occupant Load Factor of 500 square feet per person. The Occupant Load Factor is divided into the floor area being occupied to arrive at the maximum number of occupants. If a 10,000 square foot building is being used as an office, the maximum number of occupants would be 100 people. However, if the same building is being used as a warehouse, the maximum number of occupants would be 20 people.

Table 3.11-2, below, shows the Occupant Load Factors from the 1991 CBC for the types of uses the buildings were initially designed for and compares these with the current 2010 CBC.

Table 3.11-2
Occupant Load Factors for the East Campus

Building Use	1991 Occupant Load Factor	2010 Occupant Load Factor
Assembly Area Less Concentrated Use – Dining Room	15 Sq Ft/person	15 Sq Ft/person
Assembly Area Less Concentrated Use – Conference Room	15 Sq Ft/person	15 Sq Ft/person
Office	100 Sq Ft/person	100 Sq Ft/person

Source: California Building Code 1991, 2010.

The employee cap of 3,600 people for the Sun Microsystems campus was established during the entitlement process in the early 1990s and was not based on the maximum number of occupants allowed by the CBC. Assuming a conservative scenario of all-office space at the East

[25] RMJ Structural Engineers, Facebook Campus, Menlo Park, Floor and Lateral System Capacity. Letter from Peter Robinson, President, to Lisa Bieringer, Gensler. August 25, 2011. [RMJ developed the original structural design of the buildings on the East Campus.]

Campus, the buildings would have an occupant load of approximately 10,360 people.[26] The Occupant Load Factors have not changed since the campus was originally developed and had there not been a limitation placed on the number of occupants during the entitlement process, the buildings could have accommodated a significantly higher occupant load.

Section 3408 of the 2010 CBC states, "No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancies." Additionally, Section 3408.4 states, "When a change of occupancy results in a structure being reclassified to a higher occupancy category, the structure shall conform to the seismic requirements for a new structure of the higher occupancy category."

A higher occupancy group is an occupancy group that would require a higher level of life safety measures as established by the CBC. Since the occupancy for the buildings is not changing and the original occupant load of the campus was restricted by the entitlements for the campus, the 2010 CBC does not require the buildings to meet the 2010 CBC structural requirements for a new building. In addition, even if the Occupant Load Factor would apply to the Project, the proposed number of employees (approximately 6,600 people) is significantly lower than the permitted conservative occupant load of approximately 10,360 occupants. Therefore, the East Campus would have a ***less-than-significant*** impact to expose persons and structures to strong seismic groundshaking and seismic-related ground failure.

West Campus

Development of the West Campus would involve the construction and occupancy of new buildings in a location where strong seismic groundshaking can be expected to occur over the life of the Project. In addition, based on previous investigations at the site, mapped soil conditions, and the existence of high groundwater, the potential for liquefiable sediments is high. CGS Seismic Hazard Zone mapping also identifies the Project location in an area where special study to address liquefaction hazard is required.

Liquefaction-related phenomena can include lateral spreading, loss of bearing strength, vertical settlement from densification (subsidence), buoyancy effects, and flow failures, all of which could cause damage to the proposed structures in the West Campus. Damage from liquefaction and lateral spreading is generally most severe when liquefaction occurs within 15 to 20 feet below the ground surface. Foundations for structures and pipelines would be the components most vulnerable to damage from liquefaction-related phenomena. Seismically induced settlement can occur in areas underlain by compressible or poorly consolidated sediments.

[26] Square footage of all buildings at the East Campus is 1,035,840 sf. Occupant Load Factor for office is 100 sf. 1,035,840 sf/100 sf = ~10,360 occupants. This scenario is a conservative estimate considering that some of the space at the East Campus is devoted to assembly areas, such as dining rooms, conference rooms, and fitness areas. Since more people can occupy these uses, the actual occupant load would be greater than 10,360 occupants. However, for the purposes of this analysis, this estimate represents the conservative scenario.

Some artificial fills are susceptible to mobilization and densification, resulting in earthquake-induced subsidence.

Although there are seismic hazards, the Geotechnical Feasibility Evaluation for the West Campus concluded that development of the Project is feasible provided the potential hazards are mitigated through design and construction.

All structures, roads, and utility lines must meet or exceed design criteria of the 2010 CBC for Seismic Zone E. Design and construction of the structures and facilities at the West Campus would incorporate appropriate engineering practices to ensure seismic stability, as required by Chapter 16, Structural Design, and Chapter 18, Soils and Foundations, of the CBC. Sections 1607 through 1614 contain the formulae, tables, and graphs by which the Project Sponsor's engineer would develop the structural specifications for building design and which would be reviewed by the City when it issues building permits, to verify the applicability of the specifications. Sections 1804 through 1812 of the CBC contain similar information for the design and verification of adequate soils and foundation support for individual elements of the Project. Section 1802 of the CBC requires the use of this information in the seismic analyses prepared for the site-specific investigations that must be prepared in connection with the permits for individual elements of the Project.

In addition, because the Project site is in a liquefaction Seismic Hazard Zone, the Project Sponsor would be required to comply with the guidelines set by CGS Special Publication 117, which outline the protocol for analysis and treatment of liquefaction-related hazards, including estimates of vertical settlement and lateral spreading. Prediction of liquefaction-related settlement is necessarily approximate, and related hazard assessment and development of recommendations for treatment of such hazards must be performed conservatively, as recommended by CGS Special Publication 117A. A similarly conservative approach is recommended by CGS Special Publication 117A when estimating the amount of localized differential settlement likely to occur as part of the overall predicted settlement: localized differential settlements up to two-thirds of the total settlements anticipated must be assumed until more precise predictions of differential settlements can be made.

The 2010 CBC requires that geotechnical investigations provide design criteria that would minimize impacts associated with strong groundshaking during an earthquake. The 2010 CBC also requires that all foundations and other improvements (i.e., roads, driveways, utilities) be designed by a licensed professional engineer based on site-specific soil investigations performed by a California Certified Engineering Geologist or Geotechnical Engineer to ensure the suitability (especially considering the existence of potentially liquefiable soils at the site) of the subsurface materials for adequately supporting the proposed structures. This would include designing foundations so they are able to tolerate or resist the anticipated total and differential settlement that can be caused by liquefaction. The City and the Project Sponsor would be responsible for ensuring that all recommendations from the investigations are incorporated in the Project, pursuant to State law.

As evidenced by the level of development throughout the Bay Area, successful building construction is possible in a seismically active zone and can be readily accomplished even where seismic hazards are known to exist. The risks to public safety from seismic hazards can be mitigated to the extent required by law with implementation of the proper design and construction methods, which would be within the responsibility of the City and the Project Sponsor to monitor and enforce through its building permit process. In addition, the City, along with other Bay Area jurisdictions, participates in a coordinated planning and emergency response program, and has its own Emergency Operation Plan to respond to natural disasters.

Consequently, the Project would not have a significant adverse impact with regard to exposure of people or structures to damage resulting from seismic groundshaking or liquefaction-related hazards. Therefore, impacts are considered ***less than significant***.

GS-2 ***Soil Hazards.*** *The Project at the West Campus would result in less-than-significant soil hazards. (LTS)*

The artificial, undocumented fill and alluvial deposits that underlie the West Campus are regarded as potentially weak soils that may be compressible or exhibit other characteristics that would make them unstable (e.g., differential compaction). For example, as noted in the Geotechnical Feasibility Evaluation, the highly compressible soils would not be expected to support the types of multi-storied structures envisioned for the West Campus. In addition, the West Campus is located within the floodplain, and the elevation would need to be increased above the base flood elevation to comply with the City's floodplain ordinance, thereby involving the import of soil. Using existing potentially unsuitable soils (and the placement of additional fill to raise the West Campus elevation) would have the potential to create future collapse or subsidence problems, leading to building settlement and/or utility line disruption.

The Geotechnical Feasibility Evaluation for the Project site indicates that site soils are expected to have a moderate to high shrink-swell potential. Structural damage, warping, and cracking of roads, driveways, parking areas and sidewalks, and rupture of utility lines may occur if the potential expansive soils and the nature of the imported fill are not considered during design and construction of improvements.

The presence of shallow groundwater could affect grading and underground construction by causing wet pavement subgrade, difficulty achieving compactions, and difficult utility installation. Dewatering and shoring of utility trenches may be required for deeper gravity utilities.

However, standard engineering practices could be used to reduce potential hazards associated with soils at the West Campus, and the Geotechnical Feasibility Evaluation concluded that development of the West Campus is feasible from a geotechnical perspective. Some examples of geotechnical recommendations could include: 1) over-excavation of artificial fill and replacement with engineered fill, and 2) incorporation of soil treatment programs (grouting, compaction, drainage control, etc.). Specific treatments to eliminate expansion of soils include,

but are not limited to, grouting (cementing the soil particles together), recompaction (watering and compressing the soils), and replacement with a non-expansive material (excavation of unsuitable soil followed by filling with suitable material). The Geotechnical Feasibility Evaluation recommended that deep foundations consisting of pre-cast, pre-stressed concrete driven piles, or augercast piles (cast-in-place), should be used to mitigate compressible soil hazards. Because residual chemical contaminants are present in site soils that could be excavated, moved, or otherwise disturbed to ensure geotechnical specifications are met, this Draft EIR separately evaluates the potential hazards to the public and environmental associated with soil movement on-site. Please refer to Impact HM-2 in Section 3.13, Hazardous Materials, for additional information and analysis.

As part of the construction permitting process, the City would require completed reports of soil conditions to identify potentially unsuitable soil conditions. The evaluations must be conducted by registered soil professionals. The reports must (a) identify potentially unsuitable soil conditions and (b) contain appropriate recommendations for foundation type and design criteria that conform to the analysis and implementation criteria described in the City Building Code, Chapters 16, 18, and A33, to eliminate inappropriate soil conditions.

Adherence to the soil and foundation support parameters of the City Building Code, as required by City and State law, ensures the maximum practicable protection available from soil failures under static or dynamic conditions for structures and their associated trenches and foundations. The Project Sponsor would be required to incorporate these recommendations into Project design. In view of these circumstances, hazards related to unstable geologic or soil units at the West Campus are considered ***less than significant***.

GS-3 ***Soil Erosion.*** *The Project at the West Campus would have a less-than-significant impact to soil erosion. (LTS)*

The West Campus is mostly flat and would not involve development on hillsides that would involve cut-and-fill; thus, there would be no topographic changes that could alter erosion potential. Deep excavations are not anticipated due to the presence of residual contaminants in shallow soils and land use restrictions (see Impact HM-2 in Section 3.13, Hazardous Materials, for additional evaluation of soil contamination).

However, development of the West Campus would involve grading to construct building foundations and trenching for utility installations. Some minor modifications to allow additional roadway access points would also be implemented. These construction activities could temporarily expose soils to erosive effects from stormwater runoff. As noted in Impact GS-2, above, fill may be imported to raise the elevation for flood protection. If fill is imported and stockpiled, the stockpiles could be eroded by wind or water unless properly protected. Because the Project site exceeds one acre in size, in accordance with Chapter 7.42 of the Municipal Code, the City would require the Project Sponsor implement a SWPPP to reduce potential erosion and subsequent sedimentation of storm water runoff. This SWPPP would include BMPs to control erosion associated with grading, trenching, and other ground surface-disturbing

activities. The Project Sponsor would be required to submit a grading plan to the City before permits would be issued. In addition, the Project Sponsor would be required to prepare and submit a G&D plan, along with an Erosion and Sedimentation Control Plan prior to obtaining a grading permit from the City. The Project Sponsor would also be required to implement the specifications in Chapter A33 of the CBC, which regulates grading activities, including drainage and erosion control. Compliance with City requirements and the CBC, which are within the authority of the City to enforce and monitor, would ensure that erosion impacts resulting from Project construction would be ***less than significant***.

After construction, the West Campus would be developed with buildings, parking areas and roadways, and landscaping and hardscaping, which would substantially and permanently reduce the amount of soil that could be eroded. Therefore, there would be no operational impacts.

Cumulative Analysis

The geographic context for the analysis of impacts resulting from geologic hazards is generally site specific, rather than cumulative in nature. Each project area has unique geologic considerations that would be subject to uniform site development and construction standards. As such, the potential for cumulative impacts to occur is limited. Therefore, the geographic context for issues related to soil composition (i.e., liquefaction, subsidence, lateral spreading, and landslides) includes only those projects in the immediate vicinity of the Project, which would include Menlo Gateway, 297 Terminal Avenue, 1283 Willow Road (Tier 1 projects), and the East Palo Alto Specific Plan (Tier 2 project). For impacts related to exposure to seismic hazards, the geographic context would be the Bay Area, as the entire region is seismically active and subject to risk of injury to persons and property damage as a result of seismic groundshaking.

C-GS-1 ***Cumulative Seismic Hazards.*** *The Project, in combination with other foreseeable development in the vicinity, would not substantially increase the risk of exposure or people or structures to seismic hazards. As such, the cumulative impact would be less than significant. (LTS)*

Tier 1 and Tier 2

Future population growth in the Bay Area, along with the Project and cumulative development, will increase the number of people and structures exposed to seismic hazards. Given the risk from seismic activity associated with all development in seismically active areas, this impact would be significant if it were not mitigated by building code requirements. Construction in California is strictly regulated by the CBC, as adopted and enforced by each jurisdiction, including the City, to reduce risks from seismic events to the maximum extent possible. Because the City uses and enforces the requirements of the CBC as part of its Building Code, new buildings and facilities in the City are required to be sited and designed in accordance with the most current geotechnical and seismic guidelines and recommendations. Development of cumulative projects would implement all necessary design features recommended by site-specific geotechnical studies (required for all

development applications) to reduce the risk from seismic activity, unstable slopes, and soil limitations. Therefore, there would be no significant cumulative impact. The Project would implement the design features recommended by the Project geotechnical studies. With adherence to the Building Code and related plans, regulations, and design and engineering guidelines and practices, the cumulative impact of the Project would be ***less than significant.***

C-GS-2 ***Cumulative Soil Hazards.*** *The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil hazards. As such, the cumulative impact would be less than significant. (LTS)*

Tier 1 and Tier 2

The geographic context for analysis of impacts on development from unstable soil conditions, including compressible soils, expansive soils, or other conditions that could cause structural problems is site-specific and would not be compounded by additional development. Further, development is required to undergo analysis of geological and soil conditions applicable to the specific individual project, and restrictions on development would be applied in the event that geological or soil conditions pose a risk to safety as a result of site-specific geologic or soils instability, subsidence, collapse, and/or expansive soil. Because the City uses and enforces the requirements of the CBC as part of its Building Code, new buildings and facilities in the City are required to be sited and designed in accordance with the most current geotechnical guidelines and recommendations. There would be no significant cumulative impact with respect to soil hazards. The Project would include all necessary design features recommended by the site-specific geotechnical studies to reduce the risk from seismic activity, unstable slopes, and soil limitations. With adherence to the Building Code and related plans, regulations, and design and engineering guidelines and practices, the cumulative impact of the Project with respect to soil hazards would be ***less than significant.***

C-GS-3 ***Cumulative Soil Erosion.*** *The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil erosion potential. As such, the cumulative impact would be less than significant. (LTS)*

Tier 1 and Tier 2

The geographic context for analysis of impacts on development associated with the geotechnical aspects of erosion (i.e., permanent loss in soil or topographic changes that can cause or exacerbate erosion) is generally site-specific, and impacts would not be compounded by additional development. From a watershed perspective, erosion can affect water quality by contributing sediment, and, thus the geographic context would be broader and would include the Atherton Channel watershed (see Section 3.12, Hydrology and Water Quality). However, the Atherton Channel watershed is considered already 99 percent built out with an estimated 69 percent impervious cover. Consequently, potential

growth would likely occur as redevelopment and not extensive new development on vacant land or open space. Development of the cumulative projects could expose soil surfaces and alter soil conditions. To minimize the potential for cumulative impacts that could cause erosion, all cumulative projects in the City are required to conform to the provisions of applicable City ordinances and State regulations pertaining to erosion and sedimentation control. This includes the City's Municipal Code Chapter 7.42 requirements, which implement the federal and state National Pollutant Discharge Elimination System (NPDES) program. Therefore, there is no significant cumulative impact due to soil erosion.

During the construction phase, the West Campus could expose soil to erosion by wind or water because it would involve substantial amounts of soil disturbance, but it would not involve permanent topographic changes that could cause increased erosion. The East Campus would not contribute to the Project impact. Because the City and the Project Sponsor are responsible for ensuring the Project would be in compliance with applicable NPDES permit requirements, and would implement and maintain the BMPs required by the Project SWPPP, the cumulative impact would be ***less than significant.***

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3.12 HYDROLOGY AND WATER QUALITY

Introduction

This section describes local and regional hydrology, including existing drainage facilities, flood hazards, water quality, and groundwater issues such as quantity, quality, availability, and recharge.

Information in this section is based on the Facebook @ Menlo Park West Campus Hydrology Report[1] (Appendix 3.12), and additional references as noted in the text.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to the impacts of sea level rise on the Project.

The increase in employees at the East Campus could result in impacts related to the exposure of people to adverse effects. The increase in employees at the East Campus would not result in any other impacts associated with hydrology and water quality; therefore, those Project impacts at the East Campus are not discussed further in this section.

Applicable Plans and Regulations

Water resources are regulated by a variety of statutes at the local, State, and federal levels. Agencies with regulatory and enforcement jurisdiction in the City include the City, the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), the San Mateo County Flood Control District (SMCFCD), the State Water Resources Control Board (SWRCB), the San Francisco Bay Regional Water Quality Control Board (RWQCB), the California Department of Fish and Game (DFG), Federal Emergency Management Agency (FEMA), the US Army Corps of Engineers (Corps), Bay Conservation and Development Commission (BCDC), and the US Environmental Protection Agency (EPA). Plans, policies, and regulations pertaining to hydrology and water quality in the Project area are outlined below.

Federal

Clean Water Act (CWA). The CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. The EPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to the SWRCB and the RWQCB for water quality control planning and control programs, such as the NPDES Program.

[1] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The San Francisco Bay RWQCB (Region 2) implements a number of federal and state laws, the most important of which are the state Porter-Cologne Water Quality Control Act and the federal CWA.

Section 303(d) and Total Maximum Daily Loads (TMDLs). The CWA contains two strategies for managing water quality. One is a technology-based approach that includes requirements to maintain a minimum level of pollutant management using the best available technology. The other is a water quality-based approach that relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the CWA bridges these two strategies. Section 303(d) requires that the states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the EPA administrator deems they are appropriate), the states are to develop TMDLs. TMDLs are established at the level necessary to implement the applicable water quality standards. The CWA does not expressly require the implementation of TMDLs. However, federal regulations require that an implementation plan be developed along with the TMDL and Section 303(d), 303(e), and their implementing regulations require that approved TMDLs be incorporated into water quality control plans. The EPA has established regulations (40 CFR 122) requiring that NPDES permits be revised to be consistent with any approved TMDL. All discharges associated with the Project would be subject to the Urban Pesticide TMDL, Mercury TMDL, and any other approved TMDLs at the time of development. A Mercury TMDL has been established for the San Francisco Bay (Bay) and approved by the SWRCB (Resolution 2007-0045). TMDLs for the other constituents contributing to impairment are scheduled to be completed by 2019.

Floodplain Development. FEMA is responsible for determining flood elevations and floodplain boundaries based on Corps studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. Because the City participates in the NFIP, the Project would be subject to FEMA regulations for development within a floodplain.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the State (including both surface water and groundwater) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The San Francisco Bay RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the Bay and its tributaries are specified in the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) prepared by the RWQCB in compliance with the federal CWA and the State Porter-Cologne Water Quality Control Act. The water quality objectives are achieved primarily through the establishment and enforcement of Waste Discharge Requirements (WDRs). WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Because the City is located within the San Francisco Bay RWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements. The Project is located within Region 2 and is subject to CWA and RWQCB requirements.

California Water Code. All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code. Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, shall file a Report of Waste Discharge (WDR) containing information that may be required by the appropriate RWQCB. The projects are then required to obtain approval of WDRs from the appropriate RWQCB. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

National Pollutant Discharge Elimination System Program (NPDES). The NPDES permit system was established in the CWA to regulate point source discharges. Point sources include a municipal or industrial discharge at a specific location or pipe. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. Construction site runoff and urban development stormwater runoff are diffuse sources regulated under the NPDES permit program because they are conveyed in a discrete system and discharge at a specific location(s). For stormwater runoff, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing

receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a comprehensive Stormwater Management Program. The goal of the NPDES diffuse source (stormwater) regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" (MEP) through the use of best management practices (BMPs).[2]

NPDES General Construction Activity Stormwater Permit (Construction General Permit). Pursuant to the CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, described below, the SWRCB has issued a statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAR000002), adopted September 2, 2009.

Construction activities, subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area, which would apply to construction at the West Campus.

To obtain coverage under the Construction General Permit, the landowner or other applicable entity must file Permit Registration Documents (PRDs) prior to the commencement of construction activity, which include a Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and other documents required by the Construction General Permit. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater, as well as non-stormwater discharges. BMPs are intended to reduce impacts to the MEP, a standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed. There are several elements of the General Permit.

The Construction General Permit requires specific minimum BMPs, depending upon the project sediment risk (Risk Level 1 through 3). Risk Level 1 projects are subject to minimum BMP and visual monitoring requirements; Risk Level 2 projects are subject to numeric actions levels (NALs) and some additional monitoring requirements; and Risk Level 3 projects are subject to numeric effluent limitations (NELs) and more rigorous monitoring requirements, such as receiving water monitoring and, in some cases, bioassessment. The risk is a calculated value that is determined when the SWPPP is prepared. The SWPPP will identify the appropriate risk level and related BMPs and other requirements. The results of monitoring and corrective actions, if any, must be reported annually to the SWRCB. This permit also specifies minimum qualifications for SWPPP developers and construction site inspectors.

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[2] BMPs are intended to reduce impacts to the Maximum Extent Practicable (MEP), a general standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Regulations do not define a single MEP standard, but reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

Regional Stormwater NPDES Permit (Post-Construction). The Project would be subject to the NPDES permit system through the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Regional Stormwater NPDES Permit). The County of San Mateo and its incorporated cities form the SMCWPPP and are permitted under Phase I for municipal stormwater and urban runoff discharges under NPDES Permit No. CAS612008, Order No. R2-2009-0074. One of the primary objectives of the regulations for pollutant dischargers is the reduction of pollutants in urban stormwater discharge through the use of structural and nonstructural BMPs. The Regional Stormwater NPDES Permit requires the permittees, including the City, to address eight general control measures associated with construction and operational activities, including (1) public education and outreach; (2) public participation/involvement; (3) illicit discharge detection and elimination; (4) construction site stormwater runoff control for sites greater than 1 acre; (5) post-construction stormwater management in new development and redevelopment; (6) pollution prevention/good housekeeping for municipal operations, (7) water quality monitoring; and (8) implementation of controls to meet TMDLs. These control measures are implemented through the use of BMPs.

Regulated Projects, as defined in the Construction General Permit (Provision C.3.b.), are required to implement certain construction and post-construction stormwater quality BMPs. Regulated Projects include redevelopment projects that create or replace 10,000 square feet or more of impervious surfaces. Regulated Projects must provide permanent/post-construction treatment controls for stormwater according to specific calculations. If the redevelopment results in an alteration of more than 50 percent of the existing impervious surfaces, permanent BMPs must be implemented to treat runoff from the entire Project site. The West Campus component of the Project is a Regulated Project that alters more than 50 percent of the existing impervious surfaces. Inclusion of the applicable required elements of the Regional Permit would be the responsibility of the City to monitor and enforce in conjunction with issuance of grading and building permits. Those elements are described below.

- Low Impact Development (LID) (C.3.c). The goal of LID is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. LID employs principles such as preserving and recreating natural landscape features and minimizing imperviousness to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. All Regulated Projects must comply with minimum LID requirements by the implementation date (December 1, 2011).
- Numeric Sizing Criteria for Stormwater Treatment Systems (C.3.d). Stormwater treatment measures must be numerically sized in accordance with criteria identified under Provision C.3.d. The permittees must also verify that infiltration devices are designed and installed such that they would not cause or contribute to the degradation of groundwater quality at project sites. An infiltration device is any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface and, as designed, bypass the natural groundwater protection afforded by surface soil. Specific requirements are specified in Provision C.3.d.iv.(2).

- Hydromodification Management (C.3.g). A Hydromodification Management (HM) Project is a Regulated Project that creates and/or replaces one acre or more of impervious surface and is not specifically excluded within the requirements of Attachments B–F of the Construction General Permit. A project that does not increase impervious surface area over the pre-project condition is not an HM Project.[3]

- Industrial and Commercial Site Controls (C.4.). Each Permittee is required to implement an industrial and commercial site control program at all sites which could reasonably be considered to cause or contribute to pollution of stormwater runoff, with inspections and effective follow-up and enforcement to abate actual or potential pollution sources consistent with each Permittee's respective Enforcement Response Plan (ERP), to prevent discharge of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective BMPs and other pollutant controls by industrial and commercial site operators.

- Construction Site Control (C.6). Each Permittee is required to implement a construction site inspection and control program at all construction sites, with follow-up and enforcement consistent with each Permittee's respective ERP, to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers; and reporting shall demonstrate the effectiveness of this inspection and problem solution activity by the Permittees.

  Permittees shall review erosion control plans for consistency with local requirements, appropriateness and adequacy of proposed BMPs for each site before issuance of grading permits for projects. Permittees shall also verify that sites disturbing one acre or more of land have filed a NOI for coverage under the Construction General Permit.

  Before approval and issuance of local grading permits, each Permittee shall perform the following:

  - Review the site operator's/developer's erosion/pollution control plan or SWPPP to verify compliance with the Permittee's grading ordinance and other local requirements. Also review the site operator's/developer's erosion/pollution control plan or SWPPP to verify that seasonally appropriate and effective BMPs for the six categories listed in C.6.c.i. are planned;

  - For sites disturbing one acre or more of soil, verify that the site operators/developers have filed a NOI for permit coverage under the Construction General Permit; and

  - Provide construction stormwater management educational materials to site operators/developers, as appropriate.

[3] Changes in the timing, flow rate, and/or volume of runoff from a site are known as "hydrograph modification" or "hydromodification" (HM). The project site is located within an HM exempt area on the San Mateo County HM map. The Project would not increase impervious area over the pre-project condition. Therefore, it would not be subject to HM controls.

- TMDLs. Additional BMPs required for compliance with existing and proposed TMDLs within the Bay Region including: Pesticides Toxicity Control (C.9.), Trash Load Reduction (C.10.), Mercury Controls (C.11.), Polychlorinated Biphenyls (PCBs) Controls (C.12.), Copper Controls (C.13.), Polybrominated Diphenyl Ethers (PBDE), Legacy Pesticides and Selenium (C.14.).

Individual NPDES Permit. An individual permit is tailored for a specific discharge that does not fall under one of the General Permit categories (e.g., substantial amounts of construction or post-construction dewatering). The SWRCB or RWQCB issues a permit for that particular discharge based on information (type of activity, nature of discharge, receiving water quality, etc.) contained in the application. If discharge is not directly related to surface water, a State WDR is used instead of an NPDES permit to regulate the discharge (discussed below under State regulation). The Project may need an individual NPDES permit/WDR to address discharge of extracted groundwater containing contaminants from historic uses at the West Campus.

Climate Change and Sea Level Rise. California Executive Order S 13 08 (November 14, 2008) states that all state agencies planning construction projects in areas vulnerable to future sea level rise must consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability, and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. The Governor of California's Delta Vision Blue Ribbon Task Force has adopted a sea level rise of 55 inches by 2100 for planning purposes, until issuance of an Executive Order determining otherwise.

The BCDC is a California State agency that was established to accomplish two primary goals: to prevent the unnecessary filling of the Bay, and to increase public access to and along the Bay shoreline. It is responsible for the regulation of construction activities in close proximity to the Bay, including, but not limited to: regulating all filling and dredging in the Bay, regulating all new development within the first 100 feet inland for the Bay shoreline, ensuring that public access to the shoreline is provided, and protecting the Bay for water-related industries, water-oriented sports, airports, and wildlife refuges. Approval from BCDC would be required for any activities within the 100-foot shoreline band along the East Campus.

BCDC completed and adopted the San Francisco Bay Plan (Bay Plan) in 1968. The McAteer-Petris Act and the Bay Plan and subsequent amendments to these documents, prescribes a set of rules for non-maritime shoreline development along the Bay Waterfront. The latest amendment to the Bay Plan was adopted in October 2011 (Resolution 11-08). This amendment added new climate change findings and policies and encourages jurisdictions to develop regional adaptive management strategies. It also revised findings and policies pertaining to tidal marsh and tidal flats, safety of fills, protection of shoreline, and public access. Specifically with regard to climate change, the BCDC revised the Bay Plan to revise the upper end year 2100 sea level rise from 55 inches to up to 69 inches.[4]

[4] San Francisco Bay Conservation and Development Commission, "Resolution No. 11-08: Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies," website: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf, accessed October 31, 2011.

Local

City of Menlo Park General Plan. The General Plan guides development and use of land within the City. Several policies and actions of the General Plan apply broadly to hydrology and water quality. The following policies from the Land Use Element[5] of the General Plan pertains to the Project.

> *Policy I-G-10:* Extensive landscaping should be included in public and private development, including greater landscaping in large parking areas. Where appropriate, the City shall encourage placement of a portion of the required parking in landscape reserve until such time as the parking is needed. Plant material selection and landscape and irrigation design shall adhere to the City's Water Efficient Landscaping Ordinance.
>
> *Policy I-H-3:* Plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance.
>
> *Policy I-H-7:* The use of reclaimed water for landscaping and other feasible uses shall be encouraged.
>
> *Policy I-H-9:* Urban development in areas with geological and earthquake hazards, flood hazards, and fire hazards shall be regulated in an attempt to prevent loss of life, injury, and property damage.

The following policies and actions from the Seismic Safety and Safety Element[6] of the City's General Plan pertain to the Project.

> *Policy 13:* Require that all new development incorporate adequate hazard mitigation measures to reduce risks from natural hazards.
>
> *Policy 48:* Consider the threat of tsunamis in the planning and management of bayland areas.
>
> Implementation Policy 51: Require that new structures in potential inundation areas either be elevated above the inundation level, or utilize waterproof hardware.
>
> *Policy 52:* Consider potential risks from inundation in the development approval process.

Municipal Code, Chapter 7.38. Chapter 7.38[7] discusses general water conservation principals and adopts water conservation as a Citywide goal. The City should conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection. This

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5 City of Menlo Park, Menlo Park General Plan, adopted December 1, 1994 with amendments through December 7, 2010.

6 City of Menlo Park, Menlo Park General Plan, Seismic Safety and Safety Element, adopted June 22, 1976.

7 City of Menlo Park, Municipal Code, Title 7: Health and Sanitation, Chapter 7.38: Water Conservation, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

chapter includes regulations and restrictions on water use and mandates that the wasteful use of water should be eliminated.

Municipal Code, Chapter 7.42. Chapter 7.42[8] officially adopts the SMCWPPP Stormwater Management Plan and its provisions as City policy. The purpose and intent of this chapter is to ensure the future health, safety, and general welfare of City citizens by eliminating non-storm water discharges to the municipal separate storm sewer; controlling the discharge to municipal separate storm sewers from spills, dumping or disposal of materials other than storm water; reducing pollutants in storm water discharges to the maximum extent practicable. The intent of this chapter is also to protect and enhance the water quality of the watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Clean Water Act.

Municipal Code, Chapter 12.42. Chapter 12.42[9] contains methods and provisions designed to prevent flood damage. Under Section 12.42.41, a development permit is required before construction or development activities in a flood hazards area can begin. The standards of construction listed in Section 12.42.51 include anchoring, the use of flood damage-resistant construction materials and methods, and elevation and floodproofing standards.

Municipal Code, Chapter 12.44. Chapter 12.44[10] defines water-efficient landscaping standards that must be employed by new developments. All property owners of regulated projects shall complete and submit the landscape project application, comply with the landscape and irrigation maintenance schedule, and maintain landscape irrigation facilities to prevent water waste and runoff. In addition, the ordinance requires a landscape audit report be submitted after installation of landscaping to certify compliance with the ordinance.

Existing Conditions

Regional

Climate and Physiography. The City has a Mediterranean climate characterized by dry, relatively cool summers and wet, mild winters. The City receives an average annual rainfall of approximately 15.5 inches per year, with most of the rainfall (89 percent) occurring from November through April.[11]

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8 City of Menlo Park, Municipal Code, Title 7: Health and Sanitation, Chapter 7.42: Storm Water Management Program, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

9 City of Menlo Park, Municipal Code, Title 12: Buildings and Construction, Chapter 12.42: Flood Damage Prevention, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

10 City of Menlo Park, Municipal Code, Title 12: Buildings and Construction, Chapter 12.44: Water-Efficient Landscaping, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

11 Western Regional Climate Center, *Palo Alto, California Monthly Total Precipitation (inches) (046646)*, website: www.wrcc.dri.edu, accessed September 29, 2011.

The City is within a narrow alluvial plain defined by the Santa Cruz Mountains (to the west) and the Bay (to the east). Drainage is from west to east through natural creeks and streams and channelized waterways. In the City, major watersheds include Flood Slough, Ravenswood Slough, and San Francisquito Creek (Figure 3.12-1).

Regional Groundwater. The City is situated above the Santa Clara Valley groundwater basin and San Mateo subbasin (ID 2-9.03). The San Mateo subbasin is bound by the Santa Cruz Mountains to the west, the Bay to the east, San Francisquito Creek to the south, and the Westside basin to the north. A relatively shallow water table aquifer overlies confined and semi-confined aquifers near the margins of the Bay, with most wells drawing from the deeper deposits. Recharge of the subbasin occurs through infiltration into stream beds and through infiltration of precipitation on the valley floor.

Sea Level Rise. Measurements taken in the Bay indicate that the current rate of sea level rise is about 3.5 inches per century at Alameda and 8.4 inches per century at San Francisco.[12] Climate change effects on sea levels could lead to even higher rates of sea level rise (accelerated sea level rise).

Different scenarios and models used to predict sea level rise result in different estimates of the magnitude of sea level rise. For example, the California Climate Change Center predicts that accelerated sea level rise could result in a sea level rise in California of 4.3 to 27.6 inches above the existing mean sea level (msl) by 2099.[13] The California Climate Action Team projects that sea levels could rise between 20 and 55 inches by the year 2099.[14]

In April 2009, a BCDC report was released summarizing the latest scientific research on climate change. While exact future increases in sea level rise are uncertain, scientists believe it is likely that the Bay will rise 10 to 17 inches by 2050, 17 to 32 inches by 2070, and 31 to 69 inches by the end of the century. BCDC recently adopted amendments to the Bay Plan to address climate change and sea level rise and development-related considerations.

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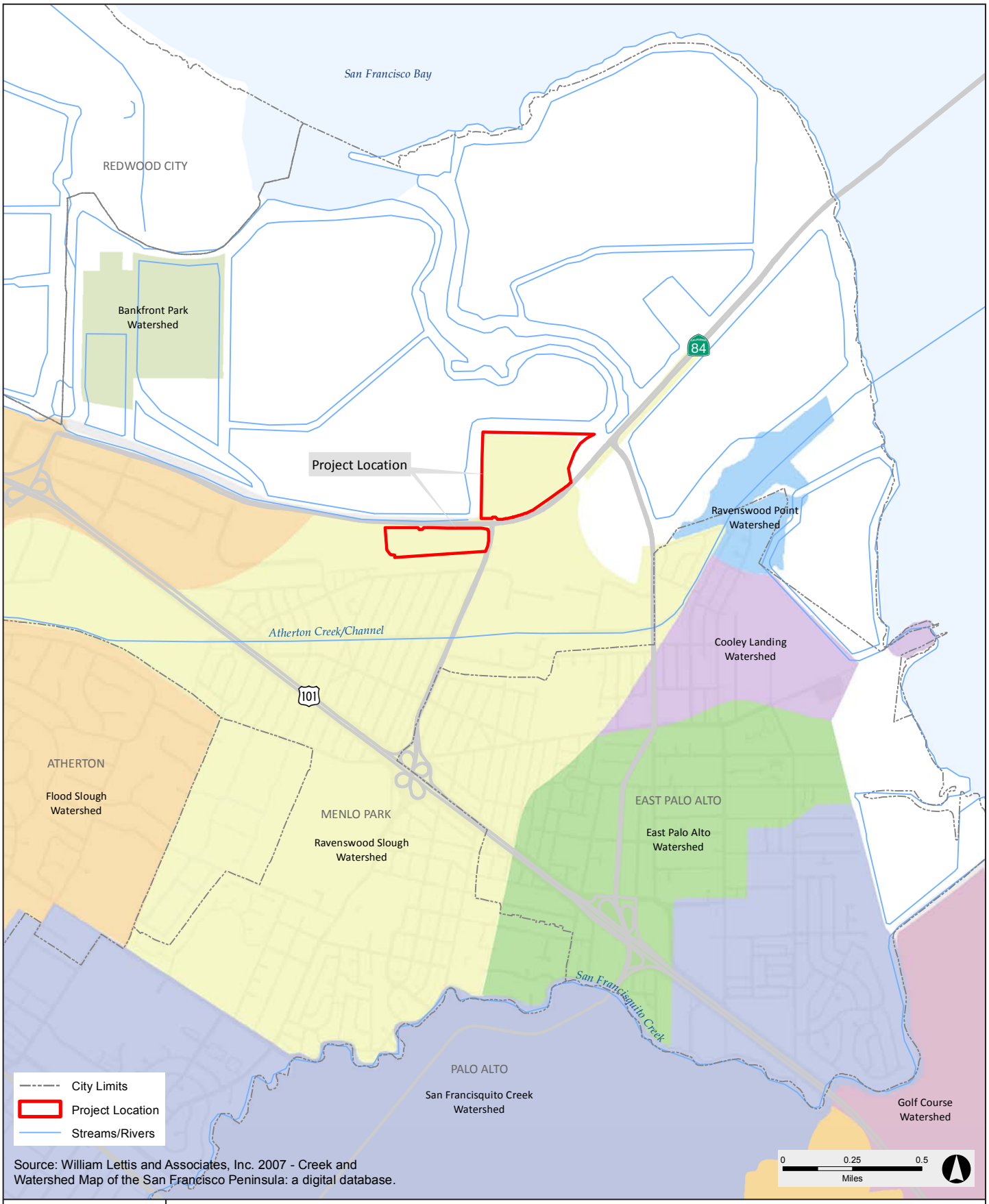
[12] Floyd, M., M. Anderson, M. Roos, R. Peterson, M. Perrone, and D. Todd. 2006. Chapter 2: Potential Impacts of Climate Change on California's Water Resources, Table 2-6 Relative Sea Level Trends for Eight Tide Gauges Along the Coast of California with 50 Years or More of Record. p. 2-43. *In*: California Department of Water Resources, Progress on Incorporating Climate Change into Planning and Management of California's Water Resources Technical Memorandum Report, prepared July 2006.

[13] Cayan, D., P. Bromirski, K. Hayhoe, M. Tyree, M. Dettinger, and R. Flick. 2006. Projecting Future Sea Level: Table 3 Projected global sea level rise (SLR) (cm) for the SRES A1fi, A2, and B1 greenhouse gas emission scenarios. SLR for A2 and B1 scenarios is estimated by combining output recent global climate change model simulations with MAGICC projections for the ice melt component. SLR estimates for A1fi estimated from MAGICC based on A2 temperature changes scaled according to those in A1fi. A Report From the California Climate Change Center CEC-500-2005-2002-SF. p. 19.

[14] San Francisco Bay Conservation and Development Commission, Climate Change, 2007, www.bcdc.ca.gov/planning/climate_change/climate_change.shtml.



Source: William Lettis and Associates, Inc. 2007 - Creek and Watershed Map of the San Francisco Peninsula: a digital database.

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FIGURE 3.12-1
Watersheds

***Source*:** William Lettis and Associates, Inc. 2007; Atkins, 2011.

Local

Topography. Project site elevations range from approximately 5 feet (West Campus) to 9 feet (East Campus) above msl. The Project site slopes gently to the north, and is underlain by artificial fill material and young alluvial sediments.[15] The current topography of the East Campus and West Campus reflects filling of the tidal marshland associated with the Bay. Section 3.11, Geology and Soils, includes additional information regarding how the ground surface at the East Campus and West Campus has been altered.

Hydrology and Runoff. There are no natural surface water features that pass through the Project site. There is an off-site drainage swale parallel to and north of the Union Pacific Railroad (UPRR) tracks south of the West Campus. Major surface waters in the Project vicinity include Atherton Channel to the north, San Francisquito Creek to the south, and the Bay. As illustrated in Figure 3.12-1, the Project site is within the Ravenswood Slough watershed. This slough is one of many that run through the salt ponds and salt marsh flats north of Bayfront Expressway and that interact with flow from the Bay.

The 56.9-acre East Campus is covered by pavement (roads and parking lots) and structures (office and commercial buildings) and landscaping/hardscaping. Impervious surfaces (concrete and asphalt) comprise 39.6 acres, and there is 15.6 acres of pervious area. The West Campus is 22 acres. The developed western portion consists of approximately 13.5 acres, which includes two office buildings, a surface parking lot, landscape features, a basketball court, and a guard house. The eastern portion of the site is approximately 8.5 acres and is vacant with minimal vegetation. Because of the flat terrain and developed nature of both the East Campus and West Campus, rainfall flows across impervious surfaces or as overland flow across vacant areas, leading into storm drains.

Drainage. Drainage from the East Campus and West Campus is conveyed to the City's storm drain system. The specifics for the East Campus and West Campus are discussed below.

East Campus. The East Campus contains existing storm drain lines ranging in diameter from 12 to 24 inches, which discharge to a 24-inch line south of the East Campus on Willow Road.

West Campus. There is an existing storm drain system at the West Campus. Stormwater from the West Campus flows to the City's Willow Road storm drain system. The eastern portion of the adjacent TE Connectivity site (approximately 7 acres) drains through the West Campus to the Willow Road storm drain. The off-site drainage swale along the UPRR tracks also drains to Willow Road through a portion of the West Campus on-site drainage system. Because the on-site storm drain system was not designed with adequate capacity for the 100-year storm, localized ponding occurs on the site.[16]

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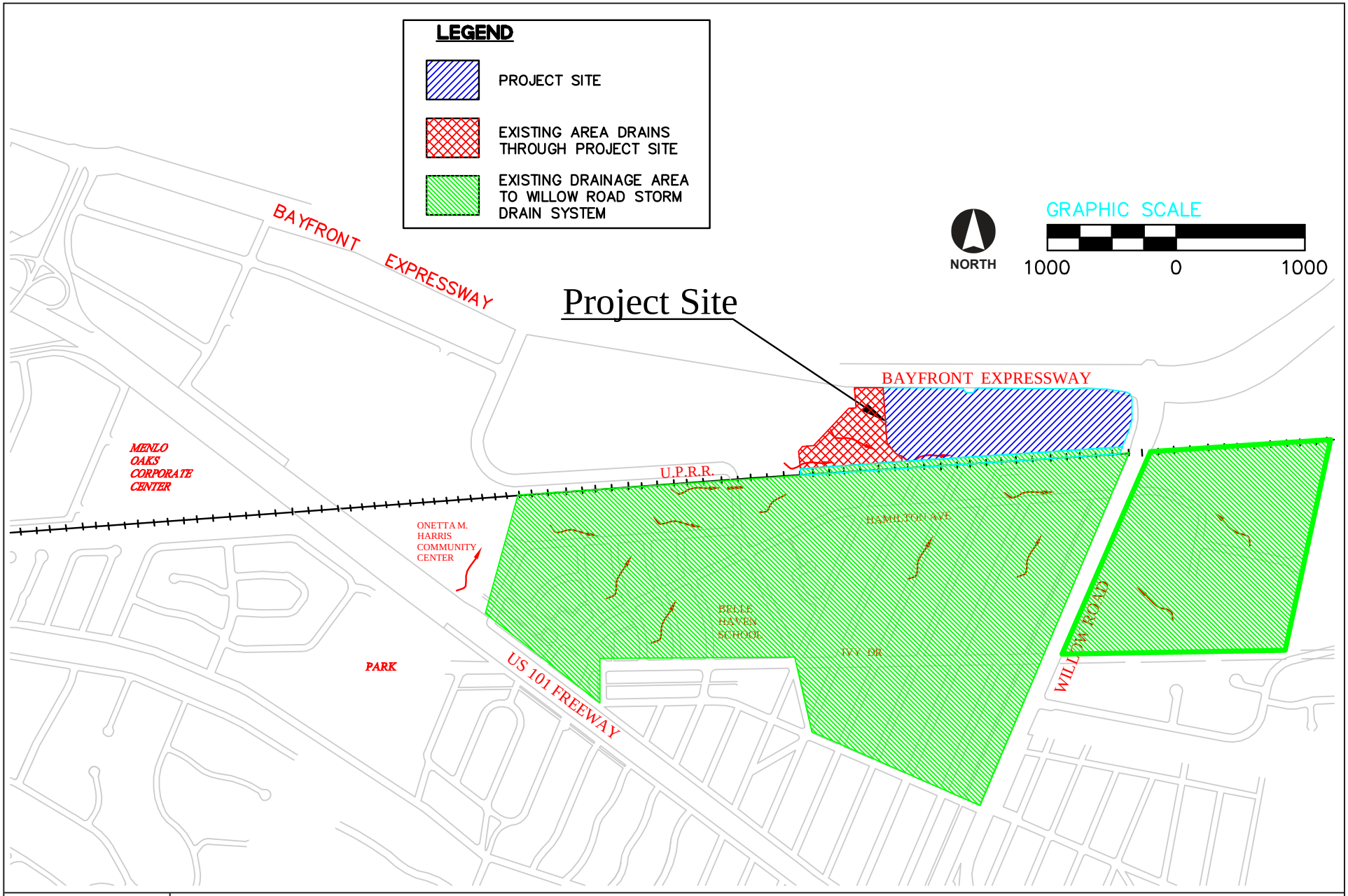
[15] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*. November 18, 2010.

[16] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.



Source: BKF, 2011.

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FIGURE 3.12-2
Areas Contributing Flows to Willow Road Storm Drain System

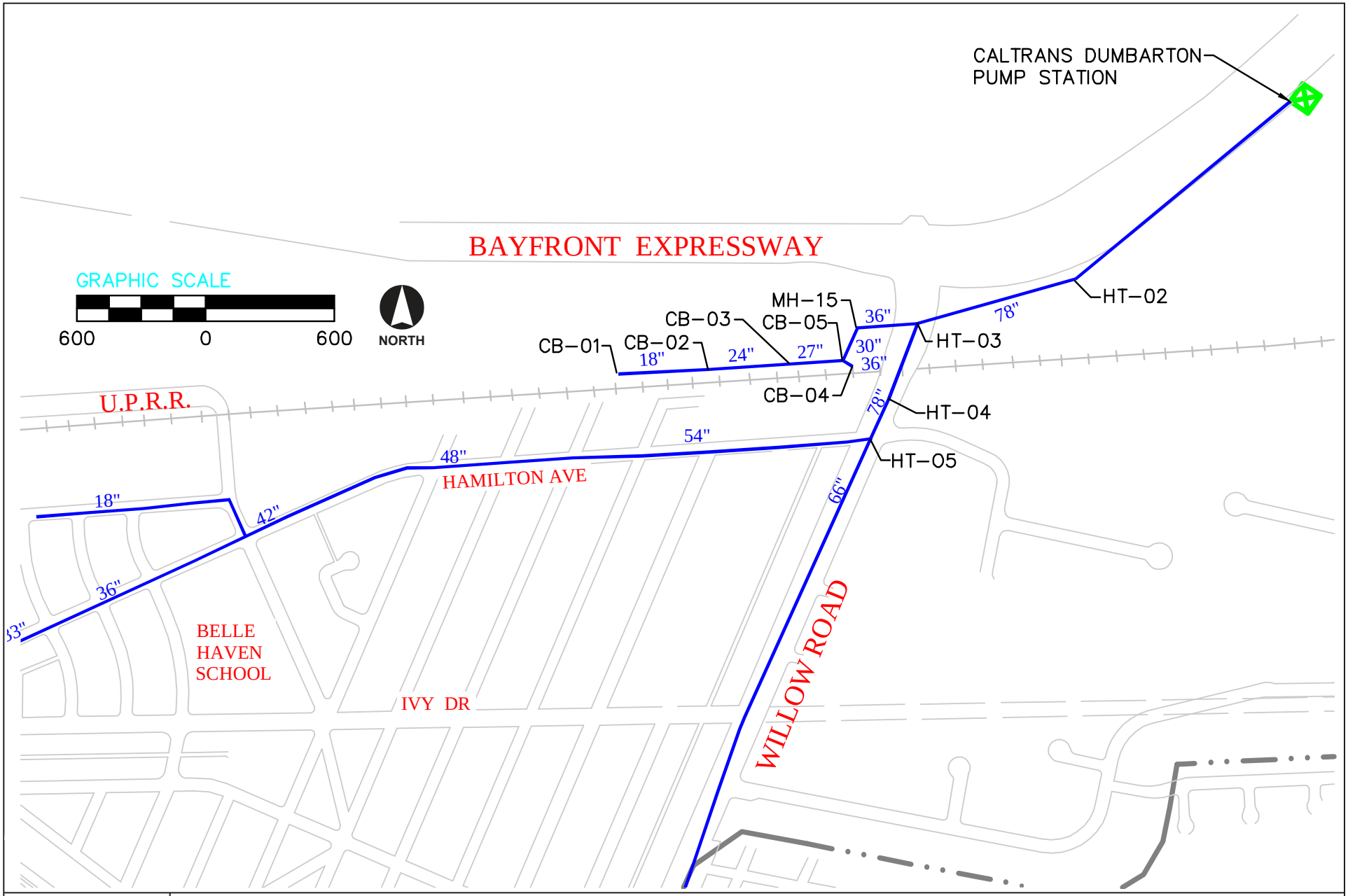

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FIGURE 3.12-3
Willow Road and Hamilton Avenue Storm Drain System

Source: BKF, 2011.

Areas south of the West Campus and southeast of West Campus (on the east side of Willow Road) are part of a larger drainage shed (Hamilton Avenue drainage system), which also contributes to Willow Road storm drain flows (Figure 3.12-2). Figure 3.12-3 shows the layout of the storm drain system that serves the West Campus and areas that drain to the Willow Road system. There is a storm drain line in Hamilton Avenue that increases in diameter from 30 inches in the west to 54 inches, where it intersects a 66-inch line in Willow Road, which joins a 78-inch line that ultimately conveys flows to the Caltrans Bayfront pump station.[17]

Under existing conditions, there are no storm flow capacity problems in either the Hamilton Avenue or Willow Road storm drains for a 10-year event. However, in a 100-year storm event, the storm drain system in Hamilton Avenue experiences increased flows. When the Willow Road storm drain system is also at capacity, this causes stormwater to back up into Hamilton Avenue drains. This is referred to as a "reverse flow" condition.[18]

Flood Hazards. The entire Project site is subject to tidal flooding from the Bay. Levees were constructed around the East Campus, beginning in the 1940s, when the first salt evaporation pond was constructed. The levees were raised in 1965 to an elevation of approximately 5 feet msl. In 1968, the sloughs and ditches in the East Campus were filled with recompacted Bay Mud and varying amounts of compacted fill, estimated to be approximately 4 to 8 feet thick. Following a combination of heavy rains, winds, and high tides that caused flooding when water from the Bay breached the levees in 1983, the perimeter levees were raised to an elevation of 10 feet msl, but subsequent settlement lowered the levee elevations to approximately 8.5 feet.[19] The Sun Microsystems Supplemental EIR concluded that the levees met their Army Corps of Engineers requirements. However, mitigation measures for that project noted that "the occupant of the site will periodically maintain and improve the levees in order to ensure that the condition of the levees remains adequate. Improvements to the levees will be implemented on an as-needed basis." It is unknown what improvements, if any, have been completed since the 1990s.

There are no levees around the West Campus. However, the West Campus is topographically isolated from nearby salt ponds and the Bay by the Bayfront Expressway.

Coastal Flooding. High water levels in the Bay in combination with wind-generated waves can result in erosion and overtopping of barriers. High water elevations in the Bay correspond with the high astronomical tides, storm surge, and climatic conditions. Flooding in the area of the City that includes the Project is tidally induced from the Bay because of the incomplete system of levees built along the bayfront, which includes numerous low points and openings that allow tides to overtop or bypass the levees.[20]

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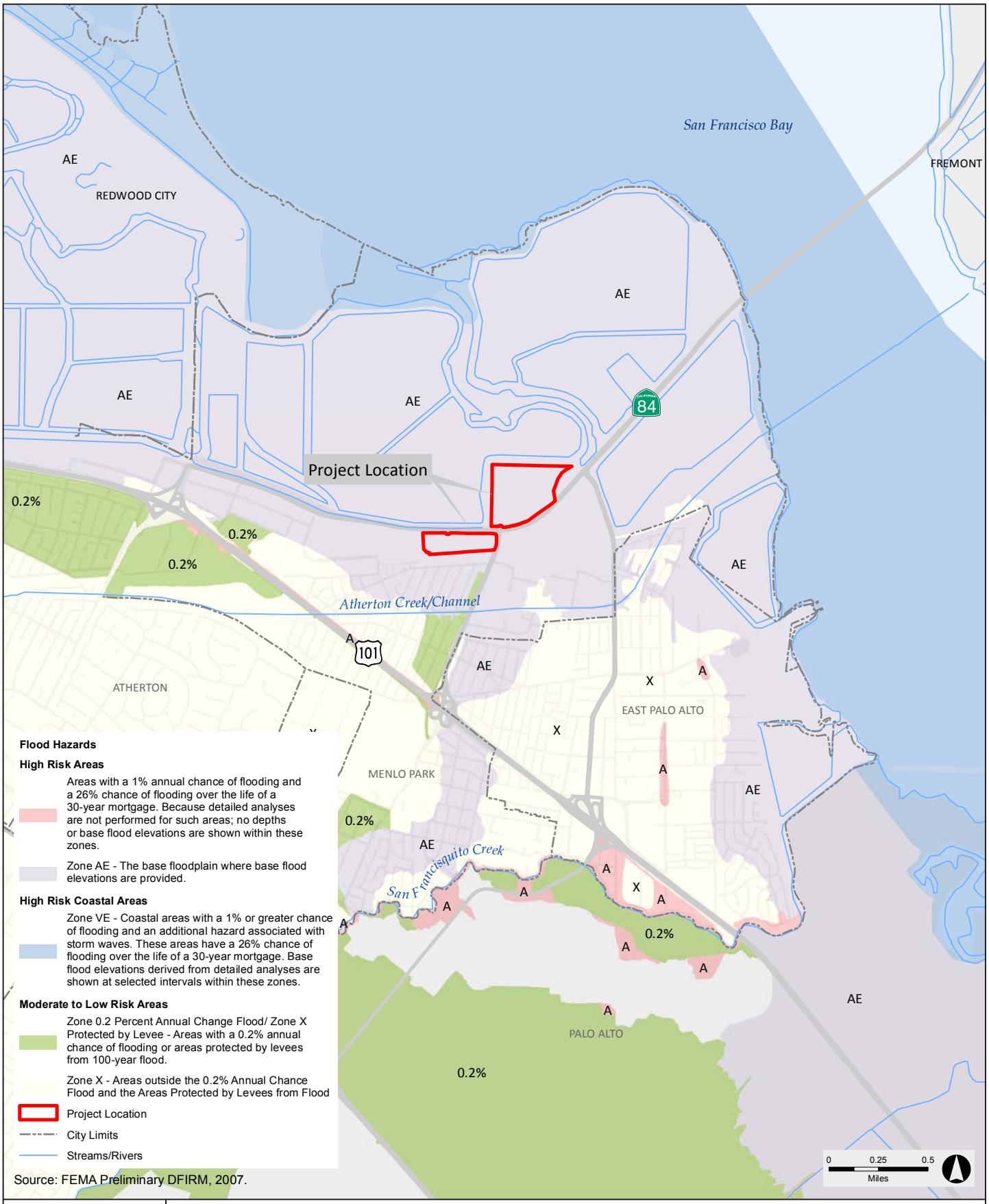
[17] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

[18] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.

[19] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*. November 3, 2010.

[20] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.



Source: FEMA Preliminary DFIRM, 2007.

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FIGURE 3.12-4
Flood Hazards

Source: FEMA Preliminary DFIRM, 2007; Atkins, 2011.

Special Flood Hazard Area. Both the East Campus and West Campus are located within a FEMA Special Flood Hazard Area (SFHA) AE (Figure 3.12-4). As illustrated in Figure 3.12-4, the AE zone encompasses a large area of flooding that extends along a significant portion of the Peninsula shoreline. Zone AE is a 100-year floodplain with base flood elevations (BFE) determined. The BFE at Willow Road is 7.5 feet. The BFE is a maximum still water elevation in the Bay.[21] Because the 100-year flood associated with the Zone AE and BFE is related to tidal flows only, there is no regulatory floodway and associated floodplain.[22]

Under existing conditions, the West Campus does not provide floodplain storage for stormwater runoff because there is no regulatory floodway. In addition, there are no upstream hydrologic or hydraulic contributions to potential flooding conditions at the West Campus ("run-on"). This is because the site is topographically isolated by the Bayfront Expressway, the UPRR berm, and Willow Road, which are at higher elevations than the site.

Tidal floodwaters can only flow to areas that are lower than the BFE. In the 100-year tidal flood event, flooding is exclusively and directly related to the elevation of the Bay water. Tidal flooding can only occur if a barrier is overtopped during high tides or when water flows through low points in the barriers where the elevation is lower than the BFE.

The Bayfront Expressway, which is at a higher elevation than the BFE, is a substantial barrier to 100-year event tidal inflow and outflow both at the West Campus and areas to the south, west, and north. Floodwaters can only enter and leave the West Campus and adjacent off-site locations along low spots along Willow Road and to some extent along the drainage swale south of the site. These low-area flow paths (in green) and locations where elevations that are higher than the BFE and act as barriers to flow (in blue) are shown in Figure 3.12-5. Areas below the BFE (not blue or green) provide flood storage. As shown by the small and isolated green areas in Figure 3.12-5, there are only a few existing low-area flow paths at the West Campus.

Sea Level Rise. According to maps available from BCDC, all or most of the East Campus, and a substantial part of the West Campus, are within or very near to areas that would potentially be subject to inundation with an expected 16-inch mid-century sea level increase. The BCDC maps show additional areas, including SR84/Bayfront Expressway east and west of the site, as being impacted by a potential 55-inch sea level increase by the year 2100 (Figure 3.12-6). BCDC maps are generalized to illustrate possible sea levels at mid-century and the beginning of the 22nd century. The maps do not take into account wind and waves that would increase the extent of inundation, and they do not show existing levees or other barriers that might provide protection from flooding.[23] As noted above, the BCDC recently amended the Bay Plan to increase the year 2100 projected sea level rise to 69 inches.

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[21] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

[22] The floodway is defined as the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1 percent annual chance flood (100-year event) can be carried without substantial increases in flood heights.

[23] Bay Conservation and Development Commission, Resolution 11-08, Adoption of Bay Plan Amendment No.1-08, October 2011, p.4.

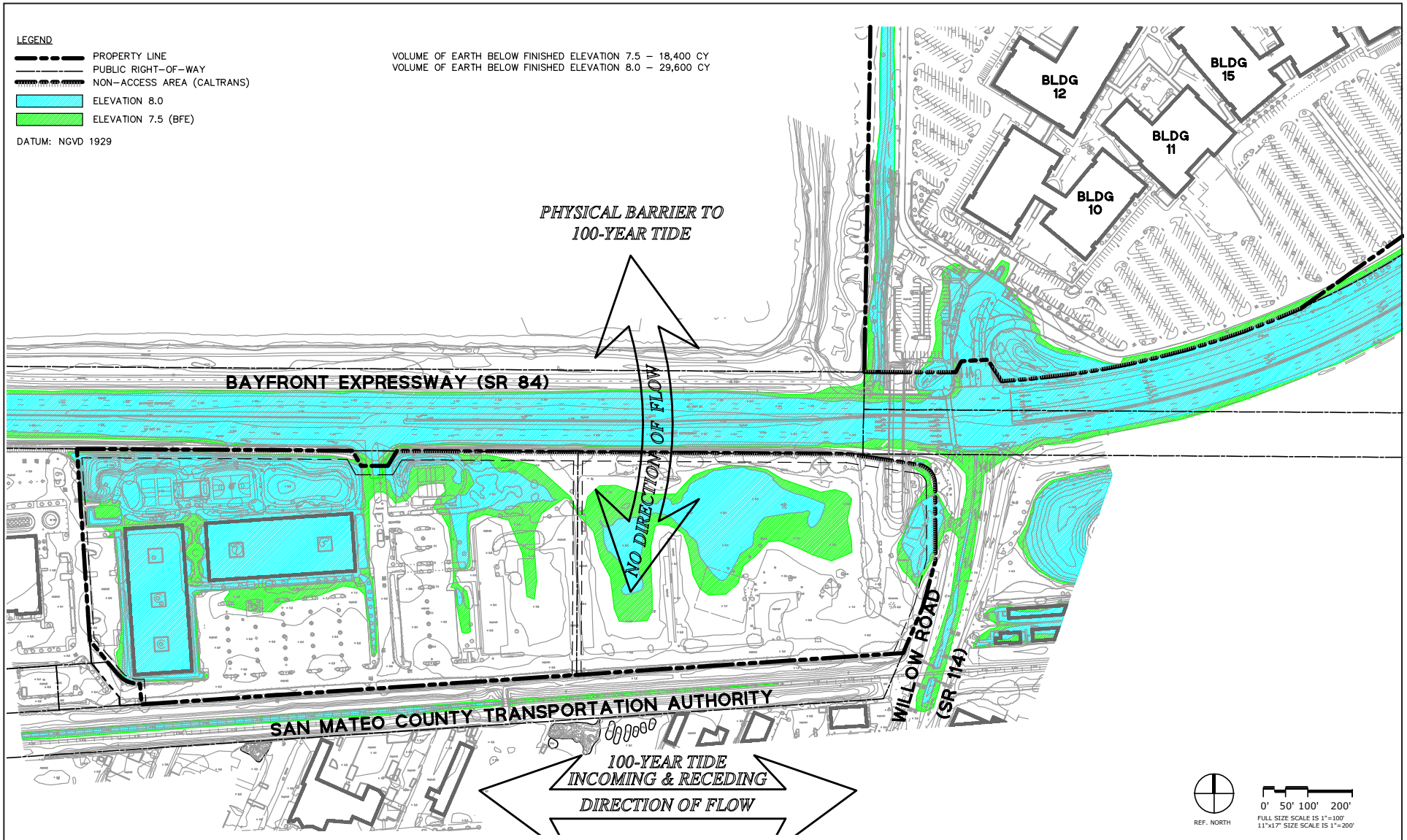

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FIGURE 3.12-5
Existing Locations of Base Flood Elevation (BFE) 7.5 Feet and Higher

Source: Gensler, 2011.

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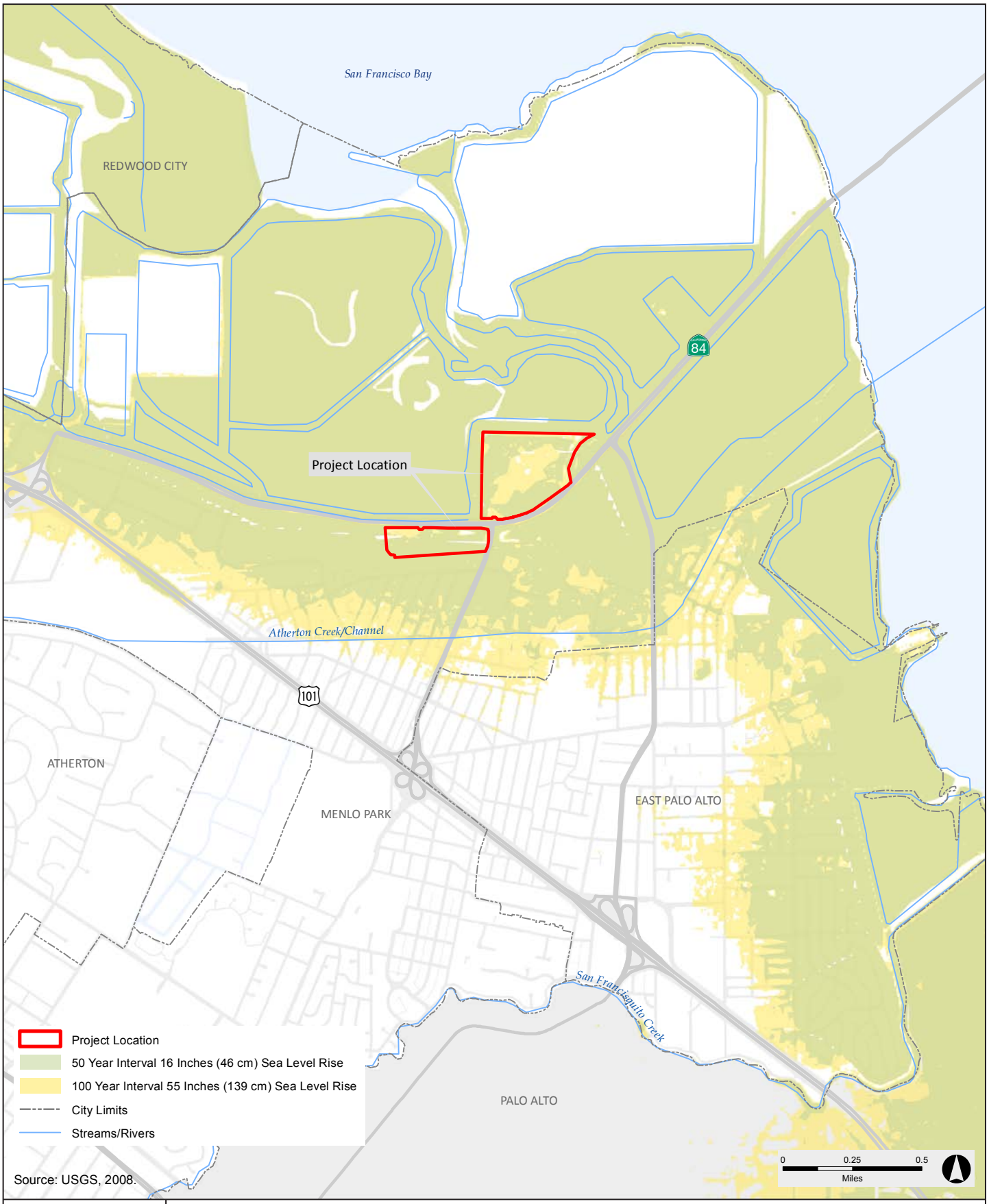
Menlo Park Facebook Campus Project



Source: USGS, 2008.

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FIGURE 3.12-6
Sea Level Rise

Source: USGS, 2008; Atkins, 2011.

Tsunami and Seiche. Tsunamis[24] and seiches[25] can result in wave damage and flooding of low-lying coastal areas along the shores of oceans, lakes, reservoirs, or bays. The amount of damage caused by tsunamis and seiches in the Bay Area historically has been small. According to California Emergency Management Agency (Cal EMA) mapping, the potential for tsunami or seiche inundation is low.[26] A portion of Ravenswood Slough along the eastern boundary of the East Campus is mapped as vulnerable to tsunami hazard, but the hazard area does not extend into the developed portion of the East Campus.[27] The West Campus is separated from the Bay by the Bayfront Expressway and is not vulnerable to these hazards.

Dam Failure Inundation. The Project site is not subject to dam failure inundation.[28]

Surface Water Quality. The quality of the stormwater runoff from the Project site and surrounding development is typical of urban watersheds with similar land uses and is expected to contain constituents, such as landscaping chemicals (e.g., nitrates, phosphates, herbicides, and pesticides), automobile and traffic pollutants (e.g., oil, grease, metal brake dust, metal wear), trash and debris, pathogens (e.g., wildlife and pet waste), sediment with associated attached pollutants from soil erosion or aerial deposition of dust, and chemicals leaching from structures (e.g., metals from metal roofs and architectural features, calcium from limestone).

Stormwater from the City's storm drain system, including that from the Hamilton Avenue and Willow Road systems, discharges to the Bay. The Central Bay is listed by the EPA as impaired by pollutants from the following three sources: (1) chlordane, DDT, dieldrin, and mercury from nonpoint sources; (2) dioxin compounds, furan compounds, and mercury from atmospheric deposition; and (3) exotic species from ballast water. In addition, the Bay is impaired by PCBs and dioxin-like PCBs from unknown nonpoint sources.[29] Industrial and municipal point sources, resource extraction, and natural sources also contribute to mercury and selenium degradation of the Central Bay. Runoff from the Project site is subject to comprehensive regulations and standards, which are described in the Applicable Plans and Regulations subsection, above.

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[24] A tsunami is a series of several long sea waves generated by a sudden displacement of a large volume of water. A tsunami can be triggered by earthquake activity that affects ocean waves, but also can be triggered by other large-scale, short-duration phenomena, such as submarine landslides.

[25] A seiche is a similarly generated oscillation wave occurring in a confined or mostly confined body of water, such as a lake, reservoir, or bay.

[26] Cornerstone Earth Group, *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*, November 18, 2010.

[27] California Emergency Management Agency (Cal EMA), California Geological Survey, and University of Southern California. *Tsunami Inundation Map for Emergency Planning, Redwood Point Quadrangle/Palo Alto Quadrangle*. June 15, 2009.

[28] Association of Bay Area Governments (ABAG). Dam Failure Inundation Hazard Map for Menlo Park/Atherton/East Palo Alto, website: http://www.abag.ca.gov/bayarea/eqmaps/damfailure/dfpickc.html, accessed September 29, 2011.

[29] San Francisco Regional Water Quality Control Board (SFRWQCB), *2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs*, approved by the USEPA June 28, 2007.

Hydrogeology and Groundwater. Geologic materials underlying the site consist of up to several feet of artificial fill (sandy gravels, clayey gravels, and sandy clay) underlain by native materials (older alluvial fan deposits, basin deposits, estuarine and channel deposits) consisting of materials ranging from high-plasticity silty clay to granular deposits of sands or sandy gravels. The predominance of the low-permeability clayey estuarine deposits has generally restricted the subsurface migration of the chemicals released at the site.

First groundwater beneath the site is found at relatively shallow depths, generally within 10 to 14 feet of the ground surface and it rises (due to semi-confined conditions) to within a few feet to eight to ten feet below the ground surface (bgs). The upper water-bearing zone is divided into an "upper Alpha unit" (up to depths of 25 feet), and "lower Alpha unit" (25 to 37 feet deep). A "Beta water-bearing zone" is present starting below 37 to 43 feet bgs and extends to approximately 100 feet bgs. The Beta zone and the next (deeper) water-bearing zone are separated by low-permeability clayey materials that are tens of feet thick and extensive in area. The direction of groundwater flow is generally to the north.[30]

The Alpha water-bearing zone is characterized by hyper-saline water (more saline than sea water) for most of the site due to its close proximity to the commercial saltwater evaporation ponds that border the Bay. The San Francisco Bay RWQCB in a letter dated August 13, 2002, stated: "…that the quality of the shallow groundwater underlying the Tyco site is such that it is not considered as a potential source of drinking water, based on the high Total Dissolved Solids (TDS) in the shallow aquifer zone." The Alpha water-bearing zone beneath the site is therefore not considered a source of drinking water by the San Francisco Bay RWQCB because of the elevated salinity in groundwater.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

[30] The descriptions of water-bearing zones maintains the nomenclature established in the site investigation and remediation reports for soil and groundwater contamination at the West Campus. The reader is referred to Section 3.13, Hazards and Hazardous Materials, for additional information about the investigation and cleanup of the West Campus.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site.
- Create or contribute runoff water which would exceed pre-project levels or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Expose people or structures to increased risk of flooding due to climate change-induced sea level rise.

Impacts Not Evaluated In Detail

The following impacts are not evaluated in detail because there would be no impact as a result of implementing the Project.

There are no natural drainage features on site, and the Project does not propose alteration of any off-site natural surface drainage features. The Project does not drain to an area where hydrograph modification controls are required. Therefore, drainage from the Project is not expected to cause or contribute to off-site erosion or siltation in channels or creeks, and there would be no impacts requiring detailed analysis.

The East Campus is surrounded by levees at an elevation of approximately 9 to 13 feet, which is equal to or higher than the reported finished elevation of the East Campus of approximately nine feet. It is not expected that failure of the levees would result in significant changes to the flooding potential at the East Campus since the levees are not consistently higher than the Project site. The West Campus is not protected by a levee system, but the Bayfront Expressway provides a barrier to tidal flows from the Bay. Therefore, levee failure impacts do not require further detailed analysis.

The potential for tsunami or seiche inundation is low, and the Project site is not subject to dam failure inundation. No detailed analysis of these impacts is required.

Environmental Analysis

HY-1 ***Changes in Stormwater Runoff.*** *The Project at the West Campus would result in less-than-significant impacts with regard to stormwater runoff. (LTS)*

The 22-acre West Campus currently includes two office buildings, a surface parking lot, landscape features, a basketball court, and a guard house. The eastern portion of the site is vacant and underlain by compacted gravel. Stormwater runoff is generated from impervious surfaces such as building rooftops, the parking lot, roadways, and hardscaping. Stormwater

runoff also occurs as overland flow over the vacant portion. The existing structures would be removed in their entirety, and the Project would construct new buildings, new parking areas, roadway access, and hardscaping throughout the entire 22-acre site, as shown in Figure 2-5, Project Description. The amount of rooftops and paving (impervious surfaces) would decrease from 14.6 acres to 10.9 acres, and there would be an increase in landscape areas (pervious surfaces) from 7.6 acres to 11.2 acres.

The net effect of these changes in impervious surfaces is that there would be a slight decrease in stormwater peak flow rates compared to existing conditions.[31] Table 3.12-1 shows a comparison of pre-Project (existing) stormwater peak flow rates compared to flows that would occur with the Project for the 10-year and 100-year storm events.

Table 3.12-1
West Campus Stormwater Runoff Peak Flow Rates

	10-Year Storm (cfs)		100-Year Storm (cfs)	
Stormwater Drainage System Location[a]	**Pre-Project (Existing)**	**With Project**	**Pre-Project (Existing)**	**With Project**
CB-1	7.6	7.6	46.3	46.3
CB-2	13.4	13.2	13.4	13.4
CB-3	16.5	16.1	25.1	24.0
CB-4	9.7	9.7	32.2	30.3
CB-5	29.3	28.8	83	79.8
MH-15	29.1	28.5	82.6	79.4
HT-03	287.7	287.3	320.6	320.6
HT-02	286.7	286.3	319.8	319.8
HT-OUT	282.9	282.6	373.1	371.2

Source: BKF, November 2011.

Note:

a Refer to Figure 3.12-3 for locations. Locations CB-1 through CB-5 are on-site. MH-15 and the HT locations are off-site.

For the 10-year storm, there would be a slight decrease in flows to the Willow Road storm drain system and there would be capacity in the system to accommodate West Campus flows.[32]

For the 100-year storm, the Project would result in a decrease in stormwater peak flows to the Willow Road storm drain system. This is expected to provide some improvement to the Hamilton Avenue system, because that system experiences flow reversals when the Willow Road system is at capacity.[33]

[31] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.
[32] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.
[33] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

However, because the on-site storm drain system has capacity limitations, ponding at the West Campus and at the adjacent TE Connectivity site would continue to occur. The drainage swale would continue to provide overflow storage because the Project proposes no changes to the swale. The flow reversals currently experienced in the Hamilton Avenue system would also occur, but not to a greater extent than existing conditions. That is, the Project would not cause or exacerbate City drainage system capacities to be exceeded or cause or exacerbate off-site flooding in local neighborhoods.[34] For those reasons, the impact is considered ***less than significant***.

Some additional reduction in Project-generated flows is also to be expected with the incorporation of planned stormwater quality features, such as rain gardens and treatment areas (see Impact HY-4 for more information). These features are designed to temporarily store stormwater runoff so that pollutants can settle out. This has the effect of delaying (or "metering") the peak flows into the storm drainage system where other flows are being conveyed. [35]

HY-2 ***100-Year Floodplain.*** *The Project at the West Campus would place structures in a SFHA. This is considered a potentially significant impact. (PS)*

New structures at the West Campus would be placed in a SFHA, indicating development could be vulnerable to 100-year flood hazard risk. Because the City participates in the federal NFIP, it must ensure the Project meets federal standards for flood protection. Chapter 12.42 of the City's Municipal Code contains methods and provisions designed to prevent flood damage. Under Section 12.42.41, a development permit is required before grading activities in a flood hazard area can begin.

Construction within SFHAs is governed by the City's Municipal Code Chapter 12, Section 12.42.51, Standards of Construction, which sets forth the standards for development within SFHAs that would minimize flood hazard risks, including anchoring and flood-proofing; limitations on use for structures below the base flood elevation; use of materials and utility equipment resistant to flood damage; the requirement that electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities are designed and/or located to prevent water from entering or accumulating within the components during flood conditions; and the requirement that all new and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters.

The Project would involve placement of fill to elevate finished floor elevations above the 100-year flood hazard elevation. According to the Project Sponsor and as illustrated in site grading plans and cross-sections, the thickness of fill placed at the site would raise the site elevation such that finished floor elevations of habitable structures would provide protection for the 100-

[34] BKF, *Facebook @ Menlo Park West Campus Hydrology Report*, November 21, 2011.
[35] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

year tidally-induced flooding, consistent with requirements for development in the SFHA, plus 16 inches of sea level rise by 2050.[36] This impact is considered ***potentially significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure HY-2.1 would reduce the potentially significant flood risk impacts at the West Campus to ***less than significant***. (LTS)

HY-2.1 *Prepare and Obtain a Conditional Letter of Map Revision – Fill (CLOMR-F) from FEMA Prior to Issuance of a Grading or Building Permit.* Concurrent with the first building permit submittal for the West Campus, the Project Sponsor shall submit a FEMA CLOMR-F application to the Public Works Department for review and approval. In accordance with the National Flood Insurance Program (NFIP) (Code of Federal Regulations (CFR) 44 Part 65), Section 65.6 (Revision of base flood elevation determinations), the Project Sponsor shall prepare supporting data, including relevant hydraulic and hydrologic analyses, delineation of floodplain boundaries and all other information required by FEMA to review and evaluate the request for a CLOMR-F. The analyses shall clearly show revised and new floodplain boundaries, for the Project area and adjacent areas not affected by the revision. Upon receiving City approval, the Project Sponsor shall submit the CLOMR-F application to FEMA. Prior to issuance of any grading or building permit on each site, the applicant shall obtain a CLOMR-F from FEMA. The applicant shall submit an elevation certificate prior to final signoff of the foundation inspection for each structure.

HY-3 ***Impeding or Redirecting Flood Flows.*** *The Project at the West Campus would place fill and structures in a 100-year floodplain. However, this would not impede or redirect flood flows. (LTS)*

The placement of fill and structures at the West Campus would not result in increases in water surface elevations that could cause or exacerbate on- or off-site 100-year flood hazards, as described below.

Under existing conditions for the 100-year tidal flooding event, the West Campus would experience flooding, but it does not provide floodplain storage because there is no upstream hydrologic or hydraulic stormwater contribution. Therefore, with the Project, there would be no encroachment on a regulatory floodway that would remove floodplain storage capacity. The Project would not increase water elevations because the displaced water would be dispersed over the entire acreage of the Bay.

The placement of fill and structures would not cause a measurable increase in still water elevation (BFE) in the Bay. This is because the water surface elevation is tidally influenced, and because displaced water would be dispersed over the entire acreage of the Bay. Because the Project cannot physically cause an increase in a tidally influenced BFE at levels that would be

[36] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

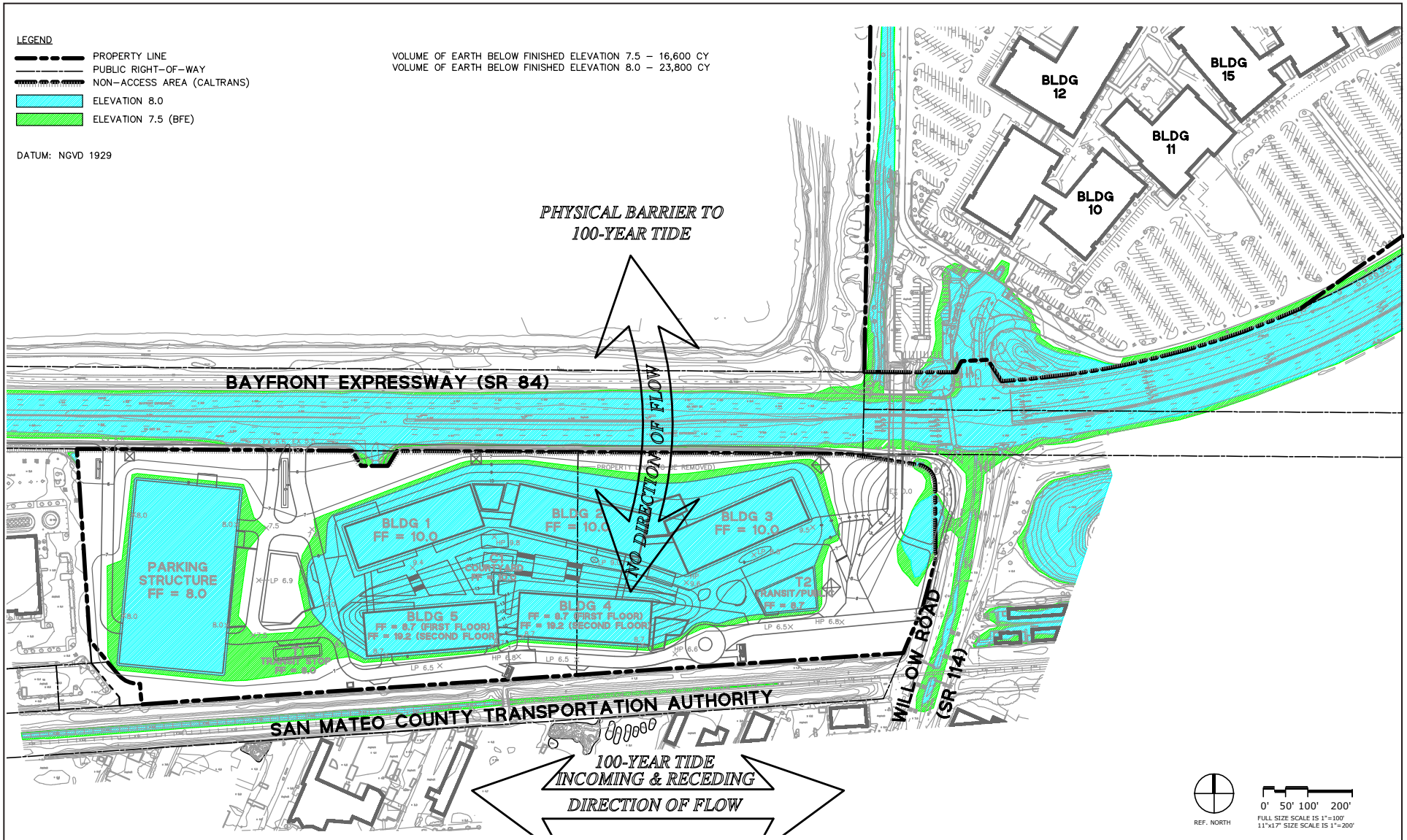
substantial enough to cause flooding, it would not cause an increase in water surface elevations anywhere in the AE 7 zone along the Bay margin that could result in or exacerbate flood risk.

Under existing and proposed conditions, some tidally induced floodwater under a 100-year event will remain on the West Campus at locations that are not required to be elevated for floodproofing because features, such as the Bayfront Expressway, will act as a barrier to return flow to the Bay. When tidal flooding recedes, the water can only flow back to the Bay through the locations that are lower than the BFE (e.g., toward Willow Road and east-west directions in the drainage swale, as in Figure 3.12-5) or through the storm drain system. Based on the grading plan and site plan, the proposed locations for placement of on-site fill and structures would provide sufficient space around each filled area, such that tidal floodwater drainage from the West Campus would not be impeded or redirected to off-site locations where it could cause or exacerbate flooding. For the same reasons, run-on from the adjacent TE Connectivity site, which drains through the on-site storm drain system to Willow Road, would not be impeded or restricted, such that water surface elevations would increase and result in flooding on the adjacent TE Connectivity property. Some ponding on-site would still occur, as under existing conditions, because there is insufficient capacity in the storm drain system for the 100-year event.

The capacity of the drainage swale to convey receding floodwaters and any upstream stormwater contributions would remain unaffected by the Project because no changes to these features are proposed. That is, the Project would not place fill in any portion of the swale, and no additional flows from the Project would be directed to the swale, so the capacity of the swale to convey receding floodwaters would not be reduced. While the swale and Willow Road could be overtopped with a 100-year event, this is an existing condition that would remain unaffected by the Project.

The placement of fill would raise the elevation of the site above the BFE and will remove the site from the SFHA, as explained in Impact HY-2. This would physically reduce the area on-site that could experience tidal flooding because tidally induced flooding cannot flow uphill. That means that less flood water from the West Campus would need to flow back to the Bay through existing drainages (low spots and storm drain system), compared to existing conditions, which would also reduce the demand on the storm drain system for the 100-year event. This is illustrated in Figure 3.12-7.

In addition, because the Project would result in a slight decrease in stormwater runoff compared to existing conditions (see Impact HY-1), this would further reduce the demand on the storm drain system for the 100-year event, in which capacity is already exceeded under existing conditions. For those reasons, the Project would not increase water surface elevations at off-site locations that could cause or exacerbate off-site 100-year flood risk. In fact, with the Project, there would be a slight improvement in drainage conditions compared to existing conditions.



Source: Gensler, 2011.

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FIGURE 3.12-7

Future Locations of Base Flood Elevation (BFE) 7.5 Feet and Higher

In summary, the placement of fill and structures would not remove floodplain storage or increase flows to the drainage features that convey both stormwater and receding flood waters for the 100-year event for on-site and off-site properties. As a result, the Project would not result in an increase in surface water elevations that could cause or exacerbate flood hazards on- or off-site. Therefore, impacts would be ***less than significant***.

HY-4 ***Sea Level Rise.*** *Implementation of the Project could expose people to flooding from climate change-induced sea level rise:*

- *The Project at the East Campus would have a less-than-significant potential to expose people to flooding from climate change-induced sea level rise. (LTS)*
- *The Project at the West Campus could expose people to flooding from climate change-induced sea level rise, resulting in a potentially significant impact. (PS)*

As it relates to the Project, sea level rise could result in higher flood elevations, alterations in the frequency of flood events, higher shallow groundwater tables, reduced storm drain system water surface elevation gradients, and overtopping or failure of levees.

Different scenarios and models used to predict sea level rise result in different estimates of the magnitude of sea level rise; regardless, an increase in mean sea level would have a substantial effect on flooding at the Project site. When combined with astronomical tides, even a 1-foot increase in msl might result in the 100-year event high tide peak occurring at the 10-year event frequency.[37] In other words, the frequency of a current 100-year high tide could occur more often when sea levels increase to 1 foot above current msl.

As shown in Figure 3.12-6, the Project site, like much of the City east of El Camino Real, could be inundated with a sea level rise of 16 inches, which might be expected to occur by mid-century, depending upon the sea level rise scenario, and up to 55 inches to 69 inches by the end of the century.[38]

The Bayfront Expressway currently provides sole access to East Campus and primary access to West Campus. According to the BCDC maps, the Bayfront Expressway would not be inundated as a result of a 16-inch sea level rise but would be impacted by a 55-inch rise projected for the end of the century. Such inundation of Bayfront Expressway could not only affect access to the Project site, it could also impact regional traffic patterns. Because the Bayfront Expressway is a Caltrans-operated major transportation route that connects the East

[37] Floyd, M., M. Anderson, M. Roos, R. Peterson, M. Perrone, and D. Todd. 2006. Chapter 2: Potential Impacts of Climate Change on California's Water Resources, Figure 2.32 Impact of One Foot Sea Level rise on the Relative Effect of Astronomical tides in the Delta. p. 2-53. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report From Climate Change Center CEC-500-2005-195-SF.

[38] San Francisco Bay Conservation and Development Commission, Climate Change Bay Area Regional Map, 2009, website: www.bcdc.ca.gov/planning/climate_change/index_map.shtml, accessed September 28, 2011.

Bay to the Peninsula by way of the Dumbarton Bridge, the Bayfront Expressway will require protective measures from sea level rise whether or not the Project is implemented. Consequently, it is anticipated that State and local transportation agencies will have to analyze and solve for the potential sea level rise effects on the Bayfront Expressway and implement protective measures, on a regional basis, in order to keep the Bayfront Expressway operational with an increase of 55 inches or beyond.

East Campus

At the East Campus, the site is already developed with structures that could be vulnerable to sea level rise flooding. The levees that were constructed in the 1940s are reportedly equal to or at most four feet higher than the finished grade at the East Campus. A 16-inch rise in sea level could result in overtopping or damage to the levees, which could result in flooding at the East Campus. When appropriate, the City will comply with BCDC's Climate Change policies as presented in the October 2011 Bay Plan amendments and take action to protect existing developments. As discussed in Policy 6 of the Bay Plan amendments, BCDC will collaborate with the Joint Policy Committee (JPC);[39] other regional, state, and federal agencies; local governments; and the general public to formulate a regional sea level rise adaptation strategy. Among other things, the regional strategy will determine where and how existing development should be protected. Adaptation actions that protect existing development and infrastructure include protecting shorelines. The City will participate in the planning efforts by BCDC and the JPC. Because the City will take action when appropriate to protect existing development, impacts related to flooding on the East Campus that could result from sea level rise are considered ***less than significant***.

West Campus

At the West Campus, in order to comply with flood hazard area development regulations and to address 16-inch sea level rise at mid-century (Impact HY-2), the site would be elevated by placing fill, and by having finished floor elevations of buildings that would have first-floor occupancy (Buildings 1, 2, and 3) at 10 feet.[40] Buildings 4 and 5, T2, and the parking structure would not have occupied first floors, but occupied floors would be at an elevation greater than 10 feet. Figures 2-6 and 2-7 in Section 2, Project Description, show cross-sections illustrating final grades and finished floor elevations.

The proposed design of the West Campus is consistent with literature/agency recommendations that support use of a 2050 scenario (16-inch rise). With regard to 2099 sea level rise projections, the City, along with other jurisdictions in the Bay Area, will continue to monitor

[39] The JPC coordinates the regional planning efforts of Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), BCDC, and the Metropolitan Transportation Commission (MTC). Among the JPC's current initiatives are focused growth, climate protection, and development of a sustainable communities strategy pursuant to SB 375.

[40] Elevation developed as follows: BFE (7.5 ft) + 1 ft freeboard + construction tolerances + 1.3 ft (16 inches).

scientific findings and recommendations set forth by the State and BCDC, which will dictate what adaptive management strategies, if any, may be necessary.

In the future, precipitation events are predicted to vary in terms of timing, intensity and volume according to many climate change models. Extreme storm events may occur with greater frequency. The effect of climate change on peak runoff is not known because most climate change models have not used a temporal (or spatial) scale necessary to identify effects on peak flows, and existing precipitation/runoff models for assessing the effects of climate change do not yet adequately predict rainfall/runoff scenarios.[41]

As noted in Impact HY-1, stormwater flows from the West Campus would be reduced compared to existing conditions and would not adversely affect storm drain capacity. However, sea level rise could inundate the West Campus. If the on-site drainage system is not designed to account for sea level rise inundation, this could cause on-site ponding, and it would contribute additional flows to the off-site storm drain system. This is a potentially significant impact that can be reduced to a less-than-significant level through implementation of Mitigation Measures HY-4.1 and HY-4.2.

Water surface elevation gradients (slopes) are primary drivers of flow conveyance within streams and storm drains. The higher the gradient, the faster water can flow. If the downstream outlet of a storm drain is controlled by the water surface elevation of the Bay, rising sea levels can affect the flow within those drainages. A higher water surface elevation at the outlet reduces the gradient and slows down flow. This could result in reduced storm flow conveyance capacity and cause or contribute to backwater flooding effects. Because drainage from the West Campus, as well as other off-site locations, ultimately is through the Caltrans pump station by way of the Willow Road system, it is unlikely that higher Bay water surface elevations would affect storm drain system flow gradients, because the system is not entirely gravity driven. If increased sea level were to alter the flow gradient, this could cause additional backups and exacerbate flooding. Such effects would not be directly related to the Project, however, because the potential for the City's storm drain system to experience capacity problems due to sea level rise would occur regardless of whether the Project is implemented.

Another potential impact of sea level rise is that it can cause shallow groundwater to rise. Groundwater beneath the West Campus is at relatively shallow depths, generally within 10 to 14 feet below ground surface but can be within a few feet of the ground surface in some locations. Grading and fill placement to remove portions of the site from the SFHA would result in certain areas of the West Campus about 5.3 feet above shallow groundwater for non-occupied structures and at least 7.3 feet above shallow groundwater for occupied floors. Paths and driveways would be about 2.6 feet above shallow groundwater at their lowest points. While these are approximations because the final design details have not been developed, the

[41] Anderson. M. 2006. Chapter 6: Climate Change Impacts on Flood Management p. 6-22 and 6-27. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report From Climate Change Center CEC-500-2005-195-SF.

calculations show the potential surface flooding effects by shallow groundwater would not be expected to be substantial in the event of a 16-inch sea level rise. However, utility trenches and low points for stormwater treatment, detention, or retention may still be subject to shallow groundwater table effects, depending upon the structure depth. Additionally, the effectiveness of any stormwater quality/quantity BMPs designed for infiltration, biofiltration, or below-ground-surface treatment could be compromised if sea level rise-induced increases in shallow groundwater cause groundwater to intercept the BMPs. This is a ***potentially significant*** impact.

MITIGATION MEASURES. Implementation of Mitigation Measures HY-4.1 and HY-4.2 would reduce the potentially significant sea level rise impacts at the West Campus to ***less than significant***. (LTS)

HY-4.1 *Floodproofing of West Campus Underground Infrastructure*. Prior to, or at a minimum concurrent with, the issuance of the first construction activity permit at the West Campus and in connection with applicable FEMA requirements, the City shall ensure that the Project incorporates design features to flood-proof below-ground infrastructure, including storm drains, sewers, equipment facilities, to withstand hydrostatic forces and buoyancy from sea level rise changes in groundwater levels.

HY-4.2 *Provide Adequate Storm Flow Conveyance Capacity For Sea Level Rise Conditions at the West Campus*. Prior to, or at a minimum concurrent with, the issuance of the first construction activity permit at the West Campus, the City shall ensure that the Project incorporates design features to ensure that the storm drain system conveyance capacity is not constricted by sea level rise at the outlets, including the Caltrans pump station.

HY-5 ***Construction and Operational Stormwater Pollutants.*** *Stormwater runoff from the Project at the West Campus would contain urban pollutants. Compliance with applicable federal, State, and local regulations would ensure the Project would not violate water quality standards or permits, contribute additional sources of polluted runoff, or otherwise cause water quality degradation. As a result, this impact would be less than significant. (LTS)*

Construction Site Stormwater Runoff. Construction at the West Campus would include demolition, clearing and grubbing, pavement removal and replacement, excavation and trenching for foundations and utilities, soil compaction, cut and fill activities, and grading, all of which would temporarily disturb soils. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport from the Project area. Erosion and sedimentation affect water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported with sediment to downstream locations. Sediment-associated pollutants could also cause or contribute to degradation of water quality. The delivery, handling, and storage of construction materials and wastes, as well as the use of construction equipment, could also introduce a risk

for stormwater contamination that could impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination, and some hydrocarbon compound pollution associated with oil and grease can be toxic to aquatic organisms at low concentrations. Staging areas or building sites can be sources of pollution because of the use of paints, solvents, cleaning agents, and metals during construction. Impacts associated with metals in stormwater include toxicity to aquatic organisms, such as bioaccumulation, and the potential contamination of drinking supplies. Pesticide use (including herbicides, fungicides) associated with site preparation work (as opposed to pesticide use for landscaping) is another potential construction activities source of stormwater contamination. Pesticide impacts to water quality include toxicity to aquatic species and bioaccumulation in larger species. Larger pollutants, such as trash, debris, and organic matter, are additional pollutants that could be associated with construction activities. Impacts include health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors and physical changes to the aquatic ecosystem. Construction impacts on water quality are potentially significant and could lead to exceedance of water quality objectives or criteria.

All construction activities, including installation and realignment of utilities, would be subject to existing regulatory requirements, previously described in the Applicable Plans and Regulations subsection, above. This includes the Construction General Permit. The SWRCB has identified compliance with the Construction General Permit requirements as protective of water quality during construction activities. Therefore, the Project would not violate applicable permits or standards. Prior to issuance of the first permit that would involve ground disturbance at the West Campus, the City's Municipal Code and permit review process would require preparation and approval of a SWPPP and Grading and Drainage Plan.

Construction Dewatering. There is the potential that dewatering may be required to install foundations and utility trenches. If substantial construction dewatering is required and disposal would be to land or surface water, an individual WDR may be necessary. The WDR will specify the specific treatment (e.g., desedimentation, filtration, flocculation, and others) and discharge (e.g., maximum rate and volume of discharge) requirements, if any, necessary to ensure discharges do not cause or contribute to water quality degradation. The WDR would require testing to make sure that discharged waters do not pose a substantial risk to water quality. Minor construction dewatering would be covered under the Construction General Permit. Additionally, approval from the San Francisco Bay RWQCB is required for all discharges of water from construction dewatering activities. As explained in Impact HM-2 in Section 3.13, Hazards and Hazardous Materials, groundwater at the West Campus is contaminated, and extraction and disposal may require special handling to ensure protection of people and the environment. Mitigation Measure HM-2.4 requires preparation and implementation of a groundwater management plan for dewatering. Implementation of this mitigation measure would reduce potential impacts on water quality to ***less-than-significant*** levels, and no additional mitigation is recommended.

Operation. The constituents in stormwater runoff from the West Campus are limited under existing conditions because the site is not actively used. Even though there would be a reduction in stormwater peak flow runoff associated with a decrease in impervious surfaces at the West Campus, the change in land use from a primarily vacant and underutilized area to an area with roadways, parking areas, rooftops, and landscaping would change the types and amounts of urban pollutants in stormwater runoff, compared to existing conditions. Urban pollutants likely to be present in stormwater runoff from the site would include oil, grease, and metals accumulated in roadways, driveways, parking lots, and on rooftops (from atmospheric dispersion), as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. Increased pollutant loads in stormwater could cause receiving water quality degradation, which has the potential to violate water quality standards, if measures are not in place to minimize the types and amounts of pollutants in the runoff. Sedimentation and erosion would not be a substantial component of post-construction runoff because soils exposed during construction would be covered with impervious surfaces (buildings, parking areas, hardscaping) or landscaped. Additionally, all runoff would be routed through new and existing on-site storm drainage systems to existing off-site storm drains/channels, so that off-site overland erosion would not occur.

Hydrograph modification (HM), and its potential to result in erosion or siltation, would not be an impact of development of the West Campus because it does not drain to a natural creek or channel and it is not in an area for which the San Francisco Bay RWQCB requires HM controls, as noted in the Environmental Setting.

The Project would be required to comply with the Municipal Regional Permit SMCWPPP Provision C.3 Stormwater Technical Guidance, which was designed to help developers include post-construction stormwater controls to help reduce long term impacts on stormwater quality and receiving waters. The SMCWPPP requires the use of Stormwater BMPs. Structural BMPs would remove targeted substances from runoff, while non-structural BMPs, such as integrated pesticide management practices, would assist with source reduction. The San Francisco Bay RWQCB has incorporated requirements in the Municipal Stormwater NPDES Permit to be protective of water quality and approved the SMCWPPP as being in compliance with the Municipal Stormwater NPDES Permit.

The Project includes several design elements that would ensure both the amount and types of urban pollutants would not have an adverse effect on water quality or violate applicable permits and standards. The primary structural BMP that has been incorporated into the West Campus design is a stormwater garden, which is a soil and plant-based filtration device to remove pollutants through a variety of physical, biological, and chemical treatment processes, along with providing temporary detention of stormwater runoff flows to the storm drain system. Each stormwater garden would consist of 18 inches of plant soil over a layer of permeable material with a subdrain. The entire feature would be enclosed within an impermeable liner to minimize the potential for stormwater runoff to interact with shallow contaminated groundwater. As shown in Figure 3.12-8, four stormwater gardens are proposed: one along the Bayfront Expressway between Buildings 2 and 3, one on the north side of Building 1 by the Bayfront

CATCHMENT AREA IDENTIFIER	SQ. FT.	TREATMENT AREA IDENTIFIER	SQ. FT.	TREATMENT AREA REQUIRED (4%), SQ. FT.	MEETS REQUIREMENTS?
CA-1	215,642	TA-1	12,960	8,626	YES
CA-2	36,753	TA-2	2,790	1,470	YES
CA-3	115,855	TA-3	4,660	4,634	YES
CA-4	76,968	TA-4	3,080	3,079	YES

REFERNCE WA3.6 FOR SUMMARY OF IMPERVIOUS/PERVIOUS AREA

SECTION OF TREATMENT AREA

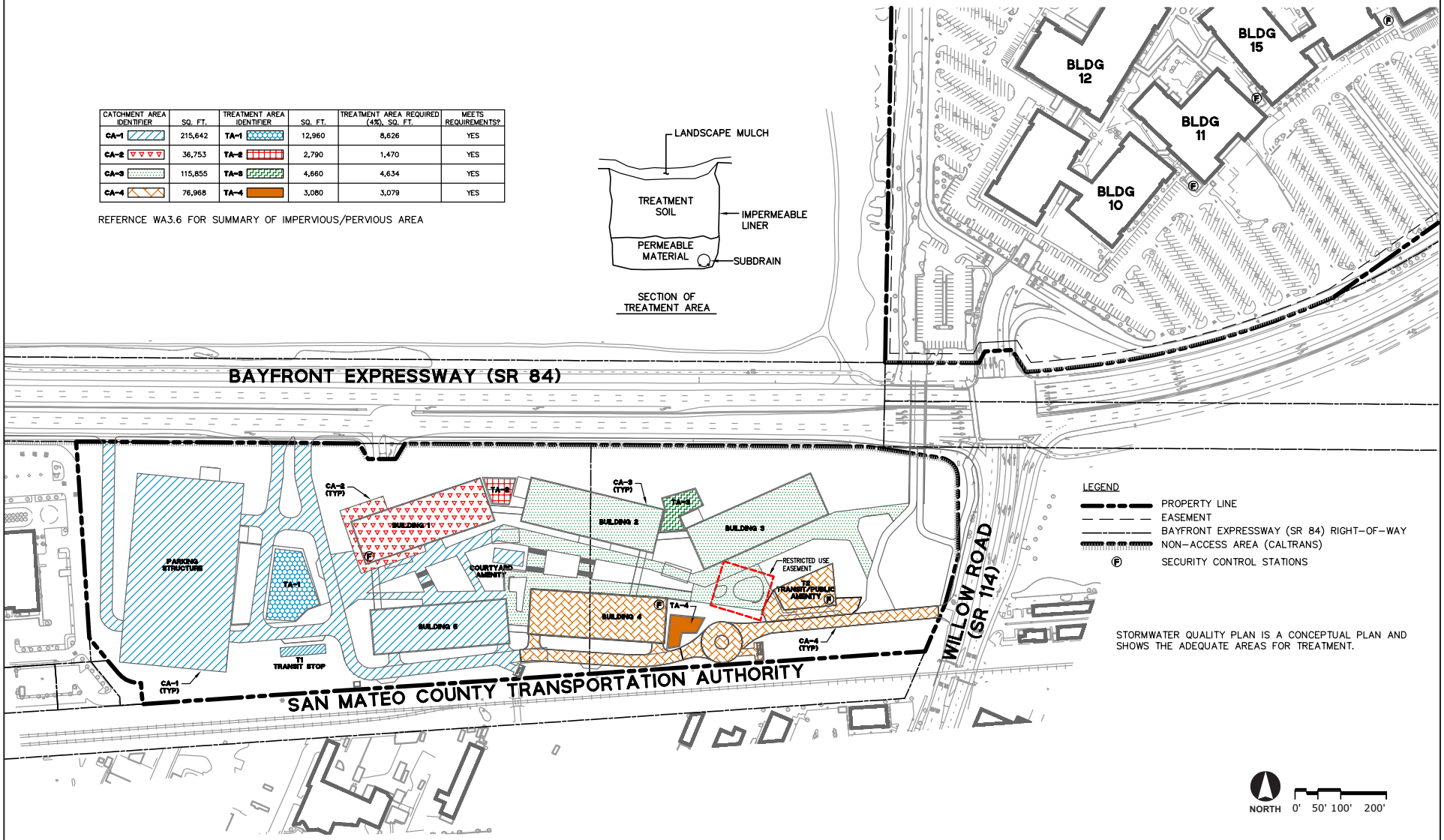

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FIGURE 3.12-8
West Campus Proposed Stormwater Quality Plan

Source: Gensler, 2011.

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Menlo Park Facebook Campus Project

Expressway, one on the east side of Building 4, and one in the Entry Court by the parking structure. These stormwater retention and treatment areas would also serve as landscape amenities (see Figure 2-5 in Chapter 2, Project Description). Other potential BMPs would include flow-through planters and tree well filters.[42] As the Project design is refined, the specific sizing and placement of each facility along with any additional BMPs, as necessary, will be incorporated into the Project to ensure compliance with Regional Permit Provision 3c, particularly with respect to LID requirements.

With the use of BMPs incorporated into the Project design and compliance with requirements of the SMCWPPP, which would be the responsibility of the City to enforce and monitor, operation of the West Campus would be in compliance with applicable permits. The reductions in stormwater pollutants that would be achieved through decreased stormwater runoff and use of BMPs would ensure the Project does not contribute additional sources of polluted runoff or otherwise degrade surface water quality. As explained in Impact HM-2 in Section 3.13, Hazards and Hazardous Materials, the lined stormwater treatment basins would also minimize the potential for groundwater contaminants to enter the stormwater quality facilities and vice versa. Thus, the BMPs would also provide the necessary level of groundwater protection. As a result, operational water quality impacts would be ***less than significant***.

HY-6 ***Effects on Groundwater Supplies and Recharge.*** *The Project, at both the East Campus and West Campus, would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge because it would not increase groundwater demand or decrease recharge areas. This impact would be less than significant. (LTS)*

East Campus

Increased water demand at the East Campus to serve additional population would be obtained from the City sources (see Section 3.16, Utilities). All water supplied to the Project site is from surface water sources through agreements with San Francisco Public Utility Commission (SFPUC), as described in Section 3.16, Utilities. Because no new groundwater wells would be needed to serve East Campus demands, there would be no substantial change in groundwater supplies. The East Campus is almost entirely covered with impervious surfaces; there is no substantial source of recharge. Therefore, impacts would be ***less than significant***.

West Campus

As described in the Setting, natural groundwater recharge of the San Mateo Subbasin occurs primarily by infiltration of water from streams. Additional recharge occurs by percolation of precipitation that falls directly on the ground surface. There is little recharge under existing conditions, and implementation of the Project would not reduce recharge potential. No on-site groundwater wells would be installed to serve Project water demands because the Land Use Covenant for cleanup of the former Raychem/Tyco facility prohibits such use (see Section 3.13, Hazards and Hazardous Materials). Water supplied to the Project site, as well as

[42] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

the rest of the City, is from SFPUC surface water sources. Consequently, there would be no new or increased demand on groundwater that could affect supplies.

It is anticipated that some dewatering activities would be necessary during construction at the West Campus. This could locally and temporarily affect shallow groundwater elevations and flow. However, dewatering would not continue after construction, so that long-term effects on the groundwater depth or volume would not occur. The elevation of the West Campus would be raised for flood protection by placing fill. This would increase the distance between the bottom of utility trenches and lined stormwater quality features, such that permanent underground features are not expected to displace groundwater volumes or alter flows. Groundwater table levels would remain primarily controlled by upland recharge and interaction with the Bay. Therefore, direct impacts on the local aquifer, if any, would be temporary and less than significant.

Existing groundwater recharge potential within the Project area is minimal because portions of the site contain impervious surfaces, fill has been placed in other locations in conjunction with site remediation, and compacted gravel overlies other areas. Development of the West Campus would result in a decrease in the amount of impervious surface area compared to existing conditions. The net effect of these changes in surface conditions is that post-construction groundwater recharge potential would be similar to existing conditions, and indirect impacts on the local groundwater table would not be substantial. Therefore, impacts would be ***less than significant***.

Cumulative Impacts

The cumulative projects considered in this Draft EIR consist of two categories, as shown in Table 3.1-1 and Table 3.1-2, Introduction to Environmental Analysis. The first category of projects, identified as Tier 1, consist of reasonably foreseeable development projects identified by the City and largely within City limits. Where appropriate, the cumulative effect of the Tier 1 projects is quantified and discussed in details that are specific to the projects listed. The second category, identified as Tier 2, encompasses a larger geographic area and consist of projects that are in the early stages of planning or whose development could be considered somewhat speculative. The cumulative analysis in this Draft EIR considers the Tier 2 projects to the extent feasible, in combination with other current projects, probable future projects, and projected future growth within the City in the next 20 years.

The context for cumulative hydrology and water quality impacts is geographic and is a function of whether Project impacts would affect surface water features/watersheds, the City's storm drainage system, or groundwater, each of which has its own physical boundary. The context for each analysis is provided in the impact.

Those issues for which the Project would have no impact are not analyzed, because the Project would have no potential to contribute to cumulative impacts.

C-HY-1 ***Cumulative Storm Drain Impacts.*** *Development of the Project and other cumulative development could increase the rate and volume of stormwater runoff, which could cause or exacerbate localized flooding or cause the City's storm drainage capacity to be exceeded in some locations. However, the Project's contribution to cumulative impacts would not be cumulative considerable. (LTS)*

Cumulative development could increase the rate and volume of stormwater runoff. Increases in the rate or volume of stormwater runoff can cause localized flooding if the storm drain capacity is exceeded, or if flows exceed channel capacities and are conveyed to overbank areas where flood storage may not be available. For the most part, the cumulative projects would occur in areas that are already highly developed with impervious surfaces, so changes in flows that could increase localized flood risk would not be expected to be substantial. Nonetheless, all cumulative projects within the City would be required to include design features to reduce flows to pre-project conditions. If improvements to storm drainage capacity or storage are needed, the City would work with project applicants to ensure the appropriate conditions of approval for storm drainage improvements are identified.

As explained in Impact HY-1, the Project would result in an overall net decrease in stormwater flows. While there are existing capacity problems with the 100-year storm, the Project would not exacerbate those problems. Therefore, the Project's contribution to citywide stormwater runoff impacts would not be cumulative considerable, and the cumulative impact would be ***less than significant***.

C-HY-2 ***Cumulative Flooding and Sea Level Rise.*** *Development of the Project and other cumulative development could expose people and structures to risk of 100-year flooding, including sea level rise. However, the Project's contribution to cumulative impacts would not be cumulatively considerable. (LTS)*

The area east of El Camino Real is subject to tidal flooding related to water levels in the Bay. For areas that convey upstream stormwater flows through natural creeks or channels (e.g., Atherton Creek/Channel and San Francisquito Creek) to tidally influenced flood-prone areas, cumulative development has the potential to increase flood hazard risk by reducing available floodplain storage and/or increasing stormwater volumes that could increase surface water elevations. For areas to the east of El Camino Real, sea level rise of 16 inches by 2050 could inundate areas beyond those that are currently identified as existing flood hazard areas and to greater depths than currently identified. For these locations subject to sea level rise, the City would review development proposals in order to ensure they address any impacts relative to a 16-inch rise by mid-century. Beyond that timeframe, the City would be implementing an adaptive management strategy as more information becomes available, as explained in Impact HY-3.

Global climate change could alter the local hydrology and change the seasonal and annual rainfall and runoff patterns in the Bay Area; rainfall and runoff could increase, decrease,

change in pattern and frequency, or not change at all. This would be a regional phenomenon, not just limited to the City. Sea level rise-induced flooding, in combination with existing 100-year flood hazard risk and increased stormwater runoff, could affect the upstream flow gradients within creeks and channels, causing greater upstream flooding and groundwater-surface interactions such that storm drainage system capacity could be compromised. It is beyond the scope of this analysis to predict how cumulative conditions could be affected, given the current model constraints to accurately predict end-of-century conditions as it relates to cumulative development. However, the Project's contribution to effects related to sea level rise (e.g., storm drain system capacity problems) can be mitigated to less-than-significant levels.

Development of any cumulative project within a SFHA would be subject to FEMA and the City's floodplain development requirements. These regulations include requirements for maintenance of flood flow conveyance and floodplain storage, as well as flood protection for public health and safety and risk to properties. In addition, if fill or structures are placed in SFHAs where there would be a cumulative increase of 1 foot in water surface elevations, regulations require that the project causing that effect demonstrate how flood risk would be managed. As explained in Impacts HY-2 and HY-3, the Project would not cause or exacerbate off-site flood hazard risk for the 100-year event because it would not remove floodplain storage, it would not impede or redirect flood flows as a result of placing fill or structures in a floodplain, and it would not increase the potential for off-site flooding when 100-year tide events are combined with 100-year storm flows. For those reasons, the Project's contribution to flood hazard risk would not be cumulatively considerable, and the cumulative impact would be ***less than significant***.

C-HY-3 ***Cumulative Water Quality.*** *Development of the Project and other development would contribute pollutants to stormwater during construction and occupancy of the various projects, but this would not substantially degrade water quality. The Project's contribution would not be cumulatively considerable. This cumulative impact would be less than significant. (LTS)*

Water quality of stormwater runoff varies with surrounding land uses, topography, and amount of impervious cover, as well as the intensity (energy) and frequency of irrigation or rainfall. Runoff may contain oil, grease, and metals accumulated in streets and driveways, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations are generally in stormwater runoff generated at the beginning of the wet season and during the so-called "first-flush." Approximately 80 percent of total accumulated pollutants are washed off surfaces with the first 0.5 inch of rainfall, with street surfaces as the primary source of pollutants in urban areas.

Cumulative development could affect water quality if the land use changes, the intensity of land use changes, and/or drainage conditions are altered to facilitate the introduction of pollutants to surface or groundwater resources. Changes in land use would alter the

associated type and amount of pollutants in stormwater runoff (e.g., higher fecal coliform concentrations in runoff from residential lands compared to commercial lands). Increased intensity of land use would increase the potential pollutant loads. Alterations in drainage patterns could increase pollutant loads by increasing the amount of stormwater runoff transporting pollutants in stormwater runoff; could cause or contribute to erosion if the rate of runoff is increased; or could expose vulnerable areas to infiltration or runoff.

The most common sources of stormwater pollution in urban areas are from construction sites, streets, parking lots, large landscaped areas, and household and industrial materials dumped into storm drains. In some areas, rooftops can also contribute a significant amount of stormwater pollution in urban areas. Grading and earthmoving activities associated with new construction can accelerate soil erosion, even in flat areas. Grease, oil, hydrocarbons, and heavy metals deposited by vehicles and heavy equipment can accumulate on streets and paved parking lots and are carried into storm drains by runoff. Pesticides, herbicides, and fertilizers used for landscape maintenance are washed into storm drains by over-watering (irrigation in excess of soil infiltration rates and plant uptake). Paints, solvents, soap products, and other toxic materials may be inadvertently or deliberately deposited in storm drains in residential and industrial areas. Deposition of particulate matter and dissolution of roofing material and other exposed materials can also contribute pollutants to urban stormwater. The federal CWA requires local municipalities to implement measures to control these types of pollutants from entering their storm drainage systems. Further discussion of federal and local regulations and compliance is presented above in the Regulatory Setting.

New and re-development within the City is subject to requirements of the SMCWPPP and the associated Municipal NPDES Permit and, where applicable and required by the SFRWQCB, Hydromodification Management Plan (HMP), the statewide Construction General Permit, and the City's development codes. If substantial dewatering is required, an individual WDR permit would be required. These WDRs have been developed to protect water quality standards and require implementation of stormwater quality BMPs. The HMP ensures that potential increases in stormwater discharge do not adversely affect the habitat, form, or function of susceptible creek systems; where discharges are to a susceptible stream or creek, hydromodification controls are required if there would be an increase in impervious area and/or flow rate or flow volume.

Additionally, development projects would have to go through the environmental review process, which would identify any site- or project-specific potential impacts. All of these programs have been designed and implemented to be protective of water quality. Implementation of TMDLs for pollutants listed as contributing to impairment of water resources would further protect water resources from water quality degradation. Continued monitoring of receiving waters by the SFRWQCB and SMCWPPP ensure that these programs remain effective and protective of water quality for cumulative development.

As described in Impact HY-6, the Project would involve ground disturbance during construction at the West Campus and would be required to implement a construction SWPPP, which would be within the jurisdiction of the City to monitor and enforce. At the West Campus, stormwater runoff peak flows would be reduced compared to existing conditions. This is the result of decreased impervious surfaces in combination with stormwater quality BMPs that have been included in Project design. In addition, the stormwater BMPs would provide the necessary level of stormwater treatment prior to discharge to the City's storm drain system, which drains to the Bay, to ensure compliance with the SMCWPPP and Basin Plan objectives, including TMDLs.

Therefore, the Project's contribution to water quality effects would not be cumulatively considerable, cumulative impacts would be ***less than significant***.

C-HY-4 ***Cumulative Groundwater Supplies and Recharge.*** *Development of the Project and other cumulative development within the San Mateo subbasin would not substantially degrade groundwater supplies. As a result, cumulative impacts on the subbasin would be less than significant. (LTS)*

Groundwater recharge in the area where cumulative projects are located, particularly those west of El Camino Real in the lower elevations of the mountains, occurs primarily through streambeds with some direct recharge from percolating precipitation. Most of the cumulative projects would be redevelopment or infill projects in highly urbanized areas where recharge does not occur. Cumulative development would not be expected to substantially increase the amount of impervious surfaces, so groundwater recharge from percolating rainfall potential would not be adversely affected and indirect lowering of the local groundwater table is not likely to occur. As explained in Impact HY-6, the Project site contributes minimally to groundwater recharge under existing conditions. Development of the Project would not increase impervious surfaces. As a result, groundwater recharge would not be adversely affected. The Project's contribution to cumulative groundwater recharge impacts would not be cumulatively considerable, and the cumulative impact would be less than significant.

Cumulative development could require increases in water supplies; however, water supplies in the area are primarily surface water obtained through City contracts and SFPUC. Cumulative development would also be subject to the applicable urban water management plan for water supplies, and if a cumulative project meets the necessary criteria, it would require a water supply assessment in accordance with SB 610 (see Section 3.16, Utilities) to ensure that adequate water supplies are available without depleting water resources, including groundwater.

The environmental review process and water supply assessment (for major developments) would identify where and when new groundwater wells could be required or implemented. Because the San Mateo subbasin is not actively managed to control groundwater levels, cumulative development could result in greater groundwater use, resulting in a potential

cumulative impact. However, the Project's contribution to this impact would not be cumulatively considerable because it would not result in greater groundwater use, and as explained in Impact HY-6, no wells would be installed to serve the Project. Therefore, the cumulative impact would be ***less than significant***.

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3.13 HAZARDS AND HAZARDOUS MATERIALS

Introduction

This section considers the range and nature of foreseeable hazardous materials impacts resulting from construction and occupancy of the Project and identifies the primary ways these hazards could expose people and the environment to various health and safety risks associated with those hazards. This section also describes the available information about hazardous materials in soil and groundwater at the Project site and evaluates the potential for construction and occupancy of the Project to affect, or be affected by, environmental contamination associated with historic and current land uses within the Project site. In addition, a description of regulatory requirements that provide for the management of soil or groundwater contamination on the Project site is provided. This section also describes the nature and extent of routine hazardous materials use at the Project site, and the potential for upset and accident conditions in which hazardous materials releases could affect on-site uses or off-site locations, including schools within 0.25 miles of the Project site.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. The California Department of Toxic Substances Control (DTSC) submitted written comments on the NOP regarding the requirements of the Land Use Covenant for the West Campus and recommending the Draft EIR evaluate an assessment of air and health impacts if soil is excavated and if standards would be exceeded. This section describes the conditions under which soil movement at the West Campus would occur and the range of potential human health effects that could reasonably be expected to occur. DTSC staff also requested in their comment letter that the Draft EIR consider transportation impacts from removal or remedial activities, as well as the potential for soil excavation to result in an accident involving the release of hazardous materials. DTSC has already concluded that the West Campus has been remediated to levels that are protective of a commercial/industrial land use scenario, such as that proposed for the West Campus.[1] However, this evaluation accounts for the potential that there may be remediation at the West Campus beyond that already completed. The East Campus has never required any hazardous materials remediation and none is expected in the future.

The increase in intensity at the East Campus could result in the exposure of more people to hazards. The increase in intensity at the East Campus would not result in any other impacts associated with hazards and hazardous materials; therefore, those Project impacts at the East Campus are not discussed further in this section.

[1] Tyco Electronics Corporation, Covenant to Restrict Use of Property Environmental Restriction, Covenant and Agreement between Tyco Electronics Corporation and California Department of Toxic Substances Control, January 4, 2007, p.p. 2-3.

Applicable Plans and Regulations

Hazardous materials and hazardous wastes are regulated under federal, State, and local laws. In California, federal environmental laws generally establish minimum applicable standards; more stringent State and local standards may apply as well. For example, California regulates a broader array of wastes defined as "hazardous waste" than those regulated under federal law. Hazardous materials handling and hazardous waste management are subject to laws and regulations at all levels of government, as summarized below. Former and existing Project area uses are required to comply with these laws and regulations, in part by implementing a series of in-house policies and procedures or by correcting adverse environmental conditions that pose a risk to the public and/or the environment. The following describes the major federal, State, and local legally-required environmental procedures and programs relevant to each category.

Federal and State

Hazardous Materials Management and Emergency Planning. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. The federal Emergency Planning and Community Right to Know Act (EPCRA [42 USC Section 11001, et seq.]) requires facilities that store, use, or produce certain amounts of hazardous chemicals to provide State and local authorities with material safety data sheets, or, alternatively, a list of chemicals. EPCRA also requires reporting of permitted and accidental releases of hazardous substances, and requires certain facilities to complete and submit the US Environmental Protection Agency's (EPA's) Toxic Chemical Release Inventory form annually.

California's Hazardous Materials Release Response Plans and Inventory Act, sometimes called the Business Plan Act (California Health and Safety Code Section 25500 et seq.) requires businesses using hazardous materials to prepare a plan that describes their facilities, chemical inventories, emergency response plans, and training programs. Businesses that use, store, or handle 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas at standard temperature and pressure, require hazardous materials business plans. Plans must be prepared prior to facility operation and are reviewed/updated biennially (or within 30 days of a change). In addition, the Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health and Safety Code Section 25249.5 et seq.) requires that any person with ten or more employees operating within the State or selling products in California (1) be prohibited from knowingly discharging listed chemicals into sources of drinking water; and (2) be required to provide a "clear and reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical. This warning can be given by a variety of means, such as by labeling a consumer product, by posting signs at the workplace, or by publishing notices in a newspaper.

The California Fire Code regulates storage and use of hazardous materials at commercial and industrial facilities. The California Building Code regulates how protective measures within a structure will be built and implemented. Certified Unified Program Agencies (CUPAs) are responsible for local regulation and enforcement of hazardous materials laws and regulations. The San Mateo County

Environmental Health Division serves as the County's CUPA. The CUPA has been certified by the California Environmental Protection Agency (Cal-EPA) to implement six State environmental programs within the City's jurisdiction: the hazardous materials business plan/emergency response plans and inventories program; the hazardous waste program; the California accidental release prevention program; the Underground Storage Tank (UST) program; the Aboveground Storage Tank (AST) program; and the uniform hazardous materials management plan program.

Hazardous Waste Management. The federal Resource Conservation and Recovery Act (RCRA) regulates handling and tracking of hazardous waste from generation to disposal. Under RCRA, hazardous waste generators must comply with regulations concerning record keeping and reporting, waste storage, proper treatment and disposal, and the use of a manifest system. In California, the DTSC has been authorized by Cal-EPA to administer the RCRA program. California's Hazardous Waste Control Act (HWCA [California Health and Safety Code Section 25100 et seq.]) is similar to, but more stringent than, the federal RCRA program. The HWCA provides authority for DTSC to regulate the transportation and disposal of hazardous wastes, and establishes standards for hazardous waste facilities. The San Mateo County Environmental Health Division, as the CUPA, implements the hazardous waste generator program for the Project area. RCRA and the HWCA also require facilities engaging in treatment, long-term storage, or disposal of hazardous waste to obtain a permit from DTSC.

Soil and Groundwater Contamination. One of the requirements of a RCRA permit is to implement a "corrective action program" to investigate and remediate any releases of hazardous waste constituents at the facility site, under the supervision of DTSC. As a result, DTSC has supervised the investigation and clean-up of soil and groundwater contamination at the West Campus under the RCRA connective action program, rather than under the similar cleanup program pursuant to the federal Superfund law, the Comprehensive Environmental Compensation and Liability Act (CERCLA) 42USC §9601 et seq. and its state equivalent. (California's Health and Safety Code Section 25300 et seq.)

In addition, the Porter-Cologne Act (California Water Code Section 13163) authorizes the State Water Resources Control Board (SWRCB) and the local Regional Water Resources Control Board (RWQCB) to coordinate water quality-related investigations of State agencies. SWRCB and the local RWQCB also have jurisdiction to oversee site cleanups (California Health and Safety Code Section 25355). The Project area is within the jurisdiction of RWQCB Region 2, the San Francisco Bay RWQCB.

There is a special federal regulatory scheme for cleanup of Polychlorinated Biphenyls (PCB) releases, pursuant to the Toxic Substances Control Act (TSCA), which is administered by EPA and has not been delegated to the states. TSCA establishes procedures and standards for cleanup of PCB releases, allowing them to be encapsulated in place under certain circumstances.

Hazardous Building Components. Structural building components sometimes contain hazardous materials such as asbestos, PCBs, lead, and mercury. During demolition or renovation of any existing building or structure, these hazardous material building components may be disturbed and thus expose workers, the public, and the environment to these hazards. The testing, removal, and disposal of these materials are subject to various regulations, as described below.

Asbestos. Asbestos[2] is regulated both as a hazardous air pollutant and as a potential worker safety hazard. The Bay Area Air Quality Management District (BAAQMD) and the California Division of Occupational Safety and Health (Cal/OSHA) regulations restrict asbestos emissions from demolition and renovation activities, and specify safe work practices to minimize the potential for release of asbestos fibers. These regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos. California requires licensing of contractors who conduct asbestos abatement activities.

The California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations is intended to protect public health and the environment by requiring the use of best available dust control measures. These measures prevent off-site migration of naturally occurring asbestos-containing dust from road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas of ultramafic rock, serpentine, or asbestos.[3] The ATCM applies to grading or excavation activities, which would involve the excavation of bedrock or fill materials potentially containing naturally occurring asbestos.

For construction activities disturbing less than one acre of area underlain by these types of bedrock that potentially contain naturally occurring asbestos, specific dust control measures must be implemented in accordance with the ATCM before construction begins. In addition, each measure must be maintained throughout the duration of the portion of the construction project when these types of bedrock are being disturbed. For construction activities disturbing greater than one acre of area underlain by these types of bedrock, construction contractors are required to prepare an Asbestos Dust Mitigation Plan (ADMP) specifying measures that will be taken in an attempt to ensure that no visible dust crosses the property boundary during construction. The ADMP must be submitted to and approved by the BAAQMD prior to the beginning of construction, and the site operator must ensure the implementation of all specified dust control measures throughout the construction project. In addition, the BAAQMD may require air monitoring for off-site migration of asbestos dust during construction activities and may change the plan on the basis of the air monitoring results.

PCBs. DTSC has classified PCBs as a hazardous waste when concentrations exceed five parts per million (ppm) in liquids or 50 ppm in non-liquids. Fluorescent light ballasts[4] may contain PCBs, and if

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[2] Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California.

[3] Ultramafic rocks are formed in high temperature environments well below the surface of the earth. Serpentine is a naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramafic rock along faults such as the Hayward Fault. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, can be common in serpentinite.

[4] The ballast is a small transformer that starts the light bulb and then stabilizes it on the correct operating voltage.

so, they are regulated as hazardous waste and must be transported and disposed of as hazardous waste. Ballasts manufactured after January 1, 1978, should not contain PCBs and are required to have a label clearly stating that PCBs are not present. As noted above, the federal TSCA establishes procedures and standards for cleanup of PCB releases.

Lead-Based Paint (LBP). Cal/OSHA standards establish a maximum safe exposure level for types of construction work where lead exposure may occur, including demolition of structures where LBPs are present; removal or encapsulation of materials containing lead; and new construction, alteration, repair, or renovation of structures with materials containing lead. Inspection, testing, and removing lead-containing building materials must be performed by State-certified contractors who are required to comply with applicable health and safety and hazardous materials regulations. Typically, building materials with LBP attached are not considered hazardous waste unless the paint is chemically or physically removed from the building debris. The U.S. Department of Housing and Urban Development has developed guidelines for the evaluation and control of LBP hazards.[5]

Mercury. Spent fluorescent light tubes, thermostats, and other electrical equipment contain heavy metals that, if disposed of in landfills, can leach into soil or groundwater. Fluorescent light tubes typically contain concentrations of mercury that may exceed regulatory thresholds for hazardous waste and, therefore, must be managed in accordance with hazardous waste regulations. Elemental mercury can be found in many electrical switches, and when disposed of, such mercury is considered hazardous waste.

Worker Safety. Occupational safety standards exist in federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many businesses to prepare injury and illness prevention plans and chemical hygiene plans. The Cal/OSHA Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, material safety data sheets are to be available in the workplace, and employers are to properly train workers.

Hazardous Materials Transportation. The U.S. Department of Transportation (DOT) has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The U.S. Postal Service (USPS) has developed additional regulations for the transport of hazardous materials by mail. DOT regulations specify packaging requirements for different types of materials. The EPA has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations. In California, the California Highway Patrol, the California Department of Transportation (Caltrans), and DTSC play a role in enforcing hazardous materials transportation requirements.

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[5] U.S. Department of Housing and Urban Development, *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, June 1995, revised 1997, Chapter 7.

Local

City of Menlo Park General Plan. The following policies and implementation programs from the Seismic Safety and Safety Element[6] of the General Plan pertain to the Project.

> *Policy 2:* Develop and adopt standards to reduce level of risk from natural hazards to an acceptable level for all land use.
>
> *Policy 12:* Prohibit structural development in areas where hazards cannot be mitigated by accepted methods to a legal of acceptable risk.
>
> *Policy 13:* Require that all new development incorporate adequate hazard mitigation measures to reduce risks from natural hazards.
>
> Implementation Program 16: Require that all private roads be designed to allow unrestricted access to all emergency vehicles as a prerequisite to the granting of permits and approvals for construction.
>
> *Policy 45:* Review and strengthen, if necessary, regulations for the manufacturing, storage, transportation, and use of hazardous and/or explosive materials to reduce risk to local populations.
>
> Implementation Program 47: Monitor manufacturing, storage, transportation, and use of hazardous and/or explosive materials.

Hazardous Materials Permitting. The City has a use permit process for the use of hazardous materials. The Planning Division relies on the Menlo Park Fire Protection District (MPFD) to determine whether a use permit is required for a Project. The MPFD has established threshold levels based on the California Fire Code to define the maximum amount of hazardous materials that would be allowed before a use permit is required.

Airport Land Use Plan. The Airport Land Use Plan (ALUP) for the Palo Alto Airport identifies the categories of land uses and height restrictions that may be permitted within the surrounding airspace. However, the Project site is not within the jurisdiction of the Palo Alto ALUP and not within the Height Restriction Area, the Airport Safety Zone, and Airport Influence Area.[7]

Emergency Operation Plan. The City is a participant in the Association of Bay Area Governments (ABAG) multi-jurisdictional planning process for emergencies. The City has adopted an Emergency Operation Plan that assesses the potential losses associated with inadvertent or intentional releases of

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[6] City of Menlo Park, Menlo Park General Plan, Seismic Safety and Safety Element, adopted June 22, 1976.

[7] Santa Clara County Airport Land Use Commission, Comprehensive Land Use Plan Santa Clara County: Palo Alto Airport," prepared by Walter B. Windus, PE, November 19, 2008, website: http://countyairports.org/docs/CLUP_PAO/PAOClupAdopted11-19-08.pdf, accessed September 23, 2011.

hazardous materials that could affect the public and identifies responsibilities for city departments and coordination with San Mateo County and regional emergency response providers.[8]

Existing Conditions

Hazardous Materials Use

On-Site Hazardous Materials Use. The East Campus is currently in use, and reported chemical use and storage consists mainly of diesel fuel in emergency generators, hydraulic fluid in elevators and trash compactors, lead-acid batteries, refrigerants and water treatment chemicals, janitorial and maintenance products, and transformers. Alcohols, paints, and solvents are also used.

Hazardous materials are not used at the West Campus because the site is currently vacant with no existing operations. There are two emergency generators with associated above-ground diesel storage tanks. While there is no existing hazardous materials use, the former manufacturing facilities that operated on-site used hazardous materials and generated hazardous waste, which have resulted in soil and groundwater contamination. Existing conditions pertaining to soil and groundwater contamination are described separately in this section.

Off-Site Hazardous Materials Use. The Project site is surrounded by salt evaporation ponds to the north. The remaining surrounding land uses consist of vacant land, offices, major and local roadways, residential uses to the south, and commercial/light industrial businesses to the south, east, and west, and a railway right-of-way along the southern boundary of the West Campus. Where applicable, the City has issued hazardous materials use permits for businesses using hazardous materials at the Tyco and Bohannon (Menlo Gateway) properties to the west, and the Menlo Science and Technology Park (AMB), O'Brien, and Menlo Business Parks to the south and east. City records indicate the primary materials stored and used at the permitted facilities are compressed gases, and flammable and combustible products.[9] Releases of hazardous materials with the potential to affect the public or property outside these businesses have not occurred.

However, in September 2011, an explosion in a research and development facility at 1360 Willow Road (approximately 900 feet southeast of the West Campus) resulted in the death of one employee and injured another. The explosion was attributable to a leaking methane cylinder inside the building. The MPFD responded immediately and evacuated workers in the facility, but no off-site evacuations were deemed necessary. There were no off-site releases of hazardous materials associated with this incident. No other incidents involving hazardous materials releases have occurred at the off-site businesses other than the Tyco property to the west that was originally part of the same Raychem facility as the West Campus, as discussed in more detail below.[10]

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[8] City of Menlo Park, "Emergency Operation Plan," Version 2, January 2011, website: http://www.menlopark.org/departments/pwk/MenloEOPV2.pdf, accessed September 23, 2011.

[9] City of Menlo Park, HazMat Permit Revenue Records, 2010.

[10] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California*, November 3, 2010; Cornerstone Earth Group, Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California, November 19, 2010.

Soil and Groundwater Contamination

Overview. Some of the key terms used in the management of hazardous materials and the context within which they apply to sites where contaminants have been identified in soil or groundwater are presented below.

A "hazardous material" is any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (*California Health and Safety Code*, Section 25501).

A "hazardous materials release site" refers to any area, location, or facility where a hazardous material has been released or threatens to be released to the environment.

"Remedial action" or "remediation" refers to actions required by federal, State, or local laws, ordinances, or regulations necessary to prevent, minimize, or mitigate damage that may result from the release or threatened release of a hazardous material. These actions include site cleanup, monitoring, testing, and analysis of site conditions, site operation and maintenance, and placing conditions or restrictions on the land use of the site upon completion of remedial actions. Such remedial activities taken at permitted hazardous waste facilities are also called "corrective action." This section describes those actions that have been taken on the West Campus and those that may be taken in the future.

"Exposure pathways" are means by which hazardous materials move through the environment from a source to a point of contact with people, or with animal or plant populations. A complete exposure pathway must have four parts: (1) a source of contamination, (2) a mechanism for transport of a material from the source to the air, surface water, groundwater, or soil, (3) a point where people come in contact with contaminated air, surface water, groundwater, or soil, and (4) a route of entry into the body. Routes of entry can be eating or drinking contaminated materials, breathing contaminated air, or absorbing contaminants through the skin. Risks can be assessed when an exposure pathway is complete. If any part of an exposure pathway is absent, the pathway is said to be incomplete and no exposure or risk is possible. In some cases, although a pathway is complete, the likelihood that significant exposure will occur is very small.

The risk to human health and the environment is determined by the probability of exposure to hazardous material(s) and the severity of harm such exposure would pose. That is to say, the likelihood and means of exposure, in addition to the inherent toxicity of a material, are used to determine the degree of risk to human health or the ecological environment. For example, a high probability of exposure to a low toxicity chemical would not necessarily pose an unacceptable human health or ecological risk, whereas a low probability of exposure to a very high toxicity chemical might. The quantified risk levels are one of several elements used in the decision-making process to determine how that risk should be managed.

Methodologies have been established by the EPA, which are also used at the State level, to quantify risk. The EPA, along with State agencies, such as the RWQCB, DTSC, and Cal/OSHA are responsible for developing and/or enforcing risk-based standards to protect the public and the environment. The current regulatory view of redevelopment where chemical constituents are present in the soil or groundwater is that the decisions regarding cleanup and future site use should be based on actual and reasonably projected risks presented by individual sites. This risk-based approach is marked by a focus on planned land uses, a recognition that all sites do not present the same risk, the understanding that the actual risks posed by a site are a function of the populations that could be present and the activities they could be engaged in, and an acknowledgment that many risks can be reduced and/or eliminated through the implementation of controls placed on the future use of the land, including through legally enforceable restrictions on use, and through risk management plans (RMPs) and operation, maintenance, and monitoring plans.

Depending on the types of chemicals present and potential pathways through which individuals might be exposed to the chemicals, contaminants in soil or groundwater can often be left in place or cleaned up to a degree that does not pose a threat to human health or the environment. The risk estimates take into consideration such factors as the concentration and further potential migration of contaminants, potential hazards to remediation workers and nearby populations, and potential exposures to the public, based on future land use. This risk-based decision-making relies on the preparation of risk-based evaluations to quantify potential exposures and resultant potential adverse health effects.

At the West Campus, these methodologies, along with supporting analytical data, were used by DTSC to determine the appropriate cleanup levels for the contamination that occurred when the site was a manufacturing facility, as described in greater detail, below.

Site History. Prior to the development of the existing Oracle (formerly Sun Microsystems) Campus, the East Campus was tidal marshland. The first levees were constructed around the East Campus prior to 1946 and subsequently raised in 1965 to create a salt evaporation pond.[11] Additional fill was placed on the site in the 1980s and early 1990s, after which the buildings currently on the site were constructed.

The West Campus was originally undeveloped marshland until an asphalt batch plant was constructed in the eastern part of the site in the 1950s. The batch plant was eventually demolished in the 1969-1971 timeframe. In 1965, Raychem (now TE Connectivity, formerly Tyco Electronics Corporation) began constructing a manufacturing facility on an approximately 82-acre property for a variety of products used in the aerospace, automotive, construction, electronics, electrical power, and process and telecommunication industries.[12]

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[11] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[12] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

The western part of the Raychem facility (not a part of the Project site) was occupied by clusters of manufacturing and process facilities. The eastern part of the former facility (i.e., the West Campus), commonly referred to as the ChemPlant, included several chemical handling and storage facilities: Omega Wastewater Treatment System, several solid waste management units, a process wastewater sump, a Therminol Heater/Dowtherm Boiler, and five buildings (N, O, P, U, and Y). Buildings I and J were constructed in the 1980s and were used as offices. They were reportedly not used for manufacturing or R&D purposes. Buildings I and J are the only two buildings that remain on-site.[13]

Soils and Hydrogeology. The depth and extent of chemical contaminants in the subsurface are a function of underlying geologic materials and how groundwater moves horizontally and laterally. The following summarizes hydrogeologic conditions at the Project site. Refer to Section 3.9, Geology and Soils, and Section 3.12, Hydrology and Water Quality, for additional information.

Geologic materials underlying the East Campus and West Campus consist of several feet of artificial fill (sandy gravels, clayey gravels, and sandy clay) underlain by native materials (older alluvial fan deposits, basin deposits, estuarine and channel deposits). Shallow groundwater ranges from a few feet beneath the surface to approximately 14 feet below ground surface (bgs), and generally flows east. Seasonal fluctuations in groundwater levels are common. Below the shallow zone are additional water-bearing zones. The RWQCB has stated that the quality of shallow groundwater is such that it is not considered a potential source of drinking water.[14]

The fill at the East Campus ranges from four to eight feet thick. At the West Campus, the fill ranges in thickness from zero to six feet across the site and is thickest in the northeast corner. The principal source of fill was an excavation in the 1960s for Interstate 280 (I-280)near Farm Hill Road. The source area was bedrock composed predominantly of serpentinite associated with the Franciscan Complex.[15]

Hazardous Materials Use. At the East Campus, the types of chemicals used in the facilities (diesel fuel for backup generators, lead/acid batteries, and various laboratory chemicals) were not reported to have resulted in any significant hazardous materials spills.

In its former operations at the West Campus, Raychem used, treated, and stored numerous hazardous materials in its former operations at the West Campus. These included volatile organic compounds

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[13] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[14] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California,* November 3, 2010; Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010; Cornerstone Earth Group. *Geotechnical Feasibility Evaluation 22-Acre Property at Highway 84 and Willow Road Menlo Park, California*. November 18, 2010.

[15] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*. November 19, 2010.

(VOCs),[16] semi-volatile organic compounds (SVOCs),[17] metals, total recoverable petroleum hydrocarbons (TRPH),[18] PCBs,[19] and polychlorinated dioxins and dibenzofurans. The use of these materials in laboratories, manufacturing, and processing activities also generated hazardous waste.[20] Raychem managed its hazardous wastes under a Hazardous Waste Facility Permit (Permit) issued pursuant to the federal RCRA (42 U.S.C. 6901 et seq.) in 1983 by the California Department of Health Services (DHS, now California Environmental Protection Agency, DTSC). The Permit allowed operation of the Omega Wastewater Treatment System, the Hazardous Waste Storage Yard, and the Potassium Ferrocyanide Tank Farm.

Cortese List Status. Government Code section 65962.5 requires compilation of a list of Hazardous Waste and Substances Sites to be used as a planning document by State and local agencies and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. This list is commonly known as the "Cortese List." The West Campus is on the Cortese List because of the investigation and remediation activities described below. The East Campus is not on the Cortese List.[21]

The East Campus is included on the RWQCB Geotracker database,[22] where it is listed as open-inactive.[23] The case was opened in 1990 after a non-emergency response report concerning elevated nickel levels in soil was submitted to the RWQCB by a consultant performing some soil sampling at the site. San Mateo County Environmental Health Department records indicated there was no need for investigation. Subsequent testing indicated the nickel levels were consistent with concentrations found

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16 A volatile organic compound (VOC) is an organic chemical that readily evaporates at temperatures normally found at the ground surface and at shallow depths. Examples of VOCs include acetone, benzene, 1,1-dichloroethene (1,1-DCE), methylene chloride, tetrachloroethylene (PCE), toluene, and xylene.

17 A semi-volatile organic compound (SVOC) is an organic chemical that readily, but only partially, evaporates or changes from a liquid to gas at temperatures normally found at the ground surface and at shallow depths. Benzo(a)pyrene and naphthalene are examples of SVOCs.

18 Total recoverable petroleum hydrocarbons (TRPH) is a term describing a large family of several hundred chemical compounds that originate from crude oil. Some form of petroleum hydrocarbon was used during the production of most, if not all, of the chemicals produced by Raychem.

19 PCBs are a class of chlorinated hydrocarbon chemicals used in electrical insulating and heat-exchange fluids.

20 Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

21 California Department of Toxic Substances Control, EnviroStor, "Project Search Results," Search Criteria: Menlo Park, website: http://www.envirostor.dtsc.ca.gov/public/search.asp?CMD=search&ocieerp=False&business_name=&main_street_name=&city=Menlo+Park&zip=&county=&case_number=&Search=Get+Report, accessed September 12, 2011.

22 The Geotracker database is a RWQCB data management system for tracking sites that impact groundwater, especially those that require groundwater cleanup under the agency's various programs (Underground Storage Tanks, Site Cleanup Program) as well as permitted facilities such as operating USTs and land disposal sites.

23 As defined by RWQCB, an "open-inactive" is a site where no regulatory oversight activities are being conducted by RWQCB.

in imported fill likely obtained elsewhere in the Bay Area. For those reasons, and because the site is covered with buildings and parking areas, the risk to human health is considered minimal.[24]

Summary of West Campus Hazardous Materials Releases and Remediation

The following summarizes information about the West Campus, including the status of investigations, remediation, and controls in place to minimize hazards to the public and environment.

Investigations. Facilities with a RCRA Hazardous Waste Facility Permit are required to conduct an assessment to determine if there have been releases of hazardous waste requiring further investigation and corrective action. DTSC conducted a RCRA Facility Assessment (RFA) in 1989 for the Raychem facility, and the RFA Report recommended that further investigation was needed. Raychem and DTSC entered into a Corrective Action Consent Agreement on June 26, 1996 to facilitate the required RCRA Facility Investigation (RFI) for the Facility. Closure activities for the above-ground portions of these hazardous waste management units (HWMUs) were approved by DTSC on January 9, 1997. Tyco entered into another Corrective Action Consent Agreement with DTSC in September 2000 and further amended it in December 2001. By this agreement, in addition to the RFI activities, Tyco was required to complete Interim Measures, a Corrective Measures Study, Remedy Selection and Corrective Measures Implementation for the West Campus.[25]

Between 1999 and 2003, Tyco conducted RFI activities in accordance with DTSC-approved work plans to gather information regarding surface and subsurface chemical impacts on soils and groundwater across the entire Tyco site, which included property to the west of the West Campus. The RFI divided the Tyco site into two areas: the western area (Areas 1 through 5) and the eastern area (Area 6).[26] What is now the proposed West Campus is what was referred to as the eastern portion (Area 6) in the RFI and was occupied by the ChemPlant, along with several buildings, as described above. For purposes of this Draft EIR, information about Area 6 compiled from the various RFI reports that were used to develop the existing conditions in this Draft EIR is referred to as the "West Campus."

The RFI identified Chemicals of Potential Concern (COPCs) in the soil and groundwater for the entire Tyco facility. COPCs are developed as part of an RFI and are based on a comprehensive review of the types of hazardous materials used, treated, and stored at the facility along with the types of hazardous wastes generated. Altogether, 21 VOCs, 11 SVOCs, 6 metals, and other chemicals were identified as soil COPCs, and 13 VOCs were identified as groundwater COPCs for the West Campus.[27]

The RFI identified localized areas of contaminated soils and concluded that most of the releases were believed to have occurred in the 1970s and 1980s. Elevated levels of COPCs (e.g., VOCs, SVOCs,

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[24] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California,* November 3, 2010.

[25] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[26] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[27] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

PCBs) were found at a number of locations, with the main area of contamination located at the former ChemPlant complex (i.e., the West Campus). The probable sources of contamination were attributed to leaks and spills from above-ground storage tanks and piping, below-ground sumps, releases from drum storage areas and waste management practices employed in the past by the Raychem facility.[28]

The groundwater RFIs were conducted between 1999 and 2004. The RFIs determined that groundwater was impacted by VOCs (chlorobenzene and 1,1-DCE) and PCBs. The predominance of low-permeability clayey materials generally restricts downward migration of shallow contaminated groundwater. A groundwater model used to predict the concentration of VOCs and PCBs to the year 2072 indicate VOC levels will continue to decline through natural attenuation. PCBs, which do not break down like VOCs, are predicted to show minimal movement over time. The studies also indicate that groundwater contamination originating from the West Campus has not migrated off-site. However, groundwater contamination from the Tyco property to the west has migrated and extends under the West Campus.[29]

Remediation. Interim Remedial Measures (IRMs) are actions that can be initiated prior to implementation of the final corrective measure to control or eliminate the release or potential release of hazardous wastes or hazardous constituents at or from a facility. The ultimate goal of interim measures is to achieve stabilization at a facility. A site is considered stabilized when: 1) human and environmental exposure pathways are blocked; 2) off-site migration is stopped; and 3) sources of contamination are controlled.

Tyco conducted several IRMs in the early to mid-2000s, which resulted in removal of approximately 5,000 cubic yards of contaminated soils. Contaminated soils were removed from various locations in the West Campus, including storm drain inlets and drainage swales where sediment was contaminated. The IRMs also helped to reduce impacts to groundwater (documented reductions in plume size and chemical concentrations) by removing the sources of contamination. Soil investigations indicated the presence of PCBs in off-site soils, which were also removed as an IRM action.[30]

An IRM was also implemented at the location of former Building U, a part of the ChemPlant. PCB-contaminated surface soils to a depth of approximately four feet were removed, but deeper soils containing PCBs at concentrations that would be unacceptable for human health or the environment if there was an exposure pathway were left in place at a depth of approximately nine to 21 feet. The soil was not removed due to the difficulty in dealing with flowing sands and flooding of the excavation, possibility remobilizing and redistributing the PCBs. The soils not removed were covered with an engineered cap consisting of approximately four feet of clean soil covered by a synthetic liner and

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[28] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[29] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[30] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

drainage cover.[31] That area, which occupies approximately 0.25 acres and is currently fenced to protect the cap and discourage trespassing, is adjacent to the proposed transit center and will be covered with landscaping. Specific measures to protect the integrity of the cap are prescribed in a Land Use Covenant (LUC), explained later in this section. These remedial measures for PCBs were also approved by EPA under the federal TSCA.

Corrective Measures Study/Implementation Plan. The cleanup efforts resulted in the development of a Corrective Measures Study/Implementation Plan (CMS/IP) in 2006, which applied to the entire Tyco facility. It was developed to ensure compliance with the 1996 Corrective Action Consent Agreement, as amended in 2006. The general objective of the CMS/IP was to develop and evaluate corrective measure alternative(s) that would continue to be used to address any residual contaminants and potential releases of hazardous waste and constituents that could occur subsequent to the cleanup efforts.[32]

A component of the CMS/IP is the Operation, Maintenance, and Monitoring Plan (OMMP). It identifies actions that must be implemented to ensure the IRMs and other cleanup actions satisfy the remedial action objectives established through the RFI process, and that the various elements of the remedial actions will be monitored. The OMMP addresses the engineered cap, groundwater monitoring, and management of chemically impacted soil. In particular, it requires protection of the groundwater monitoring network because it provides valuable data regarding the reduction in contaminant levels, and it clearly describes contingency actions in the event odorous or discolored soils are encountered during subsurface work. The OMMP also includes action levels for air monitoring, soil sampling, and soil disposal.[33]

Human Health Risk Assessments. Although contaminated soils have been removed to commercial use levels and a groundwater cleanup program is in place, along with a DTSC-approved process to ensure the remedial actions remain effective, there are residual levels of contaminants in West Campus soils and in shallow groundwater under the site. The process for determining the levels that were allowed to remain on-site included a human health risk assessment (HHRA), which is described below.

A HHRA[34] was prepared according to a work plan approved by DTSC. The purpose of the HHRA was to evaluate the potential human health risks attributable to residual COPCs in soil and groundwater in Area 6 of the former Raychem facility (the West Campus).

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[31] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[32] SCS Engineers, *Corrective Measures Study/Implementation Plan, 300 Constitution Drive, Menlo Park, California,* prepared for Tyco Electronics Corporation, November 2006.

[33] SCS Engineers, *Corrective Measures Study/Implementation Plan, 300 Constitution Drive, Menlo Park, California,* prepared for Tyco Electronics Corporation, November 2006. Appendix G: Operation, Monitoring, and Maintenance Plan, prepared for Tyco Electronics Corporation.

[34] SCS Engineers, Baseline Human Health Risk Assessment Eastern Portion of Site (Expanded Area 6) Tyco Electronics (Former Raychem) Facility, 300 Constitution Drive, Menlo Park, California EPA ID No. CAD009125527, July 2005.

The HHRA assumed the presence of residual contaminants, primarily PCBs, and examined the risk estimates for the following potentially exposed populations:

a. On-site commercial/industrial worker,

b. On-site construction/utility worker,

c. Off-site commercial/industrial worker,

d. Off-site resident, and

e. Hypothetical future on-site resident.

Three exposure scenarios were evaluated in the HHRA. The following is provided for information purposes to disclose how risk was evaluated. However, only the second scenario (Future Modified Site Configuration – Commercial/Industrial Land Use) is applicable to the Project.

1. **Current Unchanged Site Configuration** – This scenario assumed that the site would continue to operate as a commercial/industrial facility and that the existing buildings and surface cover (i.e., pavement and landscaping) would remain in place. Risk and hazards were estimated assuming current on-site commercial/industrial workers may inhale volatile chemicals that migrate from soil and groundwater into an existing building. For areas not covered, it was assumed that workers may be exposed to chemicals at the site via inhalation, incidental ingestion of soil, and dermal contact with soil.

2. **Future Modified Site Configuration (Commercial/Industrial Land Use)** – This scenario assumed continued use of the site as a commercial/industrial facility. It further assumed that the site would be modified in the future and that all existing surface cover (including pavement and buildings) were removed and the underlying soil exposed. Risks and hazards were estimated assuming that future on-site commercial/industrial workers, future on-site construction workers, and future off-site commercial/industrial workers, as well as off-site residents may be exposed to site chemicals via inhalation, incidental ingestion of soil, and dermal contact with soil. This is the scenario that generally applies to the Project for the West Campus.

3. **Hypothetical Future Modified Site Configuration (Unrestricted Land Use)** – This scenario assumed that the site would be redeveloped in the future for residential use (unrestricted use). It further assumed that all surface cover is removed and that single-family residential homes are developed. Under this scenario, risks and hazards were estimated assuming that future residents may be exposed to chemicals at the site via inhalation, incidental ingestion of soil, dermal contact with soil, and ingestion of homegrown produce. The Project does not propose residential uses; therefore, this scenario is not applicable.

With the exception of the area in the immediate vicinity of the engineered cap, the estimated carcinogenic risk[35] for all potentially exposed populations considered under the commercial/industrial land use scenario for the West Campus was within the range ($1x10^{-6}$ to $1x10^{-4}$) defined as the acceptable risk range by the EPA.[36] The presence of an engineered cap prevents exposure to contaminants beneath the cap. Because there is not a complete exposure pathway, there would be no risk to people under current conditions. The HHRA concluded that assuming that the site remains commercial/industrial and the engineered soil cap remains in place, the estimated risks from potential direct exposure to soil and groundwater at the site ranged from approximately $1x10^{-9}$ to $1x10^{-5}$, which are less than the EPA standards for carcinogenic risk. Non-carcinogenic[37] risk levels are also not exceeded.

The HRRA noted import of clean fill soil and new building foundations would further reduce the exposure and potential risk. The HHRA further concluded, the West Campus currently does not pose a human health risk in its current condition nor would it pose a risk in the future if the site continues to be used as a commercial/industrial property. However, if the West Campus were developed as a residential property or for other land uses not included in the HHRA, further action may be required to protect human health.

Ecological Risk Screening. An ecological risk screening for the West Campus was completed in 2003. The studies concluded that the conditions at the West Campus pose very little threat to biota from areas contaminated with hazardous substances due to lack of complete exposure pathways. The report noted the saltwater evaporation ponds located north of the West Campus and the wetland-mitigation area located east of the West Campus are separated from the site by paved roads/highways (Bayfront Expressway and Willow Road).[38]

DTSC's Approved Remedial Actions for the West Campus

The current DTSC-approved remedies for contaminants at the West Campus consist of the LUC (see below), which protects the engineered cap, among other items, and continuation of the groundwater monitoring program. In 2006, DTSC conducted a review under CEQA of the corrective action project and approved an Initial Study/Negative Declaration (State Clearinghouse No. 2006072107) that

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35 Carcinogenic compounds are present in daily life and present a risk of exposure to individuals; there is a cumulative risk from numerous environmental sources. The risk criterion (1x10-6) is commonly referred to as "one-in-a-million." It is the smaller of the two values, where 1x10-4 is a one-in-ten-thousand risk. The quantified values that are compared to the criterion range represent the *probability* of occurrence that exposure to carcinogenic materials would exceed—in others words, would be in addition to—existing risk.

36 California Department of Toxic Substances Control, *Statement of Basis, Proposed Remedy Selection for Contaminated Soil and Groundwater at Tyco Electronics Corporation, 300 Constitution Drive. Menlo Park, California*. July 24, 2006.

37 Unlike cancer risk estimates, the measure used to describe the potential for noncarcinogenic toxic effects to occur is expressed in terms of a Hazard Index (HI). The HI assumes that there is a level of exposure below which it is unlikely, even for sensitive populations, to experience adverse health effects. Adverse health effects are not anticipated when chronic and acute hazard indices are less than one. The final calculated risk values represent a conservative probability of occurrence.

38 California Department of Toxic Substances Control, *Statement of Basis, Proposed Remedy Selection for Contaminated Soil and Groundwater at Tyco Electronics Corporation, 300 Constitution Drive. Menlo Park, California*. July 24, 2006

evaluated these remedies, and concluded that no additional mitigation measures are needed to address the residual chemical contaminants that remain on-site in soil and groundwater.[39] In September 2007, DTSC determined that Tyco had implemented the remedies for soil and groundwater subject to continuing obligations to conduct site inspections and periodic groundwater monitoring.[40]

Land Use Covenant (LUC). DTSC has determined that the West Campus has been remediated to a level that is acceptable for commercial and industrial uses, but not residential use. Because residual hazardous wastes remain in the soil and groundwater at the West Campus and the levels that remain are risk-based, DTSC determined that a Covenant and Agreement to restrict site uses was necessary for the protection of human health and the environment. A LUC restricting the use of property at the West Campus was made between Tyco Electronics and DTSC in January 2007 and is binding upon all owners of the land, their heirs, successors, and assignees.[41] The LUC must be incorporated by reference into each and all deeds and leases for any portion of the West Campus.

As set forth in the LUC, the following uses are prohibited: residential, hospital, public or private schools for persons under 21 years of age, and day care for children. Other prohibited activities are: raising agricultural products; drilling for water, oil, or gas; and extraction of groundwater for purposes other than groundwater monitoring, site remediation, or construction dewatering; any activity that may disturb or adversely affect the integrity of the engineered cap (paving and non-tree landscaping over the cap is permitted as long as such surfacing does not disturb or interfere with any remedy or operation and maintenance activities required for the site); and any activity that may interfere with the operation and maintenance of the groundwater monitoring wells that are required as part of the DTSC-approved remedy without the written approval of the DTSC and EPA.[42] The LUC requires the property owner to perform annual inspections of the site to ensure the prohibitions in the LUC are being adhered to, and to evaluate the engineered cap. The last inspection was completed in January 2011, and no issues were identified.[43]

In addition, activities that would disturb soil, such as excavation, grading, removal, trenching, filling, earth movement or mining are only permitted if the activities are conducted pursuant to the DTSC-approved OMMP.[44] The OMMP sets forth procedures and protocols designed to limit the disturbance

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[39] California Department of Toxic Substances Control, Initial Study Checklist for Tyco Electronics Corporation, 300 Constitution Drive, Menlo Park, California, for the remedies described in the Draft Corrective Measures Study and Implementation Plan dated June 2006. State Clearinghouse No. 2006072107. Negative Declaration approved November 30, 2006.

[40] California Department of Toxic Substances Control, Letter from Wei Wei Chui, Section Chief, to Spencer Leslie, Director/Site Services of Tyco Electronics, September 6, 2007.

[41] Tyco Electronics Corporation, Covenant to Restrict Use of Property Environmental Restriction, Covenant and Agreement between Tyco Electronics Corporation and California Department of Toxic Substances Control, January 4, 2007.

[42] Tyco Electronics Corporation, Covenant to Restrict Use of Property Environmental Restriction, Covenant and Agreement between Tyco Electronics Corporation and California Department of Toxic Substances Control, January 4, 2007.

[43] California Department of Substances Control, letter from Matthew Huang, Project Manager, to Glen Foster, Tyco Electronics Corporation, February 23, 2011, approving the 2010 annual inspection report.

[44] SCS Engineers, Operating, Maintenance, and Monitoring Plan, Tyco Electronics Corporation, June 14, 2006.

of contaminated soils and reduce the short-term risks to workers. DTSC and the Project Sponsor are discussing potential modifications to the OMMP, and potentially the LUC, in the context of the Voluntary Cleanup Agreement.

Easement Agreement. An easement was established in 2007 between Tyco and Argonaut Holdings, Inc. that created certain easements and related rights for Tyco to facilitate ongoing environmental monitoring and related maintenance activities, such as maintenance of the groundwater monitoring wells and continued groundwater monitoring.[45]

Voluntary Cleanup Agreement. In June 2011, the Project Sponsor entered into a Voluntary Cleanup Agreement (VCA) with DTSC to reimburse DTSC for its oversight of the Project Sponsor's activities related to the residual hazardous materials, engineered cap, and groundwater monitoring wells at the West Campus.[46] DTSC oversight would be necessary to ensure that Project construction activities are conducted in accordance with the requirements of the OMMP and LUC. Although the Project can be developed within those restrictions and without any additional remediation, the Project Sponsor is considering requesting modifications to the OMMP and LUC, which might require additional remediation, to create more flexibility in site development and reuse. Under the VCA, the Project Sponsor would work with DTSC to determine if one of the proposed remedial options described below. In conjunction with DTSC, the Project Sponsor is considering the following options:

- *On-site consolidation of impacted soil.* This option would reduce the potential for exposure to the residual contamination on-site by consolidating the impacted soil above the unrestricted use cleanup goal in one location and capping it; institutional controls would reduce the potential for exposure through the breaching of the cap.
- *Excavation and off-site disposal of impacted soil (excluding the area under engineered cap).* Under this option, impacted soil above the cleanup goal would be excavated and disposed at an appropriately permitted off-site facility. The area would be backfilled with "clean" soil to the West Campus to grade.
- *Excavation and off-site disposal of impacted soil (including impacted soil under engineered cap).* Under this alternative, the impacted soil currently underneath the engineered cap would be excavated and disposed at an appropriately permitted off-site facility. This option could involve excavation of all the soil over the unrestricted use cleanup goal, or all such soil down to a highly-protective depth, such as 25 feet. The area would be backfilled to grade with "clean" soil.
- *Placement of clean soil cover over the site.* Under this option, all of the residual contamination would remain in place but at least two-feet of clean soil would be placed over the existing site, to specifications approved by DTSC. The OMMP would be revised to provide for a soil management plan setting forth protocols and procedures for disturbance of the soil cover.

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[45] Cornerstone Earth Group, *Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California*, November 19, 2010.

[46] Voluntary Cleanup Agreement, entered into between Giant Properties LLC, a wholly owned subsidiary of Facebook Inc., and California Department of Toxic Substances Control. June 17, 2011

DTSC has not identified vapor intrusion from the groundwater contaminants into structures as a hazard at the West Campus. Nevertheless, because under any of these options residual levels of those contaminants would remain in groundwater beneath the site, the Project Sponsor may install gas-impermeable membranes with passive ventilation and utility-trench, vapor cut-off barriers to effectively limit vapor/odor intrusion into the planned structures.

Naturally Occurring Asbestos

As noted in Section 3.11, Geology and Soils, the West Campus was undeveloped marshland and was filled prior to development of the Raychem facilities. The fill source for the West Campus was reported to be from a road cut for I-280 construction, just north of Woodside Road (south of Farm Hill Boulevard exit). Bedrock in the source area is predominantly serpentinite[47] associated with the Franciscan Complex. Eleven samples were collected from the road cut and tested in 1998, in conjunction with a study of nickel and chromium levels in West Campus soils. None of the 11 samples contained asbestos.[48] While road cut soils were tested, the fill materials at the West Campus do not appear to have been tested. Therefore, there is the potential for naturally occurring asbestos (NOA) to be present in fill material at the Project site.

Asbestos, Lead-Based Paint, PCBs

East Campus. The East Campus buildings were constructed in the 1990s and are unlikely to contain significant quantities of asbestos. However, surveys to identify whether asbestos regulated under federal, State, or local regulations have not been completed for East Campus buildings. The Consumer Product Safety Commission banned the use of lead as an additive in paint in 1976. Based on the age of the buildings, the potential for lead-based paint is low.[49]

West Campus. The West Campus buildings were constructed in the 1980s and are, therefore, unlikely to contain significant quantities of asbestos or lead-based paints. Nonetheless, comprehensive surveys have not been completed to determine whether these materials are present in building components at levels that would trigger the need for compliance with testing, removal, and disposal regulations.[50] Several indoor and outdoor transformers are present; however, the RFI studies at the West Campus determined there were no transformers with PCB content in fluids at or above regulatory limits.

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[47] Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramafic rock along faults such as the Hayward Fault. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, can be common in serpentinite. The State has designated serpentinite as the "State Rock" of California.

[48] GRA Associates, Inc., RFI Report – Soil Investigation (Final), Raychem/Tyco Facility Eastern Portion of Site (Expanded Area 6), 300 Constitution Drive, Menlo Park, California EPA ID No. CAD0091255272002, Section 4.3.3.

[49] Cornerstone Earth Group. *Phase I Environmental Site Assessment, 10 Network Circle, Menlo Park, California,* November 3, 2010.

[50] SCS Engineers, *Corrective Measures Study/Implementation Plan, 300 Constitution Drive, Menlo Park, California,* prepared for Tyco Electronics Corporation, November 2006.

Schools Within 0.25 Miles of the Project Site

Belle Haven Elementary School located at 415 Ivy Drive is the closest school to the Project site and is just over 0.35 miles southwest of the West Campus. There are no schools within a 0.25-mile radius of the West Campus. There are no schools within a 0.25-mile radius of the East Campus.

Airports Within 2 Miles of the Project Site

There are no airports within two miles of the Project site. However, the Project site is within approximately 2.25 miles of the Palo Alto Airport. The primary hazards associated with airports are crash hazards due to aircraft approach and departure operations.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (the "Cortese List" described above) and, as a result, would create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.
- Impair or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Methodology

To assess the potential for the Project to create a significant hazard to the public or environment from hazardous materials, the following analysis considers the pathways through which exposure to hazards could potentially occur, and evaluates the controls that would foreseeably be placed on each of these pathways.

It is important to note that, as a result of the health and safety risks associated with the use of hazardous materials, hazardous materials use, storage, and disposal are subject to numerous laws and regulations at various levels of government. These laws and regulations are identified in this section. In most cases, the laws and regulations pertaining to hazardous materials management are sufficient to minimize risks to human health and the environment, except where site-specific conditions warrant additional consideration. The impact analysis identifies areas where impacts related to hazardous materials during Project occupancy may, nonetheless, be potentially significant. In these cases, feasible mitigation measures are identified.

The primary sources of information for establishing baseline conditions are site-specific Phase I Environmental Site Assessments (ESAs) for the East Campus and West Campus, prepared by Cornerstone in November 2010, which are supplemented with other documents provided by the Project Sponsor and those available from DTSC's EnviroStor website, as referenced in the footnotes (Appendix 3.13). Phase I ESAs are used to assess whether potentially hazardous materials are located on a property. Standards for Phase I ESAs have been developed by the American Society for Testing and Materials (ASTM) and are used routinely to determine the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products, onto the surface or into the ground, groundwater or surface water of the property. A Phase I ESA consists of a site reconnaissance, review of regulatory agency databases and/or files, aerial photograph review, interviews, interpretation of the results, and recommendations whether additional investigation is necessary.

Because the Phase I ESAs for the East Campus and West Campus included a summary compilation of decades of investigation at the Project site and were prepared in accordance with industry standards, the conclusions presented therein are assumed to represent the best available information for purposes of analyzing potential effects. In addition, all remedial activities and ongoing monitoring at the West Campus have been performed in accordance with DTSC-approved work plans and reports. The ESAs and DTSC-approved documents have also been independently reviewed. Thus, there is sufficient information upon which to base the analysis.

The baseline for determining potential effects for the Project is described in Section 3.1, Introduction to the Environmental Analysis. However, it should be noted that for the purposes of this the Hazardous Materials analysis, the baseline also includes the current restrictions imposed under the LUC and OMMP, the purpose and contents of which are previously described above. This condition reflects DTSC's conclusion that the West Campus has been remediated to levels that are protective of a commercial/industrial land use scenario, provided all restrictions and prohibitions are implemented.

Impacts Not Evaluated In Detail

The impacts related to wildland fires are not evaluated in detail because there would be no impact as a result of implementing the Project. The Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. The Project site is surrounded on the east, south, and west by urban development. It is separated from salt evaporation ponds and Bay margin vegetation by roadways. As described in Section 3.15, Public Services, the MPFD provides fire protection services to the Project site. There would be ***no impact*** related to wildland fire hazards.

The impact related to the accidental release of hazardous materials within 0.25 miles of a school is not evaluated in detail because there are no schools within a 0.25-mile radius of the East Campus or the West Campus.

The impacts related to siting a project within an Airport Land Use Plan (ALUP) or within two miles of a public airport are not evaluated in detail because neither the East Campus nor the West Campus are within an ALUP or two miles of a public airport.

Environmental Analysis

HM-1 ***Asbestos, Lead, or Other Hazardous Materials in Building Components.*** *Project-related demolition or excavation at the West Campus could disturb hazardous materials in existing building components, but compliance with existing regulations would prevent adverse health or safety effects. This would be a less-than-significant impact. (LTS)*

The West Campus buildings were constructed in the 1980s and are, therefore, unlikely to contain significant quantities of asbestos or lead-based paints. The RFI studies at the West Campus, the results of which are summarized in the Environmental Setting, above, determined there were no transformers with PCB content in fluids at or above regulatory limits. However, comprehensive surveys have not been completed to determine whether these materials are present in building components at levels that would trigger the need for compliance with testing, removal, and disposal regulations.[51] Demolition of the buildings in the West Campus could disturb these hazardous building materials and cause adverse health or safety effects to construction workers, the public, and/or the environment if appropriate hazardous materials surveys and safety precautions are not taken.

Asbestos poses health hazards only when inhaled; therefore, friable (easily crumbled) asbestos is potentially hazardous if not encapsulated. Non-friable asbestos or encapsulated asbestos does not pose substantial health risks. Upon building demolition at the West Campus, asbestos fibers (if present) could be disturbed, released into the air, and inhaled by construction workers or the public unless proper precautions are taken. Existing laws and regulations (e.g., 29 CFR 1926.1101 – Asbestos and BAAQMD Regulation 11, Rule 2 – Asbestos Demolition, Renovation, and Manufacturing) require the Project Sponsor to retain a qualified environmental

[51] SCS Engineers, *Corrective Measures Study/Implementation Plan, 300 Constitution Drive, Menlo Park, California,* prepared for Tyco Electronics Corporation, November 2006.

specialist (e.g., a Cal/OSHA-certified asbestos consultant or similarly qualified individual) to inspect existing buildings that may be altered. In addition, existing government regulations, such as the California Health and Safety Code Section 39000 et seq., limit asbestos emissions from asbestos-related demolition or construction activities, and specific precautions and safe work practices that must be followed to minimize the potential release of asbestos fibers. In light of these regulations, public health risks due to asbestos exposure during demolition of the existing buildings at the West Campus are expected to be controlled and proper precautions would be implemented.

In sufficient concentrations, lead and mercury are regulated as hazardous wastes. RCRA and the State RWCA require that generators of PCBs, lead, or mercury waste test the debris for toxicity characteristics. This requires that building components be tested for those materials. If building components containing hazardous materials are found at levels that require special handling (i.e., any building material containing paint that contains more than 5,000 ppm of lead, or any building materials known or suspected to contain PCBs or mercury), these materials would be removed and disposed of off-site as required by law and according to federal and State regulations and guidelines, including those of DTSC, BAAQMD, Cal/OSHA, and any other agency with jurisdiction over these hazardous materials.

Proper handling and disposal of contaminated building materials would reduce unforeseen risks to the environment and prevent potential future adverse health, safety, or environmental effects. As a result, impacts related to hazardous materials in building components would be ***less than significant***.

HM-2 ***Soil and Groundwater Contamination.*** *Implementation of the Project could expose people to residual contaminants in soil and/or groundwater if measures are not implemented to control unintentional or inadvertent releases:*

- *The Project at the East Campus would have a less-than-significant potential to expose people to residual contaminants in soil and/or groundwater. (LTS)*
- *The Project at the West Campus could expose people to residual contaminants in soil and/or groundwater, resulting in potentially significant impact. (PS)*

East Campus

The East Campus is not included on the Cortese List. The Phase I ESA for the East Campus concluded that elevated levels of nickel from undocumented sources, along with other contaminants typically found in artificial fill, and contaminants in shallow groundwater, would not present a significant health hazard during construction or occupancy, assuming soil and groundwater are not disturbed. Project implementation at the East Campus would not involve site improvements (e.g., constructing new buildings, installing utilities, or changes in roadways) that would disturb soils or require groundwater extraction or expose building occupants to hazards in soil or groundwater. Impacts are considered ***less than significant***.

West Campus

The West Campus is included on the Cortese List. Prior operations at the West Campus and the adjacent TE Connectivity site resulted in significant releases of hazardous substances, including PCBs, VOCs and semi-VOCs at a number of locations in the West Campus. DTSC has overseen a comprehensive "corrective action" program of investigation and remediation of these releases. These remediation activities have included: significant soil removal actions where concentrations of hazardous substances exceeded levels appropriate for commercial/industrial use; installation of a five-foot thick engineered cap over an 11,437-square-foot discrete area of deep PCB-contaminated soils on the eastern portion of West Campus (in the vicinity of former Building U, generally where the Transit Center and adjacent landscaping is proposed); and a comprehensive, long-term groundwater monitoring program consisting of 45 groundwater monitoring wells on the West Campus and the adjacent TE Connectivity property combined.

As the result of a decision-making process that included the issuance of a Negative Declaration under CEQA, DTSC determined in November 2006 that the West Campus had been remediated to a level that is acceptable for commercial and industrial use, such as those proposed for the West Campus.

Because residual hazardous materials remain in the soil and groundwater, DTSC determined that the recordation of a land use covenant to restrict property uses was necessary for the protection of human health and the environment. The LUC restricting the use of the TE Connectivity property was executed between TE Connectivity and DTSC in January 2007 and is binding upon all owners of the land, their heirs, successors, and assignees. The LUC prohibits residential and similar sensitive uses and requires activities that will disturb soil, such as excavation, grading, removal, trenching, filling, or earth movement must be performed pursuant to the OMMP and a Health and Safety Plan approved by DTSC. In addition, Mitigation Measure HM-2.9 would ensure that landscaping activities at the West Campus would not disturb soil in the area of the engineered cap.

DTSC has concluded the residual contaminants in soil and groundwater at the West Campus do not pose a risk to people or the environment under existing conditions, and would not pose a threat in the future, provided the surface is not disturbed in a manner inconsistent with the LUC and OMMP. A substantial amount of soil disturbance would be necessary to develop the West Campus, some of which will require specific approval of DTSC pursuant to the LUC and OMMP. This would include placing fill on the site for floodproofing, along with general soil movement on site for excavation for foundations or pile installation, and filling and compaction.

To minimize the potential introduction of contaminated fill onto the West Campus, all possible sources of import fill would have adequate documentation so it can be verified that the fill source is appropriate for the West Campus. Documentation would include detailed information on previous land use of the fill source, any environmental site assessments performed and the

findings, and the results of any analytical testing performed. If no documentation is available or the documentation is inadequate or if no analytical testing has been performed, samples of the potential fill material would be collected and analyzed. The analyses selected would be based on the fill source and knowledge of the previous land use as determined by the Project Sponsor's environmental consultant. The sample frequency for potential fill material would be in accordance with that outlined in the technical document titled, "Information Advisory on Clean Imported Fill Material."[52] The Project Sponsor's environmental consultant would approve the use of imported fill; no fill material will be accepted if it exceeds EPA's current residential environmental screening levels (ESLs), residential California Human Health Screening Levels (CHHSLs), and/or background concentrations of metals.

For locations where import fill is not used, on-site soil disturbance has the potential to result in impacts due to hazardous materials releases in a variety of ways: soil disturbance could generate dust containing residual soil contaminants, which could pose an inhalation hazard to workers if contaminants adhere to the dust; improperly stockpiled soils could introduce contaminants into stormwater; excavation and removal of contaminated soils, particularly if soils are used elsewhere on-site or transported for off-site disposal or reuse could spread contaminants. In addition, NOA may be present in fill materials. As described in Impact HM-1, asbestos poses a specific kind of inhalation hazard.

As part of its ordinary practice in reviewing each request to disturb soil or groundwater under the existing LUC, DTSC will confirm that risks from all potential exposure pathways to construction workers associated with the depth and extent of the requested excavation have been adequately assessed and that appropriate controls are in place.

To ensure construction workers are not exposed to inhalation and contact hazards, DTSC will require a site-specific health and safety plan (Mitigation Measure HM-2.2). In addition, implementation of a Dust Control Plan/Asbestos Dust Management Plan (Mitigation Measure HM-2.3) would provide further control of airborne dust. Because the safety measures identified in both these plans are intended to be protective of the construction workers, who would be at greatest risk due to the frequency of exposure and proximity to the contaminants, they would be equally protective to the public at off-site locations.

Besides the general soil movement associated with utility installations, utility trenches also have the potential to create a horizontal conduit for chemical contaminants contained in soil vapors or shallow groundwater to migrate along permeable soils that would be placed as trench backfill. This could cause residual contaminants to migrate and, in addition, could also pose a risk to occupants in enclosed structures from vapors migrating into buildings. Appropriate measures would be implemented to reduce vapor migration through trench backfill and utility conduits. Such measures would include placement of low-permeability backfill "plugs" at

[52] California Department of Toxic Substances Control, *Information Advisory Clean Imported Fill Materials*, October 2011. http://www.dtsc.ca.gov/Schools/upload/SMP_FS_Cleanfill-Schools.pdf. Accessed November 7, 2011.

intervals on-site and where utilities would extend outside parcel boundaries. Mitigation Measure HM-2.5 would require incorporation of necessary measures in Project design.

Foundation support piles are proposed for Buildings 1, 2, and 3 to provide structural support. Unless properly installed with minimally invasive methods and depending on the depth and location of the support piles, shallow groundwater could be encountered as a result of this activity. Groundwater extraction is not a concern when driving piles, but piles installed in locations where residual contaminants are known to be present could, under certain soil conditions, create a vertical conduit for chemicals occurring in shallow groundwater to move along the pile to deeper groundwater zones, causing degradation of the deeper groundwater. If development plans include the construction of deep foundations, the foundations of the buildings will incorporate measures to help reduce the potential for the downward migration of the contaminated groundwater. These measures would be identified in the required geotechnical investigation reports and would need to be approved by DTSC and/or EPA. The OMMP (Mitigation Measure HM-2.1) requires identification of appropriate foundation pile design and installation to minimize this hazard.

Extraction of shallow groundwater may be necessary for some excavation and utility trench work. The LUC (Article IV, Section 4.2[c]) does not prohibit extraction of groundwater for construction dewatering. However, extraction of groundwater does have the potential to alter contaminant plume characteristics such as flow direction. Contaminated water could also enter excavations or utility trenches, where it could pose a risk to construction workers through inhalation of vapors or direct contact with skin. Implementation of a Groundwater Management Plan (Mitigation Measure HM-2.4) would ensure extracted groundwater is properly tested and disposed.

Because of the chemical characteristics of the residual chemicals in soil, buried utility lines could be subject to increased corrosion risk. This could adversely affect the delivery of potable water or conveyance of untreated wastewater, which could pose a human health or environmental risk. As outlined in Mitigation Measure HM-2.6, the use of corrosion-resistant piping materials and proper design can reduce the potential hazards associated with corrosion.

The Project proposes various on-site drainage features to convey stormwater runoff to the City system. As required under the NPDES Regional Permit Provision C.3 (see Section 3.12, Hydrology and Water Quality), stormwater quality best management practices (BMPs) will be included in Project design. BMPs would incorporate biofiltration treatment using either planted areas, bioretention areas, flow-through planters, or tree well filters. Although fill would be placed at the West Campus, which would increase the amount of separation between the BMPs and groundwater and residual contaminants in soil, there is still the potential for stormwater to infiltrate to groundwater, where it could affect flow characteristics. This could, in turn, interfere with the groundwater remediation system. Or, contaminated groundwater could flow into the BMPs, from which treated stormwater would flow to the storm drain system, resulting in possible inadvertent, off-site contamination of stormwater. As included in Mitigation Measure HM-2.7, the biofiltration areas would incorporate an impermeable liner,

which would reduce the potential for groundwater-stormwater interactions that could affect water quality.

In addition, although the West Campus has been comprehensively evaluated, as at any development in an urban setting, particularly one to be constructed on fill where it would be infeasible to examine the 22-acre site in its entirety, there is a potential for construction activities associated with the Project to encounter previously unidentified hazards, such as an abandoned underground storage tank located before permitting requirements were imposed, or other subsurface hazards, including soil. For those locations where additional remediation or UST removal is needed, this could require off-site transport of contaminated soil or groundwater, and exposure to hazardous materials could result if these materials were not handled appropriately during transport or disposal. Some materials could be classified as a hazardous waste under federal or State regulations depending on the specific characteristics of the materials, and this would require special handling to ensure regulations would not be violated.

All of these activities have the potential to result in a release of hazardous materials that could pose a human or environmental risk. For that reason, this is considered a ***potentially significant*** impact.

MITIGATION MEASURE. The following measures would reduce the potentially significant soil and groundwater contamination impact at the West Campus to ***less than significant***. (LTS)

HM-2.1 *Update Operation, Maintenance, and Monitoring Plan (OMMP) for the West Campus*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to update the OMMP to incorporate site development considerations for the West Campus to ensure continued implementation of Article IV, Section 4.2 (Soil Management) of the LUC.

The updated OMMP shall include, at a minimum, requirements for soil sampling and laboratory analysis, action levels triggering the need for special handling, as well as stormwater runoff controls (Mitigation Measure HM-2.7), on-site soil movement associated with excavation and fill placement, off-site soil transport (if necessary), and contingency measures in the event activities encounter soil that is odorous, stained, visibly discolored, or is questionable. The Project Sponsor shall submit the updated OMMP to DTSC as required under Article IV Section 4.2 of the LUC, and in accordance with the applicable terms of the VCA. The updated OMMP shall ensure that any human health risk evaluation or assessment used to support approval of soil or groundwater disturbance evaluates the proposed duration and extent of the Project activities, considers the potential for groundwater dermal exposure, and is based on the most current applicable risk evaluation methodologies. The updated OMMP shall also identify how deep foundation design and installation will be managed to reduce the potential for downward migration of contaminants in soil or groundwater.

The City shall not authorize any activity on the West Campus that has the potential to disturb soil until approved by DTSC and all necessary permits and/or approvals have been obtained, including but not limited to any permits for wells and/or borings from San Mateo County and BAAQMD.

HM-2.2 *Health and Safety Plan for the West Campus*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare an updated Health and Safety Plan to implement Article IV, Section 4.2 (Soil Management) of the LUC. The Project Sponsor shall submit the Health and Safety Plan to DTSC as required under Article IV Section 4.2 of the LUC, and in accordance with the applicable terms of the VCA. The City shall not authorize any activity on the West Campus that has the potential to disturb soil until DTSC has approved the updated Health and Safety Plan and all necessary permits have been obtained.

HM-2.3 *West Campus Construction Activity Dust Control Plan (DCP) and Asbestos Dust Management Plan (ADMP)*. Prior to commencement of site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare a DCP/ADMP. The DCP shall incorporate the applicable BAAQMD pertaining to fugitive dust control. The ADMP shall be submitted to and approved by the BAAQMD prior to the beginning of construction, and the Project Sponsor must ensure the implementation of all specified dust control measures throughout the construction of the Project. The ADMP shall require compliance with specific control measures to the extent deemed necessary by the BAAQMD to meet its standard.

HM-2.4 *West Campus Construction Activity Groundwater Management Plan*. Prior to site grading on the West Campus, the Project Sponsor shall retain a qualified professional to prepare a Groundwater Management Plan that describes how any groundwater extracted to accommodate site preparation will be tested and disposed of in accordance with existing regulations. The City shall not authorize any activity on the West Campus that would involve dewatering until DTSC has approved the Groundwater Management Plan and all necessary permits or approvals have been obtained, particularly if groundwater requires additional treatment and/or disposal at a permitted facility.

HM-2.5 *Soil Vapor Intrusion Barrier at the West Campus*. Prior to the issuance of the first building permit for the first occupied structure at the West Campus, the Project Sponsor shall retain a qualified professional to design a vapor intrusion barrier system consistent with the recommendations set forth in "Phase I Environmental Site Assessment, 312-314 Constitution Drive, Menlo Park, California" dated November 19, 2010 prepared by Cornerstone Earth Group. The City shall not issue a building permit until the vapor intrusion barrier design has been reviewed and approved by DTSC and the City Engineer has reviewed the final design plans

to ensure the necessary features have been incorporated into the Project. Such measures could include, but would not be limited to, gas-impermeable membranes.

Appropriate measures shall also be incorporated into Project design to reduce vapor and groundwater migration through trench backfill and utility conduits. Such measures could include placement of low-permeability backfill plugs.

HM-2.6 *Corrosion-Resistant Utility Pipeline Design for the West Campus*. Prior to, or at a minimum concurrent with the issuance of utility improvement plan permits, the Project Sponsor shall retain a qualified licensed professional engineer to determine protective measures for utilities. The City shall not issue any permit for utility construction until the City Engineer has reviewed the final design plans to ensure the necessary corrosion-resistant features have been incorporated into the Project.

HM-2.7 *Stormwater Quality BMPs*. The Project Sponsor shall ensure on-site detention/retention basins are lined to prevent groundwater interaction with stormwater and to prevent downward migration of stormwater into groundwater.

HM-2.8 *Construction Stormwater Pollution Prevention Plan for the West Campus*. The City shall not issue any permit for grading until a stormwater pollution prevention plan (SWPPP) has been completed to the satisfaction of the City and necessary construction BMPs have been incorporated into the Project.

HM-2.9 *Landscaping Restrictions on the Engineered Cap for the West Campus*. In accordance with the existing LUC, the Project Sponsor shall not plant trees on the engineered cap. Non-tree landscaping is permissible.

Secondary Impacts Related to Implementing the OMMP

The residual chemical contaminants remaining in soil at the West Campus do not pose a human health or environmental risk. However, as stipulated in the LUC, activities that would disturb soil, such as excavation, grading, removal, trenching, filling, or earth movement may only be performed in accordance with an OMMP (Mitigation Measure HM-2.1). All of these types of activities will take place at the West Campus and would encounter soils where residual chemicals may be present. In addition, it is possible previously unknown contamination may be discovered during site preparation. The OMMP would identify under what conditions soils must be treated as potentially hazardous, and whether special handling would be necessary to protect human health and the environment. Typically, this would likely consist of collecting soil samples and could consist of removing the affected soils and disposing off-site at permitted facility, or excavating the affected soils and consolidating and placing them elsewhere on-site where they could be covered or capped. For the latter, administrative controls similar to the existing LUC would need to be developed.

Therefore, a reasonably foreseeable secondary impact of implementing Mitigation Measure HM-2.1 (OMMP) is that it could result in exposure to hazardous materials release as a result of

general soil movement on-site and through actions deemed necessary by DTSC to reduce potential hazards.

Workers directly engaged in a soil sampling activity would face the greatest potential for exposure to hazards. Small samples may be transported from the site for analysis, but because relatively small amounts are collected, public exposure to potential hazards would be limited. Associated impacts would be localized. However, the public could be exposed to potential hazards if access to the West Campus were not controlled.

If it is determined through implementing the OMMP, or otherwise, that on-site soils need additional remediation, DTSC would need to review and approve any of these activities before the Project Sponsor could proceed. The remediation options being considered are presented above in the "Voluntary Cleanup Agreement" section. In order for DTSC to approve additional remedial activities that would involve soil-disturbing activities, DTSC would complete environmental review in accordance with CEQA. This review would be conducted separately and independently from the Project because additional remediation is not an element of the Project because DTSC has determined additional remediation is not necessary to implement the Project and because such remediation would be a continuation of the Corrective Action Program for with the DTSC issued a Negative Declaration in 2006. However, for purposes of full disclosure and to inform the decision makers, the following is provided as an overview of the types of hazardous materials impacts that are typically associated with remediation of sites with contaminated soils.

Site remediation measures, in themselves, could have adverse impacts. Excavation and off-site disposal or excavation and on-site consolidation activities have the potential to result in hazardous materials impacts, primarily from dust emissions, stormwater runoff, direct contact with contaminants, and off-site transport. All of these potential pathways for hazardous materials releases would be controlled through implementation of DTSC-approved work plans and health and safety plans and will be evaluated by DTSC in a separate CEQA review before any such measures are approved.

Potential adverse impacts of site remediation, if any, would be mitigated, in part, by legally required safety and hazardous waste handling and transportation precautions. For hazardous waste workers, OSHA regulations mandate an initial 40-hour training course and subsequent annual training review. Additionally, site-specific training would be required for some construction workers. These measures, along with application of State cleanup standards, would serve to protect human health and the environment during site remediation, thus minimizing potential adverse effects associated with remediation. Moreover, the major hazards-related effects of environmental cleanup associated with any remediation, if necessary, would be beneficial over the long term. Remediation, or equally effective management, of contaminated soils would substantially reduce risks to the public and would also reduce the potential for operational activities such as subsurface repairs and maintenance in the event of any future excavation at the site. Consequently, implementation of the OMMP would not

result in any substantial hazardous materials release impacts and would be beneficial in the long run.

HM-3 ***Effects on Ecological Systems.*** *Soil movement during construction of the Project at the West Campus could expose ecological receptors to residual contaminants in soil and/or groundwater if measures are not implemented to control contaminants. (PS)*

Studies have concluded that the conditions at the West Campus pose very little threat to biota from areas contaminated with hazardous substances due to lack of complete exposure pathways. The saltwater evaporation ponds located north of the West Campus and the wetland-mitigation area located east of the West Campus are separated from the site by paved roads/highways (Bayfront Expressway and Willow Road).[53]

However, because residual contaminants remain in soil, on-site soil movement during construction could provide a new potential pathway through which wildlife species could be exposed to contaminants in soil or fill material. Soil disturbance could be the result of general construction activities in which previously unidentified contaminants have been discovered, or it could be the result of implementation of Mitigation Measure HM-2.1 (OMMP).

The primary environmental mechanisms for ecological exposure during soil disturbance would be (1) direct species contact with the fill or soil containing contaminants (e.g., birds landing on or rodents burrowing into stockpiled materials); (2) stormwater runoff from exposed soils or fill, or soils spilled onto roads during transport, which could carry contaminants into aquatic environments, where fish and benthic invertebrate species could be affected; or (3) windblown dust, which could be inhaled by terrestrial and avian species, or that could be deposited on surface water, where aquatic organisms could be affected. After construction, all exposed soils would be covered by buildings, roadways and parking, and landscaping and hardscaping. Thus, this impact would only occur during construction.

There are controls and mitigation measures identified in this Draft EIR that would reduce potential impacts on human populations, which would also help reduce the impact on ecological systems, as explained below. In addition, there are environmental conditions that would also reduce the potential for adverse impacts.

For example, the OMMP and health and safety plan measures (HM-2.1 and HM-2.2) would be protective of human health. This would, in turn, minimize the potential for avian and terrestrial species to have direct contact with soil. Implementation of measures to control stormwater runoff during construction would control the discharge of potential chemicals adhered to soil in the runoff. Mitigation Measure HM-2.8 would require preparation of a SWPPP to identify the specific measures and BMPs applicable to construction activities in the event of a spill of construction materials or exposure of hazardous materials. This would

[53] California Department of Toxic Substances Control, *Statement of Basis, Proposed Remedy Selection for Contaminated Soil and Groundwater at Tyco Electronics Corporation, 300 Constitution Drive, Menlo Park, California,* July 24, 2006.

reduce the likelihood of contaminants being conveyed to drainage swales, which would reduce the risk to the species that rely on that habitat (e.g., birds and mammals).

As described, dust control measures are required both by local ordinance and by BAAQMD (see Mitigation Measure HM-2.3). Implementation of dust control measures would effectively reduce the potential for windborne dust that could affect wildlife species. However, natural environmental conditions would also be a factor in minimizing the potential for contaminated dusts to adversely affect ecological systems. Avian species could be exposed to windblown dust through inhalation and ingestion during preening and prey consumption. Although various avian species may use the West Campus, the mobility of the bird species results in their use of a relatively large home range and foraging range. Due to this mobility, avian species would not be present in one foraging area for an extended period of time in which they could receive substantial exposure to contaminants in dust. Even if dust control measures were not implemented, dusts generated by wind during construction would be dispersed over a relatively large area, with no single area receiving a sufficient volume of dust to generate a significant exposure to species.

Ponded water in open excavations and trenches (if contaminants were present and if standing water remained) could also present an ecological risk. However, because dewatering would be necessary to ensure proper construction conditions, groundwater would be removed routinely and frequently. Groundwater would be removed as required by the City. The sewage system is a closed system, so there would be no direct exposure pathway to fish or wildlife. If shallow groundwater were to be discharged by some other means as a necessary by-product of construction dewatering, the discharger would be required to notify and obtain approval of the Region 2 RWQCB.

Compliance with the procedures described above would ensure that soil movement at the West Campus would not present a significant risk to the ecological environment. Therefore, with implementation of Mitigation Measure HM-2.1, potential construction impacts to ecosystems related to handling of soil with residual contaminants and groundwater would be reduced to ***less-than-significant*** levels.

HM-4 ***Interference with Groundwater Monitoring System.*** *Site preparation activities and structures at the West Campus could interfere with the groundwater monitoring system. (LTS)*

The earthwork that would be required to develop the West Campus, as described in Impact HM-2, has the potential to damage or destroy groundwater monitoring wells. Groundwater level and water quality data from the extensive network of wells are used to confirm the groundwater model, monitor for changes that would alter the conclusions of the risk assessments, and monitor the natural degradation of target chemical compounds in the shallow water-bearing zone.

If a well were damaged (e.g., cracked) at the well head or below the surface as a result of site preparation, this could reduce or eliminate the well as a data point. In addition, if structures,

landscaping, hardscaping, parking lots, or utility trenches are not properly designed and sited, these could preclude access to the monitoring wells for sampling. The location and/or depth of stormwater quality treatment features (e.g., rain gardens or swales) also have the potential to interfere with groundwater characteristics.

Site development plans would be coordinated with TE Connectivity and DTSC to allow continued monitoring, additional sampling, and/or remediation activities that may be required to obtain DTSC approvals for the West Campus. If there are groundwater wells that would obstruct construction activities, they will be decommissioned, relocated, and/or reinstalled. Such activities would require DTSC approval. This would ensure continued operation of the groundwater treatment and monitoring system in accordance with the LUC, and the impact would be ***less than significant.***

HM-5 ***Maintenance Activities.*** *Maintenance activities with implementation of the Project could disturb soil containing residual contaminants:*

- *Maintenance activities at the East Campus would have a less-than-significant potential to disturb soil containing residual contaminants. (LTS)*
- *Maintenance activities at the West Campus could have a potentially significant potential to disturb soil containing residual contaminants. (PS)*

East Campus

Maintenance activities at the East Campus would be limited to landscaping. There may be the need for routine inspection, maintenance, or repair of underground utilities (e.g., water, sewer, telecommunication, electrical/natural gas). These types of activities would not involve extensive soil disturbance. Soils on the East Campus are not known to present a human health risk. For those reasons, impacts would be ***less than significant***.

West Campus

After Project occupancy, soil excavation may be required to maintain or replace utilities, repair foundations, or make other subsurface repairs. Prior to occupancy, particularly on the West Campus, locations for which the OMMP elements would have already been implemented (Mitigation Measure HM-2.1) would have effectively removed soils in locations affected by construction that could pose a risk to construction workers, provided the OMMP is fully implemented. Therefore, contact with unremediated soil by construction workers, or inhalation of soils by workers or the public, is unlikely and would not be expected to pose a substantial human health risk for areas subject to OMMP requirements.

As explained in Impact HM-2, the West Campus has been comprehensively evaluated, but as with any development in an urban setting, particularly one to be constructed on fill, it would be infeasible to examine the 22-acre site in its entirety. Therefore, there is a potential for future maintenance or repair activities involving disturbance of subsurface soils on the West Campus

to encounter previously unidentified hazards, such as contaminated soil or other subsurface features that could pose a hazard. This would be a ***potentially significant*** impact because it could expose maintenance workers to previously unidentified contaminated soil or other hazards.

MITIGATION MEASURE. While the updated OMMP (Mitigation Measure HM-2.1) provides for unexpected conditions, as an added safety measure, documentation ensuring that as-built conditions are fully described (e.g., locations where soils were further remediated or not remediated) and any additional restrictions are recorded so as to be made available to future maintenance and repair workers. The following measure would reduce the potentially significant impact at the West Campus to ***less than significant***. (LTS)

HM-5.1 *Record Additional Restrictions.* The Project Sponsor shall ensure that the updated OMMP (Mitigation Measure HM-2.1) includes provisions for disclosing information in DTSC-approved remediation reports along with any other requirements pertaining to post-construction, long-term operation and maintenance of subsurface utilities or maintenance or repair of foundations. Any such documentation shall be recorded in the Office of the County Recorder and a copy shall be provided to the City.

HM-6 ***Routine Hazardous Materials Use.*** *Construction and operation of the Project at both the East Campus and West Campus would involve the use of hazardous materials-containing products. However, these products would be used in moderation and would comply with federal, State, and local regulations, resulting in less-than-significant impacts. (LTS)*

Wherever hazardous materials are used or stored, there is the potential for human exposure, and, under certain conditions, potential releases to the environment. In each situation, the potential hazards and the risks they would pose to people or the environment would depend on what materials would be used, where the materials would be used and stored, how they would be used, and who would use them. The routes through which these individuals could be exposed include inhalation, ingestion, dermal (skin and eye) contact, and other accidents.

For the Project, there are no large-scale manufacturing or processing facilities proposed that would store and use large quantities of hazardous materials that would present a substantial risk to people. However, the office uses and amenities would involve the use of smaller quantities of "household-type" hazardous materials. The potential risks associated with hazardous materials handling and storage would generally be limited to the immediate area where the materials would be located, because this is where exposure would be most likely. For this reason, the individuals most at risk would be employees or others in the immediate vicinity of the hazardous materials, rather than visitors or the public outside the Project site. For the most part, the health and safety procedures that protect workers and other individuals in the immediate vicinity of hazardous materials would also protect the adjacent community and environment. The pathways through which the community or the environment (e.g., local air quality and biota) could be exposed to hazardous materials include air emissions, transport of

hazardous materials to or from the site, waste disposal, human contact, and accidents. However, the only primary potential pathway for public exposure to hazardous materials would be airborne emissions under normal operations or upset conditions, such as those caused by diesel particular matter, toxic air contaminants, or traffic-related $PM_{2.5}$ emissions. These impacts are addressed in Section 3.6, Air Quality.

East Campus

As explained in Section 2, Project Description, the Project Sponsor is currently in the process of implementing TIs to convert the existing buildings from the hardware-intensive laboratory and individual hard-wall office environment to a more open, shared workspace characteristic of the Facebook work environment. The Tenant Improvements include interior renovations involving the use of commonly used materials, such as sheetrock, paints, solvents, glues and adhesives, and cleaning agents. Installation of new landscaping will require some concrete work, which will also involve some limited use of hazardous materials-containing products. Some minimal herbicide application may also be needed. The amounts and types of products containing hazardous materials will be limited and used in short duration. Construction specifications would require contractors comply with applicable hazardous materials use and waste disposal practices. These are not part of the Project, but are discussed because of the increased number of employees are anticipated on-site with the Project.

Operation of the East Campus would consist of office uses and amenities, such as food services and landscaped gathering areas. Products containing hazardous materials would be limited to office products and maintenance items, such as cleansers, degreasers, paints, and pesticides. These materials would not be used or transported to the East Campus in such quantities they would pose a health risk to occupants, visitors, or the Project vicinity. Impacts would be ***less than significant.***

West Campus

Construction of the West Campus would involve a substantial use of heavy equipment containing fuels and other hazardous products, along with extensive amounts of concrete products, construction materials, and architectural finish items.

These hazardous materials and vehicles would remain on the West Campus during the 18-month period of construction activities. Accidental releases of hazardous materials during construction activities could result in releases of hazardous materials into the air, or could impact soil and/or groundwater quality, which could result in adverse health effects to construction workers, the public, and the environment. However, the Project Sponsor's contractors would be required to comply with mandatory workplace hazardous materials regulations (described above) as well as a SWPPP[54] as described in Mitigation Measure HM-2.7, all of which would be specified in the construction contracts. In particular, among

[54] The SWPPP is a requirement under the Clean Water Act. See Section 3.12, Hydrology and Water Quality, for details.

many other elements and as it pertains to hazardous materials, the SWPPP requires an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced, storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage, implementing procedures that effectively address hazardous and nonhazardous spills, developing a spill response and implementation element of the SWPPP prior to commencement of construction activities; good housekeeping for vehicle storage and maintenance to prevent oil, grease, or fuel to leak in to the ground, storm drains, or surface waters.

Compliance with mandatory hazardous materials regulations and SWPPP requirements would ensure that potential releases from the transport and use or disposal of hazardous materials during Project construction activities would be reduced to a less-than-significant level. No mitigation is required. Operation of the Project would involve the use of household and commercial hazardous materials, such as cleaning agents, and paints. However, based on the uses within the Project, these materials would not be used, stored, or transported in large enough quantities to cause a substantial impact, either during construction or operation of the Project. Furthermore, the use, storage, and transportation of hazardous materials are subject to applicable federal, State, and local regulations, the intent of which is to minimize the risk of upset. Therefore, the risk of accidental explosion or release of hazardous materials that could create a health hazard is low, and impacts would be ***less than significant***.

HM-7 ***Hazardous Materials Risks from Off-Site Uses.*** *The Project at both the East Campus and West Campus could expose occupants to potential risks from off-site routine use or upset/accident conditions involving hazardous materials. However, compliance with federal, State, and local regulations would reduce the potential for off-site uses to pose a substantial hazard to the Project to less-than-significant. (LTS)*

The Project site is located in an area where there are commercial, light industrial, and R&D businesses, and the use of hazardous materials is permitted in those businesses. The City has a formal process for determining when use permits must be obtained, and there is a program in place for inspections by the County. In addition, hazardous materials can be legally transported on major thoroughfares, such as Willow Road and the Bayfront Expressway, as well as local roadways that provide access to nearby businesses.

The Project would not involve changes in hazardous materials use in off-site locations or substantially contribute to transport of hazardous materials on local roadway. However, it would increase the number of people in an area where an accidental release of hazardous materials at an off-site location could affect Project occupants. The Project would not reconfigure any existing roadways within the East Campus or include the construction of any new roadways or access points. Some minor improvements are proposed for the West Campus access along the Bayfront Expressway and Willow Road, but that would not involve a change in the roadway design or create new hazards that could affect hazardous materials transportation.

Exposure of site occupants to hazardous materials emergencies from off-site uses could occur because of improper handling or use of hazardous materials or hazardous wastes, particularly by untrained personnel; transportation accident; environmentally unsound disposal methods; or fire, explosion, or other emergencies.

All allowable off-site uses and transportation are subject to applicable State and federal laws and regulations, along with local permitting and inspections requirements, the purpose of which are to reduce the potential for hazardous materials incidents that could pose public or environmental risks. For example, the federal EPCRA, (42 USC Section 11001, et seq.) requires facilities that store, use, or produce certain amounts of hazardous chemicals to provide State and local authorities with material safety data sheets, or, alternatively, a list of chemicals. In addition to the federal requirement, California's Hazardous Materials Release Response Plans and Inventory Act, sometimes called the Business Plan Act (California Health and Safety Code Section 25500 et seq.) requires businesses using hazardous materials to prepare a plan that describes their facilities, chemical inventories, emergency response plans, and training programs. Businesses that use, store, or handle 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas at standard temperature and pressure, require hazardous materials business plans.

Hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the CCR, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code, were established at the State level to ensure compliance with federal regulations to reduce the risk to human health and the environment from the routine use of hazardous substances. These regulations must be implemented by employers/businesses, as appropriate, and are monitored by the State (e.g., Cal OSHA in the workplace or DTSC for hazardous waste) and/or local jurisdictions (e.g., the MPFD and the San Mateo County Environmental Health Division).

The City, along with the MPFD, would be responsible for ensuring that businesses in the vicinity of the Project site comply with the local regulation and enforcement of hazardous materials laws and regulations, which would reduce the potential for accidental release of hazardous materials during occupancy. This would be accomplished by ensuring that regulated activities (e.g., businesses) are managed in accordance with applicable regulations such as Hazardous Materials Release Response Plans and Inventories (Business Plans), the CalARP Program, and the California Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements.

Compliance with Title 26, Division 6 (California Highway Patrol), of the CCR, which oversees the transportation of explosive and hazardous materials, would reduce impacts associated with potential for accidental release during construction or occupancy in the Project area. Compliance with this regulation, monitored by the appropriate entity (i.e., MPFD and the San Mateo County Environmental Health Division), would ensure that businesses and public facilities where hazardous materials are used or stored adhere to regulations designed to prevent leakage and spills of material in transit and provide detailed information to clean-up crews in the event of an accident.

Workplace regulations addressing the use, storage, and disposal of hazardous materials in Title 8 of the CCR would apply to businesses and public uses in the Project area. Compliance with these regulations would be monitored by the MPFD and the San Mateo County Environmental Health Division when they perform inspections for flammable and hazardous materials storage. Other mechanisms in place to enforce the Title 8 regulations include compliance audits and reporting to local and State agencies. Implementation of the workplace regulations would further reduce the potential for hazardous materials releases.

Implementation of Title 49, Parts 171-180, of the Code of Federal Regulations would reduce any impacts associated with the potential for accidental release during construction or occupancy of the Project or by transporters delivering hazardous materials to the Project site or picking up hazardous waste. These regulations establish standards by which hazardous materials would be transported.

Compliance with existing federal, State, and local laws and regulations that are administered and enforced by the CUPA (San Mateo County Environmental Health Division), and MPFD standards (the local agency that implements applicable hazardous materials-related sections of the California Fire Code and California Building Code), along with the City permitting requirements, would reduce the potential for off-site uses to pose a substantial hazard to the Project through routine or upset conditions. Impacts would be ***less than significant***.

HM-8 ***Impairment of Emergency Access or Emergency Plans.*** *The Project, at both the East Campus and West Campus, would result in a less-than-significant impact regarding the implementation of or interference to an adopted emergency response or evacuation plan. (LTS)*

As discussed in Section 3.5, Transportation, the Project would increase traffic in the vicinity of the Project site. Without the installation of traffic preemption devises, MPFD response times to the East Campus could be significantly impacted due to congestion at the Bayfront Expressway/Willow Road intersection.[55] However, there are emergency vehicle priority (Opticom) systems in place at all Willow Road approaches from Middlefield to Bayfront Expressway, as listed in Section 3.15, Public Services. Because traffic preemption devices are already installed at all these locations, it is not anticipated that the increase in traffic in the area would significantly affect response times.

Emergency access to the East Campus would remain the same. Emergency vehicles would access the West Campus via five points. Along Bayfront Expressway, the emergency vehicles would be able to access the site from the main entry at the proposed signalized intersection and at the secondary entry to the west of the parking structure. Along Willow Road, the emergency vehicles would be able to access the site from the entrance. Such access would be facilitated by a median cut-through on Willow Road to allow for emergency vehicle left turns, subject to Caltrans approval. In addition, emergency vehicles would also access the West Campus via two fire lanes from the adjacent TE Connectivity property, to the west of the

[55] Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

proposed parking structure. Staging and turn-out areas for emergency vehicles would be located throughout the site and the design of the roundabout island to the southeast of Building 4 would meet the requirements established by the Fire Code, based on the size of the fire department's apparatus.

As such, implementation of the Project would not impede emergency access routes and would continue to maintain the existing City grid system. The Project would not result in permanent road closures that would physically interfere with the City's 2011 Emergency Operation Plan. Therefore, a ***less-than-significant*** impact would occur.

Cumulative Impacts

The geographic context for the analysis of cumulative impacts associated with hazardous materials varies depending on the threshold. The cumulative projects considered in this Draft EIR consist of two categories, as shown in Table 3.1-1 and Table 3.1-2, Introduction to Environmental Analysis. For disposal and transport of hazardous materials, the geographic context would include the area between the area of generation and the area of disposal, as well as the route between a distribution facility to the Project area, where risk of upset and accident would occur. The cumulative context for impacts associated with contaminated groundwater would include projects in the Atherton Channel watershed. The context for analysis of contaminated soil and risk from hazardous materials in buildings is site-specific, and would include only those cumulative projects in the immediate vicinity of the Project site (1283 Willow Road and 297 Terminal Avenue). For a discussion of airport hazards and emergency access, the geographic context would be the airport influence area of the Palo Alto Airport.

C-HM-1 ***Cumulative Hazardous Materials Use.*** *Construction and operation of the Project and other cumulative development would involve routine hazardous materials use, generation, disposal, or transport. This is a less-than-significant cumulative impact. (LTS)*

Tier 1 and Tier 2

The Tier 1 projects are a combination of residential, office, commercial, retail, and medical office uses. Both the types and amounts of hazardous materials present at any one time in these uses would be limited to household-type products, with the exception of the medical offices. Medical offices could include laboratories where small amounts of chemicals would be used, along with pharmaceuticals and small amounts of radioactive materials for diagnosis and treatment. Medical offices would also generate biohazardous medical waste. The Tier 2 projects would include a similar range of land uses as Tier 1, with the addition of institutional and some R&D/Industrial uses. The R&D and industrial uses would likely involve greater amounts of hazardous materials such as solvents, flammable materials, and compressed gases, along with other chemicals used in manufacturing and processing.

Although existing, proposed, and reasonably foreseeable development could have potentially unique hazardous materials considerations, all such existing and potential users would comply with the range of federal, State, and local statutes and regulations applicable

to the use, transport and disposal of hazardous materials, and would be required to comply with existing and future programs of enforcement by the appropriate regulatory agencies, which are described in the Regulatory Setting. Compliance with these federal, State, and local laws and regulations pertaining to hazardous materials management would be sufficient to minimize health and safety risks, because these laws and regulations have been designed to protect health and safety and are enforced by State and local agencies. In addition, stringent federal and State regulatory requirements apply to the common carriers that would handle the delivery and transport of hazardous materials to and from locations where hazardous materials are used. While these regulations do not eliminate the potential for accidents and resulting spills, they would reduce the frequency of possible occurrences and would limit the number of people that could be exposed.

Therefore, the cumulative impact with regard to routine use, transport, disposal, and handling of hazardous materials would not be significant.

Operation of the Project would involve limited hazardous materials use because of the types of activities that would occur (offices and related amenities). Moreover, as explained in Impact HM-6, the Project would also have to comply with all applicable statutes and regulations. This would ensure that the Project would not result in significant hazards as a result of hazardous materials use, transport, or disposal.

Development of the Tier 1 and Tier 2 projects and the Project would result in an increase in hazardous materials use and transportation in the area, and such use could also occur within 0.25 mile of schools. This could expose greater numbers of people to increased risks in the event of an inadvertent release or spill. However, hazardous materials incidents associated are usually site-specific, and the likelihood of multiple incidents occurring concurrently to result in a cumulative impact is anticipated to be very remote. As a result, associated health and safety risks would generally be limited to those individuals using the materials or to persons in the immediate vicinity of the materials.

For the reasons explained above, the Project's cumulative impact would be ***less than significant***.

C-HM-2 ***Cumulative Soil and Groundwater Contamination.*** *Development of the West Campus and other cumulative development could expose people or the environment to residual contaminants in soil and/or groundwater if measures are not implemented to control unintentional or inadvertent releases. This is a less-than-significant cumulative impact. (LTS)*

Tier 1 and Tier 2

Two project sites included in the Tier 1 analysis (in addition to the West Campus) are listed pursuant to *Government Code* Section 65962.5 (Cortese List). The project at 1400 El Camino Real, which is an approved new construction for mixed-use development, is an active site for voluntary clean-up. In addition, the Derry Lane development at 580 Oak

Grove, which is mixed-use development proposed for construction, is active and requires State response.[56] For projects in the City and Atherton Channel watershed that would involve the development or redevelopment of an existing site where soil or groundwater contamination may have occurred, the potential exists for release of hazardous materials during construction and/or remediation of those sites. For individuals not involved in construction activities, the greatest potential source of exposure to contaminants would be airborne emissions, primarily through construction-generated dust. Other potential pathways, such as direct contact with contaminated soils or groundwater, would not pose as great a risk to the public because such exposure scenarios would typically be confined to the construction zones.

Assuming that site-specific risk management controls are implemented and compliance with applicable laws and regulations pertaining to site cleanup and hazardous materials management is achieved at all other locations, soil or water contamination in the identified geographic context would not result in significant cumulative impacts. Exposure to soil and groundwater contamination, inadvertent spills, etc. are all localized impacts that are not expected to combine with other incidents to create a cumulative impact for the same population or environment. Moreover, an individual who is near the construction zone of one source would not likely be exposed to maximum levels off-site from another source. Implementation of applicable hazardous materials management laws and regulations adopted at the federal, State, and local levels, which are explained in the Regulatory Setting, would reduce cumulative impacts related to development of known or potentially contaminated sites to less than significant.

The risk-based remediation of soil and groundwater contamination from historic uses at the West Campus has resulted in restrictions on the types of soil-disturbing activities that can occur. These restrictions are set forth in a LUC and related OMMP. Development of the West Campus would involve extensive soil disturbance that has the potential to cause a significant impact if controls are not in place to reduce potential hazards (see Impact HM-2). The mitigation strategy outlined in Mitigation Measure HM-2, which implements the requirements of the LUC and is consistent with current regulatory standards, would reduce the potential for the Project to cause a significant impact due to the release of hazardous materials. All soil-disturbance activities at the West Campus that are performed in conjunction with geotechnical investigations for design, installation of foundations and utilities, and any related work cannot proceed without DTSC approval of plans describing how potential risks to people and the environment will be mitigated. In addition, implementation of those mitigation measures would reduce the potential for residual contaminants to pose an ecological risk (Impact HM-3).

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[56] California Department of Toxic Substances Control, EnviroStor, "Project Search Results," Search Criteria: Menlo Park, website: http://www.envirostor.dtsc.ca.gov/public/search.asp?CMD=search&ocieerp=False&business_name=&main_street_name=&city=Menlo+Park&zip=&county=&case_number=&Search=Get+Report, accessed September 12, 2011.

All of the Project's impacts associated with soil and groundwater contamination would be mitigated to a less-than-significant level. As described above, the hazards associated with investigation and cleanup of contaminated sites elsewhere would not combine in the cumulative sense, nor would the Project Sponsor be responsible for participating in efforts to reduce the impacts at other locations. Therefore, the Project's cumulative impact would be ***less than significant***.

C-HM-3 ***Cumulative Hazardous Materials in Building Components.*** *Development of the Project and other cumulative development could expose people to asbestos, lead, PCBs, or other hazardous materials in existing buildings that may be demolished, renovated, or rehabilitated if measures are not implemented to control unintentional or inadvertent releases. This is a less-than-significant cumulative impact. (LTS)*

Tier 1 and Tier 2

It is reasonable to assume development of some of the Tier 1 and/or Tier 2 projects could involve demolition of existing structures, or renovation/rehabilitation of some buildings. If demolition of existing buildings where asbestos, lead-based paint, PCBs, or other hazardous materials are present, those projects, along with the Project, would be required to comply with applicable federal, State, and local regulations, which are above in Regulatory Setting. Prior to issuance of a demolition permit, the City would be responsible for ensuring that the necessary investigations and remediation have been completed.

Hazardous materials incidents associated with demolition activities where asbestos, lead, PCBs, or other hazardous materials could be released would be site-specific. As a result, associated health and safety risks would generally be limited to those individuals using the materials or to persons in the immediate vicinity of the materials. Further, the likelihood of multiple incidents occurring concurrently to result in a cumulative impact would be minimal, and there would be no significant cumulative impact. Development of the Project would comply with all local, State, and federal regulations pertaining to the handling and disposal of hazardous materials that could be contained in the buildings to be demolished on the West Campus, and that could be discovered on renovation of the East Campus buildings. Compliance with these regulations would reduce any potential Project impact to less than significant. Therefore, the Project's cumulative impact would also be ***less than significant.***

C-HM-4 ***Cumulative Impairment of Emergency Access or Emergency Plan Impacts.*** *Development of the Project and other cumulative development would not impair implementation of or interfere with an adopted emergency response or evacuation plan. The cumulative impact is less than significant. (LTS)*

Tier 1 and Tier 2

Cumulative development would result in increased traffic throughout the City. Emergency provider response times could be significantly impacted due to congestion at intersections, particularly for those projects that are farther away from fire and police stations. However, the Project is in close proximity to existing fire Station 77 (approximately 0.5 miles) and existing traffic preemption devices would ensure that response times are not significantly affected.

Since the site plans of several Tier 1 and Tier 2 projects are unknown, it is possible that emergency access to these sites could be impacted. Certain design features for the Tier 1 and Tier 2 projects would be required to ensure that adequate emergency access to/from the sites is maintained. During the design review process of the projects, the City would require appropriate measures to ensure that emergency access is not impeded and that the developments include adequate emergency access to the site. As explained in Section 2, Project Description, adequate emergency access would be provided to both the East Campus and West Campus.

As such, with existing traffic preemption devices located throughout the City and adequate emergency access to the Project Site, implementation of the Project would not impede emergency access routes and would continue to maintain the existing City grid system. The Project would not result in permanent road closures that would physically interfere with the City's 2011 Emergency Operation Plan. Therefore, a ***less-than-significant*** cumulative impact would occur.

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3.14 POPULATION AND HOUSING

Introduction

This section provides background information on existing and projected population, employment, and housing conditions in the City and estimates changes to the City's demographics that would result from the Project. The analysis is based on population, employment, and housing data published in Projections 2009 by the Association of Bay Area Governments (ABAG),[1] and other demographic information from the Demographic Research Unit of the California Department of Finance (DOF) and the United States Census Bureau (U.S. Census). The analysis also incorporates information from the Housing Needs Analysis (HNA) for the Project prepared by Keyser Marston Associates, Inc. (included in Appendix 3.14 of this Draft EIR).[2]

The purpose of this section is to characterize the potential for Project-induced population, housing, and employment changes that may trigger physical environmental effects; these potential environmental impacts are examined in other sections of this Draft EIR (for example, Sections 3.5, Transportation; 3.6, Air Quality; 3.8, Noise; 3.15, Public Services; and 3.16, Utilities and Service Systems).

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to the Project's impact on the City's current jobs/housing balance, the potential increase in housing demand, impacts associated with population increase on community needs. These issues are addressed in this section. The desire to hire local residents was also identified. However, this issue will not be further addressed as it is not characterized as a CEQA issue. The City of East Palo Alto also raised an issue relating to the potential displacement of East Palo Alto residents. For reasons discussed below, this issue is not evaluated further in the Draft EIR because possible displacement of residents would not result in a significant physical impact on the environment.

Applicable Plans and Regulations

State

State Housing Element Law. The Regional Housing Needs Allocation (RHNA) is a process established under the State Housing Element law which requires cities in California to plan for the future development of new housing units to meet their share of their regional housing needs. Housing needs for each region in the State are determined by the State Department of Housing and Community Development (HCD) and submitted to Councils of Government for allocation to local jurisdictions. ABAG is ultimately responsible for determining the share of regional housing needs to be met by each

[1] ABAG data presented in Projections 2009 is a function of the following four elements: (1) ABAG Executive Board policies, which are based on the Smart Growth Vision; (2) General Plan policies for each particular jurisdiction; (3) economic trends; and (4) available land and prevailing land use pattern data, which are based on discussions between ABAG staff and planning staff in each particular jurisdiction.

[2] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011.

city in the Bay Area. State housing law has established three housing affordability categories. The categories are based on the region's median income, taking into account households ranging in size from one to six people. These three affordability categories are used by ABAG in allocating regional housing needs and are as follows:

- Very Low 0 to 50 percent of the area's median income
- Low 50 to 80 percent of the area's median income
- Moderate 80 to 120 percent of the area's median income

Currently the existing RHNA identifies allocated housing units for the 2007 to 2014 period (as shown in Table 3.14-1). ABAG identified 993 units (defined by income category) as Menlo Park's fair share of the regional housing need, or the Regional Housing Needs Allocation (RHNA) for the 2007 to 2014 period (Table 3.14-1).

The next RHNA and housing element cycle will be for 2014 to 2022. Development of a methodology for allocating housing needs for the 2014 to 2022 cycle is currently underway. Adoption of housing unit allocations by ABAG is expected in May 2013. The allocations will need to be incorporated into housing elements that will be due in 2014.

Table 3.14-1
ABAG Regional Housing Need Allocation for 2007-2014

Income Level	2007-2014 Menlo Park Need	2007-2014 San Mateo County Need	2007-2014 Regional Need
Very Low	266	3,588	48,840
Low	163	2,581	35,102
Moderate	192	3,038	41,316
Subtotal of Affordable Units	*581*	*9,207*	*125,258*
Above Moderate[a]	412	6,531	89,242
Total	**993**	**15,738**	**214,500**

Sources: ABAG, 2008. San Francisco Bay Area Housing Needs Plan: 2007-2014. Adopted May 15, 2008.

Notes:

a. Above Moderate: Households with incomes greater than 120 percent of County median family income. ABAG does not use Above Moderate category. This category is included in the HNA and in the analysis below to provide decision makers with more information on the housing impacts for a broad spectrum of the new worker households associated with the Project.

Sustainable Communities Strategy and SB 375. SB 375, adopted in 2008, requires preparation of a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan (RTP) for the Bay Area. The SCS must represent an integrated land use and transportation plan and be designed to achieve a reduction in greenhouse gas emissions targeted at 15 percent per capita from cars and light trucks by 2035. The SCS must identify areas within the region sufficient to house all of the region's population including all economic segments. Development of the SCS in the Bay Area is being led by a consortium of regional organizations comprised of the ABAG, Metropolitan Transportation Commission (MTC), Bay Conservation Development Commission (BCDC), and Bay Area Air Quality

Management District (BAAQMD). The collaboration is known as the "One Bay Area" initiative. SB 375 requires that the RHNA be consistent with the SCS and establishes an eight year cycle for RHNA for purposes of coordination with every other RTP update (which is on a four year update cycle).[3]

Local

City of Menlo Park General Plan. The following goal and policy from the Housing Element of the General plan pertain to the Project.

> **Goal III A:** To promote the development of a balanced range of housing types and densities for all economic segments and all geographic areas of the community.
>
> *Policy II.A.9* The City will continue to require developers of employment-generating commercial and industrial developments to contribute to the provision of below market rate housing opportunities in the City.

State Housing Element Law requires the General Plan of the City to have an updated Housing Element that provides for a specified number of housing units determined based on an allocation of regional housing needs. The allocation process is now set to occur every eight years, as discussed above. ABAG is responsible for the allocation in the Bay Area; however, San Mateo County has taken advantage of the option to manage its own "Sub-regional" allocation process.

Existing Conditions

Population

The City is located in the southern portion of San Mateo County and is bound by the Bay to the north; East Palo Alto to the east; Palo Alto to the east and south; Woodside and Portola Valley to the southwest; and Redwood City to the west. The City encompasses approximately 19 square miles, including nearly 12 square miles of the San Francisco Bay (Bay) and wetlands. The City's population was estimated to be 32,319 as of January 1, 2011.[4] Currently, the California DOF estimates that the City averages approximately 2.62 persons per household (pph).[5] Table 3.14-2 presents population estimates and

[3] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011.

[4] State of California, Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2010-2011, with 2010 Benchmark. Sacramento, CA, May 2011." Website: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, accessed August 10, 2011.

[5] Total population of 32,319 / 12,359 total households = 2.62 persons per household.

projections for years 2010 through 2025 for Menlo Park,[6] San Mateo County, and the San Francisco Bay Area (Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco counties), referred to as the Bay Area throughout this section of the Draft EIR.

Table 3.14-2
Population Trends in the Menlo Park, San Mateo County and the Bay Area, 2010-2025

	2010	2015	2020	2025	Growth 2010-2025
Menlo Park (sphere of influence)	36,200	37,900	39,300	40,600	4,400 (12.2%)
San Mateo County	733,300	766,900	801,300	832,400	99,100 (13.5%)
Bay Area	7,341,700	7,667,500	8,018,000	8,364,900	1,023,200 (13.9%)

Source: ABAG, Projections 2009.

The data indicates that the population growth from 2010 to 2025 in Menlo Park and San Mateo County (12.2 percent and 13.5 percent, respectively) would be less than the population growth of the Bay Area as a whole (about 13.9 percent). These projections suggest, in part, that the residential areas of the City and the County are more built-out than other communities in the Bay Area.

Employment

The employment profile for an area provides an indication of the composition of an area's economy and the present and future demand for employees. San Mateo County is a productive economic area led by technology-driven, bioscience, and service industries. According to the Housing Needs Analysis (HNA), San Mateo County averages approximately 1.78 employees per worker household.[7] The County was negatively affected by the economic downturn of the dot-com industry and again more recently by the housing mortgage/financial crises. Nonetheless, steady employment growth is expected between 2010 and 2025. The following tables present ABAG's employment projections and these data are used in the analysis presented below. However, more recent existing employment data are available from the U.S. Census, 2008-2010 American Community Survey (ACS), which indicate that there are

[6] In addition, several additional unincorporated areas adjoining the City are recognized as being within Menlo Park's sphere of influence and as such are included in the City's General Plan. In California, "sphere of influence" has a legal meaning as a plan for the probable physical boundaries and service area of a local agency. Spheres of influence at California local agencies are regulated by Local Agency Formation Commissions (LAFCO) and as such recognize the unincorporated communities that would be best and most likely served by the city agencies and hence, represent areas with the greater potential for annexation by the City. In most cases, ABAG provides more detailed demographic and employment projections for city's sphere of influence than for small cities such as Menlo Park. Consequently, unless otherwise specifically noted, all Menlo Park data represents the Menlo Park sphere of influence since only limited demographic data is available for the City's incorporated area. The sphere of influence designation for the City of Menlo Park includes unincorporated West Menlo Park, Week End Acres, Menlo Oaks, as well as the Stanford Linear Accelerator (SLAC). With the exception of SLAC, these areas are zoned residential and are substantially developed

[7] Keyser Marston Associates, Inc., *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011, p. 1.

currently 30,321 jobs in the City.[8] For consistency purposes, Table 3.14-3 presents the ABAG employment projections for the City, San Mateo County, and the Bay Area.

As indicated in Table 3.14-3, the ABAG projections from 2010 to 2025 show a steady increase in employment in the Bay Area from 2010 to 2025 (about 26 percent for the region). San Mateo County shows higher employment growth than the rest of the Bay Area and the City shows lower rates of employment growth than the Bay Area average. San Mateo County employment is projected to grow from approximately 346,320 jobs in 2010 to 439,850 jobs in 2025, approximately a 27 percent increase, and the City's employment is projected to grow from ABAG's estimate of approximately 29,400 jobs in 2010[9] to 33,450 jobs in 2025, approximately a 13.8 percent increase.

Table 3.14-3
Employment Trends in Menlo Park, San Mateo County, and the Bay Area, 2010-2025 (Total Number of Jobs)

	2010	2015	2020	2025	Growth (2010-2025)
Menlo Park	29,400	29,850	30,390	33,450	4,050 (13.8%)
San Mateo County	346,320	373,370	404,400	439,850	93,530 (27%)
Bay Area	3,475,840	3,734,590	4,040,690	4,379,900	904,060 (26%)

Source: ABAG, Projections 2009.

Table 3.14-4 presents a comparison of the projected total jobs available in the City's sphere of influence to the projected number of employed residents within the City's sphere of influence. According to ABAG's projections, the number of employed residents in the City's sphere of influence would be equal to approximately 60 percent of the available jobs in the City's sphere of influence in 2025.

Table 3.14-4
Comparison of Number of Jobs to Employed Residents in the Menlo Park Sphere of Influence

	2010	2015	2020	2025
Jobs[a]	29,400	29,850	30,390	33,450
Employed Residents[a]	16,520	17,180	18,810	20,170
Percent of Employed Residents to Total Number of Jobs	56.2	57.6	61.90	60.30

Source: ABAG, Projections 2009.

Note:

a. Jobs and employed residents are based on the City's sphere of influence, which also includes unincorporated areas of San Mateo County.

ABAG predicts gradual employment growth for both the City and San Mateo County. The City's future job growth is estimated to be just over one percent per year. The County's future job growth is

[8] U.S. Census Bureau, American Fact Finder, American Community Survey (ACS) 2008-2010, ID B08406, website: http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t, accessed November 9, 2011.

[9] As mentioned in this section, the most current employment data indicate that there are currently 30,321 jobs in the City.

expected to occur at a comparable rate of approximately 1.5 percent per year and San Mateo County is anticipated to re-attain its 2000 employment levels by 2015. However, due to the severity of the City's job losses in the recent years, future employment in the City is not expected to return to 2000 levels until after 2025.[10]

ABAG projects that the financial and professional services sector will remain as the City's largest employment sector and will account for a similar proportion of the City's jobs in 2010. Manufacturing, wholesale, and transportation jobs are projected to be nearly unchanged and the sector is expected to remain the second largest employment sector closely followed by the health care, educational, and recreational service sector. By 2030, future job growth in the City is expected to add 7,240 new jobs locally, resulting in a projected total employment level of 36,640. This job growth would represent an increase of nearly 25 percent to the City's 2010 employment base. The future employment within the City is expected to be relatively unchanged from its current job sector distribution.

Housing

According to the California DOF, the estimated number of housing units in the City as of January 1, 2011 was 13,098, with an average household size of 2.62 persons and a vacancy rate of 5.64 percent.[11] Table 3.14-5 presents the ABAG projections for households for the Bay Area, San Mateo County, and the City for years 2010 through 2025, as well as the percentage increase in households for that time period. According to ABAG, the number of occupied units in San Mateo County is projected to grow from approximately 264,400 units in 2010 to 299,220 in 2025, an increase of approximately 13 percent. The number of occupied units in the City is projected to grow from approximately 14,630 units in 2010 to 16,260 in 2025, an increase of approximately 11 percent. Overall, the household growth rate is expected to be below the household growth rate for San Mateo County and the Bay Area.

Table 3.14-5
Housing Trends in Menlo Park, San Mateo County, and the Bay Area, 2010-2025 (Households)

	2010	2015	2020	2025	Growth (2010-2025)
Menlo Park	14,630	15,160	15,710	16,260	1,630 (11%)
San Mateo County	264,400	275,680	287,350	299,220	34,820 (13.2%)
Bay Area	2,667,340	2,784,690	2,911,000	3,039,910	372,570 (13.9%)

Source: ABAG, Projections 2009.

Housing prices in the Bay Area are among the highest in the country and San Mateo County has several of the most expensive residential communities in the Bay Area. Menlo Park is one of the more desirable communities within the County and, as a result, home prices exceed the County levels. In

[10] Association of Bay Area Governments (ABAG), Projections 2009, December 2009.

[11] State of California, Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2010-2011, with 2010 Benchmark. Sacramento, CA, May 2011," website: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, accessed August 10, 2011.

recent years following the mortgage crisis and economic downturn, home prices have decreased significantly throughout most of California from their peak values in mid-2006. Within most of the Bay Area, home value losses have been less severe than the rest of the State, except for the more suburban outlying areas of the region. While there has been some home price declines, home values in the more affluent communities of the Bay Area (such as San Francisco, San Mateo, and Marin counties) have remained relatively high and comparatively stable as a smaller proportion of homeowners have been forced to sell their homes as a result of mortgage financing difficulties. Within the City, median home values continued to appreciate until mid-2008 and have subsequently decreased. In 2009, the median sale price for new and existing homes in San Mateo County averaged $580,000, while the City averaged $1,020,000. Most recent estimates for home values in 2010 estimated that the median sale price for new and existing homes in San Mateo County averaged $605,500 and $990,500 in the City, indicating a 2.89 percent decline in housing sale prices.[12]

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses), or indirectly (for example, through the extension of roads or other infrastructure).
- Displace a substantial number of existing housing, necessitating the construction of replacement housing elsewhere.
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Methodology

This analysis considers whether population and household growth would occur with implementation of the Project and whether this growth is within forecasts for the City and/or can be considered substantial with respect to remaining growth potential in the City.

An HNA has been prepared by Keyser Marston Associates (Appendix 3.14) and was applied for the analysis in the Draft EIR.[13] The U.S. Census,[14] Bureau of Labor Statistics, and the California Employment Development Department data were used in preparation of the HNA. The HNA presents the anticipated housing needs associated with the Project. Both increased demand for housing and potential increased housing unit allocations are addressed. The HNA is part of a range of analyses to assist in the decision-making and entitlement process for the Project.

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[12] DQNews.com Real Estate News and Custom Data, "California Home Sale Activity by City." Website: http://dqnews.com/Charts/Annual-Charts/CA-City-Charts/ZIPCAR10.aspx, accessed, September 26, 2011.

[13] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011.

[14] United States Census Bureau, Census 2000, 2011.

Indirect or secondary impacts are those which are caused by a project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate (CEQA Guidelines, Section 15358). Specifically, growth-inducing effects include ways in which a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly. Projects that would remove obstacles to population growth (e.g., a major expansion of a wastewater treatment plant) might, for example, allow for development to occur in an area not previously considered feasible for development due to infrastructure limitations (CEQA Guidelines, Section 15126.2(d)). As such, indirect population growth is a secondary impact that is considered below.

Impacts Not Evaluated In Detail

The following impacts are not evaluated in detail because there would be no impact as a result of implementing the Project.

The Project proposes to modify the existing Conditional Development Permit (CDP) that applies to the East Campus by converting the 3,600-employee cap into a vehicle trip cap that would and allow approximately 6,600 workers to occupy the East Campus. The Project also includes development of the adjacent, unoccupied property at the West Campus, which would accommodate approximately 2,800 workers. The Project does not include any residential development, nor does it propose any housing. As such, there would be ***no impact*** resulting from direct population growth as a result of on-site housing development. This impact is not further evaluated.

In addition, the Project would not displace a substantial number of existing housing units or people, which would necessitate the construction of replacement housing elsewhere. As stated above, the Project would develop office uses in a non-residential area and there is no existing housing at the Project site. Therefore, there would be ***no impact*** related to the displacement of housing or people, and this impact is not further evaluated in this section.

Environmental Analysis

PH-1 ***Indirect Population Growth.*** *Implementation of the Project would not induce substantial population growth indirectly through job growth, nor would projected growth result in adverse direct impacts to the physical environment. Therefore, this impact would be less than significant. (LTS)*

Employment Projections. As explained in Section 2, Project Description, the Project would result in a net increase of approximately 3,000 employees on the East Campus and an additional 2,800 employees on the West Campus, for a total net increase of approximately 5,800 employees in Menlo Park. The employment estimates used in the HNA are summarized below.

East Campus

As shown in Table 3.14-6, approximately half of the net new jobs would be added on the existing East Campus (approximately 3,000 net new jobs). A total of about 6,600 jobs are anticipated for the existing buildings on the East Campus. The Project Sponsor proposes to convert the existing permitted 3,600-employee cap into a vehicle trip cap that would allow for the increase in employees at the East Campus to approximately 6,600. As shown in Table 3.14-6, the majority of the new jobs would be associated with Facebook staff, with the remaining jobs associated with on-site food services, amenities, and building services (maintenance and janitorial).[15]

Table 3.14-6
East Campus Projected Employment Increase for the Project

		Employment		
	Building (Square Feet)	**Total**	**Existing Employee Cap**	**Net Increase**
Facebook Offices	919,000	6,210	3,353	2,857
Food Service	99,000	232	127	105
Amenities and Services	18,000	25	14	11
Building Services	N/A	133	106	27
Total	**1,036,000**	**6,600**	**3,600**	**3,000**

Source: KMA, 2011, Appendix 3.14, Table 6, p .9.

The net increase of approximately 3,000 employees would account for approximately 74 percent of the City's employment growth of 4,050 jobs between 2010 and 2025, as projected by ABAG and illustrated in Table 3.14-3.[16]

West Campus

As shown in Table 3.14-7, below, approximately half of the new jobs with implementation of the Project would be located on a new West Campus. The West Campus would ultimately accommodate approximately 2,800 employees.

The West Campus would generate a net increase of approximately 2,800 new jobs within the City. The net increase in employment at the site would account for approximately 69 percent of the City's employment growth of 4,050 jobs between 2010 and 2025, as projected by ABAG and illustrated in Table 3.14-3.[17]

[15] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011, p. 1.

[16] 74 percent of overall employment growth as projected by ABAG = (3,000 net new employees / 4,050 net new jobs between 2010 and 2025)*100.

[17] 69 percent of overall employment growth as projected by ABAG = (2,800 net new employees / 4,050 net new jobs between 2010 and 2025)*100.

Table 3.14-7
West Campus Projected Employment Increase for the Project

	Building (Square Feet)	Employment		
		Total	Existing Employee Cap	Net Increase
Facebook Offices	397,000	2,657	N/A	2,657
Food Service	33,000	70	N/A	70
Amenities and Services	30,000	16	N/A	16
Building Services	N/A	57	N/A	57
Total	**440,000**	**2,800**	N/A	**2,800**

Source: KMA, 2011, Appendix 3.14, Table 6, p .9.

Total Project

Implementation of the Project at both the East Campus and West Campus would result in a total employment number of approximately 9,400. The East Campus is currently permitted to accommodate a maximum 3,600 employees. The net increase in employment is, therefore, approximately 5,800, as shown in Table 3.14-8. The total net increase in employment would represent 143 percent of the total ABAG projected employment of 4,050 jobs.[18] While the total Project employment would exceed ABAG projections, it would not result in an increase in City population or a demand for housing that would exceed ABAG projections. Therefore, the exceedance of ABAG employment projections would not result in significant adverse environmental impacts, as the CEQA thresholds of significance with regard to population and housing are related to substantial increases in population and housing growth projections, not employment projections. As noted below, the increased employment would not result in housing demand or City population exceeding growth projections.

Table 3.14-8
East + West Campus Combined Projected Employment Increase for the Project

	Building (Square Feet)	Employment		
		Total	Existing Employee Cap	Net Increase
Facebook Offices	1,316,000	8,867	3,353	5,514
Food Service	132,000	302	127	175
Amenities and Services	28,000	41	14	27
Building Services	N/A	190	106	84
Total	**1,476,000**	**9,400**	**3,600**	**5,800**

Source: KMA, 2011, Appendix 3.14, Table 6, p .9.

Housing Demand. As mentioned above, the Project would result in a net increase of approximately 5,800 new jobs between the East Campus and the West Campus combined,

[18] 143 percent of overall employment growth as projected by ABAG = (5,800 net new employees / 4,050 net new jobs between 2010 and 2025)*100.

which could result in indirect population-related impacts. Specifically, the increase in employment at the Project site would result in an increased housing demand, and an influx of new residents within Menlo Park and other jurisdictions in the region. The HNA presents the associated housing demand based on the identified employment growth. As discussed in the HNA, and shown in Table 3.14-9, the Project would result in a total demand of approximately 3,257 housing units in the region to support the employment from the Project.

Table 3.14-9
Indirect Housing Demand Associated with the Project

	Net Added Employment	Net Added Employee Households[a]
East Campus	3,000	1,685
West Campus	2,800	1,572
Total	**5,800**	**3,257**

Source: KMA, 2011, Appendix 3.14.

Note:

a. The San Mateo County average of 1.78 workers per worker households is used in this analysis because new workers at both the East and West Campus would be more similar to the County as a whole than the smaller City of Menlo Park profile. Santa Clara County, where over half of Facebook employees currently reside, is similar to San Mateo County at 1.73 workers per worker household on average.

According to data referenced in the HNA, approximately 7.8 percent of those who work in Menlo Park also live in the City. The existing 7.8 percent of the City's workforce that are also residents is used to estimate the number of new workers who would seek and find housing in the City. As such, approximately 7.8 percent, or 254 units, of the housing demand generated by the Project (3,257) would be for housing within the City.[19] As shown in Table 3.14-5, above, ABAG projects that between 2010 and 2025, the number of households in the City will grow by approximately 1,630. The housing demand generated by the Project would be 254 households, approximately 15.6 percent of projected housing growth in the City from 2010 to 2025. The current vacancy rate in the City, according to the DOF, is 5.64 percent, as noted above. This represents a total of 738 vacant units. The 254 housing units that would be required to accommodate the estimated new households generated by the Project could be accommodated by the vacant units, and it is possible that no additional new housing would be required. Even if no vacant units were to become occupied by employees of the Project, which is highly unlikely, the 254 required units would represent only 15.6 percent of the projected housing growth, as noted. As such, the Project would not significantly impact the 2025 forecasted household growth within the City, and the demand for housing as a result of the Project would be ***less than significant***.

Using the City's current pph ratio of 2.62 and the projected housing demand of 254 units, the Project could result in an increase in population by 666 people.[20] The application of the City's

[19] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, November 2011, p. 21.

[20] 666 person population increase = 2.62 persons per household ratio * 254 units of housing demand resulting from the Project.

current pph ratio is considered conservative and may overestimate the population increase that could result from the Project. This is due to the fact that Facebook employees are typically younger and have smaller households than what is reflected in the City's pph ratio. Changes in population are not, in and of themselves, direct physical environmental effects. The increase in employment could result in secondary physical impacts related to air quality, noise, traffic generation, and an increase in demand on public services and those impacts are discussed throughout this Draft EIR.

Geographic Distribution of Housing Demand. As discussed above, 7.8 percent of the total housing demand would occur in the City. The remaining 3,003 units would be distributed throughout the region. Table 3.14-10 shows the distribution of Project housing demand based on the existing commute patterns for employees who work in the City. According to data in the HNA, approximately 95.3 percent of those who work in the City live within the Bay Area, while about 4.7 percent live outside of the region. Out of the employees who live in the Bay Area region, 42.5 percent live in San Mateo County, approximately 29.3 percent live in Santa Clara County, and as discussed above, 7.8 percent live within the City. This analysis assumes that the distribution of housing demand from the new Project employees would follow the existing distribution pattern. Based on this distribution, in total, the Project would generate demand for approximately 3,104 housing units throughout the Bay Area region and approximately 153 housing units outside of the Bay Area region. Within the Bay Area, the Project in 2025 would generate demand for approximately 1,384 units in all of San Mateo County, 954 units within all of Santa Clara County, and 254 units within Menlo Park.[21]

As shown in Table 3.14-10, Project-induced housing demand is compared against ABAG Projections 2009, which forecasts the housing that would be built within each community up to 2025. The forecasts consider foreseen policies and funding, as well as land availability, which would allow for the projected housing growth in various areas.[22] Therefore, the Projections are considered as the benchmark for the foreseeable housing growth (built housing) in each area.

As demonstrated in Table 3.14-10, the indirect housing demand from the Project would represent a small percentage of the ABAG projected housing growth for most jurisdictions in the Bay Area region. As shown in Table 3.14-2, above, ABAG projects that the number of households would grow from 2010 to 2025 by 13.9 percent in the Bay Area region, 13.2 percent in San Mateo County, and 11 percent in the City. The indirect housing demand generated by the Project would be 0.75 percent of the projected household growth in the Bay Area region, 3.4 percent of household growth in San Mateo County, and 15.6 percent of housing growth in the City, from 2005 to 2025. At most, the indirect housing demand from the Project would comprise 16.3 percent of projected growth in both Pacifica and Saratoga. Although these percentages are high for these smaller communities, the housing demand

[21] 3,257 net Project housing units (full buildout) x 7.8 percent = 254 Project housing units in Menlo Park.

[22] Association of Bay Area Governments, ABAG Projections 2009.

illustrated in Table 3.14-10 is dependent on many factors not accounted for in this model.[23] Thus, the share of new households for the smaller communities could be significantly different. Nonetheless, overall, on a regional basis, the Project's demand for housing is not a significant share of the total projected housing growth. Therefore, impacts are considered ***less than significant.***

Table 3.14-10
Project-Related 2025 Indirect Housing Demand

	Residential Location of People Who Work in Menlo Park[a]	2010 to 2025 Housing Growth per ABAG Projections and Priorities 2009[b]	Project Housing Demand in 2025[c,d]	Project Housing Demand as Percent of Household Growth 2010-2025[e]
San Mateo County				
Menlo Park	7.8%	1,630	254	15.6%
East Palo Alto	3.3%	1,520	107	7.1%
Redwood City	9.7%	5,090	316	6.2%
Belmont	1.5%	760	49	6.4%
Burlingame	1.0%	1,910	33	1.7%
Daly City	0.8%	5,390	26	0.5%
Foster City	0.9%	1,040	29	2.8%
Millbrae	0.3%	950	10	1.0%
San Carlos	1.8%	1,430	59	4.1%
San Mateo	5.2%	7,060	169	2.4%
South San Francisco	1.1%	3290	36	1.1%
Pacifica	0.8%	160	26	16.3%
San Bruno	0.8%	2540	26	1.0%
Balance of County[f]	7.5%	8,040	244	4.5%
Subtotal	*42.5%*	*40,810*	*1,384*	*3.4%*
Santa Clara County				
Palo Alto	4.4%	5,290	143	2.5%
Mountain View	3.5%	6,040	114	1.9%
San Jose	8.1%	80,440	263	0.3%
Milpitas	0.7%	6,530	23	0.4%
Campbell	0.7%	1,940	23	1.2%
Cupertino	0.7%	920	23	2.5%
Los Altos	1.1%	560	36	6.4%
Santa Clara	1.8%	9,370	59	0.6%
Saratoga	0.4%	80	13	16.3%

[23] The distribution assumes existing commute patterns; however, small or built-out communities with limited housing capacity may receive a lower share of housing while communities with capacity may receive a higher share.

Table 3.14-10
Project-Related 2025 Indirect Housing Demand

	Residential Location of People Who Work in Menlo Park[a]	2010 to 2025 Housing Growth per ABAG Projections and Priorities 2009[b]	Project Housing Demand in 2025[c,d]	Project Housing Demand as Percent of Household Growth 2010-2025[e]
Sunnyvale	5.7%	7,970	186	2.3%
Balance of County[f]	2.2%	6,680	72	1.1%
Subtotal	*29.3%*	*125,820*	*954*	*0.8%*
Alameda County				
Fremont	4.9%	8,610	160	1.9%
Union City	1.5%	4,570	49	1.1%
Berkeley	0.1%	3,540	3	0.1%
Castro Valley	0.2%	3,840	7	0.2%
Hayward	1.2%	6,330	39	0.6%
Livermore	0.1%	6,790	3	0.1%
Newark	1.3%	1,790	42	2.4%
Oakland	0.6%	31,790	20	0.1%
San Leandro	0.3%	2,720	8	0.4%
San Lorenzo	0.1%	90	3	3.6%
Alameda	0.2%	2,310	7	0.3%
Dublin	0.1%	7,080	3	0.01%
Balance of County[f]	1.6%	55,750	52	0.1%
Subtotal	*12.2%*	*135,210*	*397*	*0.3%*
San Francisco County	*8.8%*	*40,120*	*287*	*0.7%*
Contra Costa County	*1.9%*	*49,650*	*62*	*0.1%*
Marin, Napa, and Sonoma Counties	*0.6%*	*19,970*	*20*	*0.1%*
TOTAL IN BAY AREA REGION	**95.3%[g]**	**411,580**	**3,104**	**0.75%**
Outside the Bay Area Region	4.7%	-	153	-
TOTAL	**100%[g]**		**3,257[d]**	

Sources:

a. United States Census, ACS 2006-2008.

b. Association of Bay Area Governments, Projections and Priorities 2009.

c. KMA, 2011.

Notes:

d. Project-Related Housing Demand = Total number of households with implementation of the Project (3,257) x the percentage of Menlo Park workers who live elsewhere. For example, Menlo Park = 3,257 x 7.8% = 254 households.

e. Project-Related Housing Demand as Percent of Household Growth = Project-Related Housing Demand 2025/ABAG Projections for housing growth from 2010-2025. For example, Menlo Park = 254 households/1,630 households = 15.6%.

f. Balance of County includes workers residing in jurisdictions for which the relevant commute data has been suppressed by the U.S. Census.

g. Individual percentages and numbers of units may not sum to the totals due to rounding.

Income Distribution of Housing Demand. Housing affordability is an important consideration for the City's planning purposes, but it is considered to be a socioeconomic issue that need not be evaluated under CEQA. A shortfall of affordable units within the City is not considered a physical environmental impact. However, for informational purposes only, this subsection provides the distribution of the indirect housing demand according to affordability levels. This discussion is based on information from the HNA and RHNA.

Housing affordability is determined relative to the Area Median Income (AMI) for a locality, which is defined by the U.S. Department of Housing and Urban Development. Very low income housing must be affordable to households with incomes under 50 percent of the AMI; low-income housing is affordable to households with incomes between 51 and 80 percent of the AMI; moderate-income housing is affordable to households with incomes between 81 and 120 percent of the AMI; and above moderate-income housing is affordable to households with incomes over 120 percent of the AMI.

Table 3.14-11 shows a breakdown of the Project's indirect housing demand according to projected household incomes. As shown in the table, the Project would indirectly result in demand for 29 housing units with incomes under 50 percent of the AMI (very low income), 44 units with incomes between 51 and 80 percent of the AMI (low income), 46 units with incomes between 81 and 120 percent of the AMI (moderate income), and 32 units with incomes above 120 percent of the AMI.

Table 3.14-11
City's Share (7.8%) of Total Housing Need

Income Category	Income Definition	East Campus	West Campus	Total	% of Total
Very Low Income	0% - 50% AMI	15	14	29	11%
Low Income	50% - 80% AMI	23	21	44	17%
Moderate Income	80% - 120% AMI	24	22	46	18%
Above Moderate Income	120% -150% AMI	16	16	32	13%
Upper Income	Over 150% AMI	53	50	103	41%
Total		**131**	**123**	**254**	**100%**

Source: KMA, 2011, Appendix 3.14, Table 15, p. 22.

Employment growth generated by the Project would contribute to housing demand at various income levels. The 254 total housing units generated by the Project would contribute to satisfying the City's RHNA of 993 total units, as shown in Table 3.14-1. As stated above, this is a socioeconomic issue and no environmental impacts are associated with the RHNA.

Cumulative Impacts

The geographic context for the cumulative population and housing analysis of the Project combined with the Tier 1 projects is the City. For the cumulative population and housing analysis of the Tier 2 projects, combined with the effects of the Project, the context is a broader geographic region and would be the County of San Mateo. This cumulative analysis examines the effects of the proposed

development in the Project area, in combination with other current projects, probable future projects, and projected future growth within the applicable geographic context in the next 20 years.

C-PH-1 ***Cumulative Population Impact.*** *Cumulative development in the City and County would increase the resident population, but would not exceed growth projections. The cumulative impact would be less-than-significant. (LTS)*

Tier 1

The Project, in combination with other projected growth in the City, would increase population, employment, and housing in the City. The cumulative development projects within the City would include commercial, industrial, office, mixed-use, hotel, and residential developments. If cumulative projects were to induce substantial population growth in the City that would exceed ABAG projections, the impact would be significant. The Tier 1 projects would develop 200 dwelling units, which, when taken together with the Project's 666 new residents, would result in an increase in resident population of 1,190 (based on the current City pph ratio of 2.62).[24] ABAG projects that the City's population will be approximately 37,900 in 2015 (the closest projection year to Project completion) and 40,600 in 2025. If the Tier 1 projects are completed concurrently with the Project, an increase of 1,190 total residents would result from cumulative development. Added to the current population of 32,319, this would result in a total City population of 33,509 persons in 2015, which is below ABAG projections. However, it is important to note that this is a conservative scenario since the new Facebook employees could potentially occupy some of the dwelling units proposed in the Tier 1 projects.

The City currently has 30,321 jobs and ABAG projects that employment in the City will grow by 13.78 percent between 2010 and 2025. The Tier 1 projects would develop 969,492 sf of office/retail/commercial uses, which would generate approximately 3,393 jobs (based on an average of 3.5 employees per 1,000 sf). Using the same assumptions applied to the Project, this would result in an indirect population growth of an additional 390 persons.[25] Added to the 666 residents expected from the Project, this would result in a cumulative indirect growth of 1,056 residents by 2015. Adding this indirect growth of 1,056 residents to the direct population growth of 1,190 residents due to cumulative development, City population would be expected to total approximately 34,565 new residents, which is also below ABAG projections of 37,900 by 2015. Thus, the Project's indirect contribution of 666 residents to the total cumulative population growth within the City would result in a ***less-than-significant*** cumulative impact.

Tier 2

The Tier 2 projects encompass a larger geographic area and consist of projects that are in the early stages of planning/programming or whose development could be considered

[24] 1,190 new residents = 666 residents resulting from the Project + (200 dwelling units * 2.62 pph)

[25] 390 new residents = 3,393 new jobs / 1.78 workers per household * 7.8 percent City share * 2.62 pph

somewhat speculative. The geographic context for the Tier 2 analysis would be the County of San Mateo, within which the Tier 2 projects are located. The Tier 2 projects, if completely realized, could result in development of 16,539 dwelling units, 2,781,340 sf of non-residential uses, and 380 hotel rooms. This could result in a direct population increase of 43,332 residents[26] and, using the same assumptions applied to the Project, an indirect population increase through creation of approximately 9,830 jobs (based on an average of 3.5 employees per 1,000 sf and one employee per four hotel rooms) that would generate 1,129 new residents.[27] The direct and indirect growth of (43,332 direct and 1,129 indirect) Tier 2 projects would total approximately 45 percent of the population growth forecasted for San Mateo County by ABAG between 2010 and 2025. On a cumulative basis, this is considered significant. The Project would add approximately 1,384 new residents to San Mateo County (Table 3.14-10), which represents approximately three percent of the population growth in that could result from Tier 2 projects. As such, the Project's contribution to this potential cumulative impact is not considerable. Therefore, the Project's cumulative impact would be ***less than significant.***

C-PH-2 ***Cumulative Housing Impacts.*** *Cumulative development in the City would increase the demand for housing in the City, but would not exceed growth projections. The cumulative impact would be less than significant. (LTS)*

Tier 1

The Tier 1 projects would result in 200 additional dwelling units. The Tier 1 projects would develop 969,492 sf of office/retail/commercial uses, which would generate an indirect housing demand of approximately 148 units.[28] The City's existing housing supply consists of 14,630 housing units with a vacancy rate of 5.64 percent. With this vacancy rate, approximately 825 dwelling units are available to house additional residents. The Project's 666 new residents would require approximately 254 housing units as discussed above under Impact PH-1. Cumulatively, the demand of 454 additional dwelling units (254 from the Project and 200 from Tier 1) could be accommodated by the existing vacant housing in the City. Even without the availability of vacant housing units, as identified in Table 3.14-5, the City's housing stock is expected to grow by approximately 1,630 units between 2010 and 2025. The demand generated by the Project and Tier 1 projects would be within these growth projections.

In addition, the Project and Tier 1 cumulative housing demand is within the RHNA allocation as illustrated in Table 3.14-1. As shown in Table 3.14-1, the City's 2007 – 2014 housing need totals 993 units. The Project and Tier 1 projects together represent approximately 45 percent of the identified RHNA. Depending on the allocation of units among income tiers for cumulative projects, this could significantly affect the availability of affordable housing. Housing affordability is an important consideration for the City's

[26] 43,332 residents = 16,539 dwelling units * 2.62 pph

[27] 1,129 new residents = 9,830 new jobs / 1.78 workers per household * 7.8 percent City share * 2.62 pph

[28] 148 new units demanded = 3,393 new jobs / 1.78 workers per household * 7.8 percent City share

planning purposes, but it is considered to be a socioeconomic issue that need not be evaluated under CEQA. A shortfall of affordable units within the City is not considered a physical environmental impact. Nevertheless, the Project's contribution to this impact (26 percent of total 2007 – 2014 housing demand) is not considerable. Therefore, the Project's cumulative impact would be ***less than significant.***

Tier 2

The Tier 2 projects could result in 16,539 dwelling units. Using the same assumptions applied to the Project, the indirect housing demand that could result from the creation of approximately 9,830 jobs is 430 dwelling units.[29] Cumulatively, with the Project, indirect and direct housing demand associated with Tier 2 projects totals 17,635 dwelling units. As identified in Table 3.14-5, the County's housing stock is expected to grow by 34,820 between 2010 and 2025. The demand generated by the Project and Tier 2 would be within these growth projections.

The Project and Tier 2 cumulative housing demand would exceed the County's RHNA allocation as illustrated in Table 3.14-1. As shown in Table 3.14-1, the County's 2007-2014 housing need totals 15,738 units. Thus, the demand generated by the Project and Tier 2 would exceed the County's RHNA by 1,897 units. This could result in a significant impact. Nevertheless, the Project's contribution to this impact (1.6 percent of total 2007-2014 County housing demand) is not considerable. The Project's cumulative impact would be ***less than significant.***

[29] 430 new units demanded = 9,830 new jobs / 1.78 workers per household * 7.8 percent City share

3.15 PUBLIC SERVICES

Introduction

This section addresses potential impacts of the Project on public service providers, including police, fire and emergency services, recreation, libraries, and schools. Public service impacts are assessed in CEQA documents in the context of the 1995 appellate court decision *Goleta Union School District v. The Regents of the University of California.* This decision holds that an increase in demand for public services, such as additional staff or lengthier response times, could lead to potentially significant environmental impacts only if constructing or expanding a new facility would be required and the construction or operation of that facility might adversely affect aspects of the physical environment. As a result, increases in public service demand alone do not constitute a significant environmental effect, but if it is determined that new facilities would need to be constructed, the City must identify appropriate mitigation measures.

This section describes the existing environmental setting within the City and analyzes the effect of the Project on the ability of the service providers to deliver required services. Data were collected through interviews with staff from the respective public service agencies, e-mail correspondence, and published reports and documents.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Five comments pertaining to impacts to schools and recreation were received. Commentors raised the following issues: the Bay Trail, effects on wildlife at nearby recreational facilities, shoreline access and improvements, and impacts to schools.

Applicable Plans and Regulations

State

California Senate Bill 50 (SB 50). Under the provisions of SB 50, school districts may collect Level Two and Level Three fees to offset the costs associated with increasing school capacity in response to student enrollment increases associated with development. Level Two fees require the developer to provide one-half the costs of accommodating students in new schools, while the State would provide the other half. Level Three fees require the developer to pay the full cost of accommodating the students in new schools and would be implemented at the time the funds available from Proposition 1A (approved by the voters in 1998) are expended. School districts must demonstrate to the State their long-term facilities needs and costs based on long-term population growth in order to qualify for this source of funding.

Local

City of Menlo Park General Plan. The following goals and policy within the Land Use Element of the General Plan are relevant to the Project.

Policy I-G-7: Public access to the Bay for the scenic enjoyment of the open water, sloughs, and marshes shall be protected.

Goal I-H: To promote the development and maintenance of adequate public and quasi-public facilities and services to meet the needs to Menlo Park's residents, businesses, workers, and visitors.

The following goal of the Open Space and Conservation Element of the City's General Plan is relevant to the Project.

Goal 2: To encourage the enhancement of boulevards, plazas, and other urban open spaces in residential, commercial, and industrial neighborhoods.

The following policy of the Seismic Safety and Safety Element of the City's General Plan is relevant to the Project.

Policy 57: Encourage City-Fire District coordination in the planning process.

Menlo Park Fire Protection District Fire Prevention Code

Ordinance 30. The District Fire Prevention Code is adopted pursuant to the Fire Protection District Act of 1987 (California Health and Safety Code Sections 13800 et seq.). This Code, which was adopted by the Menlo Park Fire Protection District (MPFD) in September 2007, adopts by reference the 2006 edition of the International Fire Code (IFC) with necessary State amendments. Under Ordinance 30 of the Fire Prevention Code, fire protection systems are required and shall apply to the design, installation, inspection, operation, testing, and maintenance of all fire protection systems. Automatic fire sprinkler systems shall be required in new buildings if the new structure has a total floor area of 5,000 square feet or more, if the building is four or more stories in height, or if the building has a height of 40 feet or more. The sprinkler systems are also required in existing buildings where the cost of the improvements made to the building exceeds 50 percent of the assessed valuation of the structure. Fire extinguishers and fire alarms would also be required.[1] The Project would be required to incorporate codified design features into its design.

Ordinance 32. Pursuant to Title 24 of the California Code of Regulations (also known as the California Building Standards Code [CBSC]) and the California Health and Safety Code Section 13869 et seq., a fire protection district may adopt a fire prevention code by reference. As such, the MPFD adopted a new amended and restated District Fire Prevention Code in November 2010 that makes local amendments to the 2010 California Fire Code. Ordinance 32 of the Fire Prevention Code outlines requirements for, but not limited to: burning, fire apparatus access roads, traffic calming devices, photovoltaic system installation, automatic fire sprinkler systems, fire alarm systems and components,

[1] City of Menlo Park Fire Prevention District, *Ordinance #30 & District Standards*, Version Adopted, Amended and Restated on September, 5 2007, website, http://www.menlofire.org/fireprevention/forms/Ordinance%2030.pdf, accessed July 8, 2011.

and building access in the event of an emergency.[2] The Project would be required to incorporate codified design features into its design.

Existing Conditions

Police

Police services in the vicinity of the Project site (the East Campus and West Campus) are provided by the Menlo Park Police Department (MPPD), with mutual aid provided on an as-needed basis from neighboring law enforcement agencies. The Project area is located within MPPD's Beat 3. The MPPD is headquartered at the Menlo Park Civic Center at 701 Laurel Street, approximately 2.3 miles southwest of the Project area. The Belle Haven Community Police Station is approximately 0.6 miles south of the West Campus at 1197 Willow Road. The City has been working to complete construction of a police substation that, when completed, will be located on Willow Road and Ivy Drive,[3] approximately 0.35 miles from the West Campus. This new facility will eventually replace the existing Belle Haven substation. At this time, it is unknown when the new facility will open; however, it is anticipated to open by late 2012 and will house administrative staff.[4]

The MPPD is headed by the Chief of Police and consists of two divisions: Patrol Operations Division and Special Operations Division. The MPPD has a total of 47 sworn officers covering three beats, five community service officers (non-sworn), and 22 professional staff. Beat 3, which serves the Project area, is staffed with two sworn officers per 12 hour shift with two shifts for each 24-hour period, seven days per week. The current policing programs employed in the vicinity of the Project site include general MPPD crime strategies.[5]

The City's population was estimated to be 32,319 as of January 1, 2011;[6] thus, the 2011 service ratio is calculated at 1.45 officers per 1,000 residents.[7] However, the daytime population increases when non-resident workers come to the City. According to the U.S. Census Bureau, there were approximately 30,321 jobs in the City in 2010.[8] The MPPD considers each worker within the City as half of a resident.[9]

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2 City of Menlo Park Fire Prevention District, *Ordinance no. 32-2010,* Version Adopted, Amended and Restated on November 16, 2010, website, http://www.menlofire.org/fireprevention/forms/2010%20 Ordinance%2032.pdf, accessed July 8, 2011.

3 Menlo Park Police Department, Memo to Megan Fisher, City of Menlo Park, May 13, 2011.

4 Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

5 Menlo Park Police Department, Memo to Megan Fisher, City of Menlo Park, May 13, 2011.

6 State of California, Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2010-2011, with 2010 Benchmark. Sacramento, CA, May 2011," website: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, accessed August 10, 2011.

7 (47 sworn officers/32,319 residents) x 1,000 = 1.45 officers per 1,000 residents.

8 U.S. Census Bureau, American Fact Finder, American Community Survey (ACS) 2008-2010, ID B08406, website: http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t, accessed November 9, 2011.

9 Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

The total population served by the MPPD is approximately 47,480.[10] As such, if all residents and workers are within the City at the same time, which is a conservative scenario, the MPPD's daytime service ratio would be approximately 0.99 sworn officers per 1,000 residents.[11]

In 2010, the MPPD received a total of 15,263 emergency calls, 19,859 calls for services, and 21,428 officer-initiated contacts, for a total of 56,550 calls.[12] The MPPD is committed to maintaining response times that are consistent with industry standards. The current response times are as follows:

- Priority 1: Immediate threat of danger to person or a large amount of property and the crime is in progress and/or there is a chance of immediate apprehension of the suspect. The response time for Priority 1 calls for the MPPD is one to four minutes.
- Priority 2: Emergency is in progress, but it is not life threatening or does not immediately threaten a large amount of property. Alternative, the situation could be life-threatening, but the threat has passed and the suspect is in custody. The response time for Priority 2 calls for the MPPD is two to seven minutes.
- Priority 3: The situation is not life threatening and time is not significant. The response time for Priority 3 calls for the MPPD is nine minutes.

Currently, Facebook employs its own security program in order to protect its employees and reduce calls for service to the Palo Alto Police Department (PAPD). Five security control officers are on duty between 6:00 a.m. and 10:00 p.m. and four officers are on duty between 10:00 p.m. to 6:00 a.m. During a typical shift, two officers are located at the reception desk, monitoring door activity, alarms, and Closed Circuit TV (CCTV). In addition, Facebook currently has one patrol vehicle, one foot patrol security officer, and one static exterior post that focus on surveillance and responding to alarms.[13]

Fire and Emergency Services

Fire protection services in the Project area are provided by the MPFD. The MPFD serves Menlo Park, Atherton, and East Palo Alto, plus parts of unincorporated San Mateo County. As of 2010, the MPFD's seven fire stations, one administrative building, and one rescue warehouse serve a resident population of over 93,000 and cover 30 square miles. In addition, the MPFD is part of the greater San Mateo County boundary-drop plan whereby the closest apparatus responds to each call.[14] The MPFD has working agreements with the neighboring fire departments in Palo Alto, Redwood City, and Woodside Fire District to provide automatic aid.

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[10] 47,480 total population = 32,319 resident population + (30,321 employees / 2)

[11] (47 sworn officers/47,480 daytime population) x 1,000 = 0.99 officers per 1,000 residents.

[12] Menlo Park Police Department, Memo to Megan Fisher, City of Menlo Park, May 13, 2011.

[13] James Bakken, Physical Security Manager, Facebook, Inc., email correspondence with Jennifer Renk, Partner, Luce, Forward, Hamilton & Scripps, August 15, 2011.

[14] Menlo Park Fire Protection District, "Menlo Park Fire Protection District Information," website: http://www.menlofire.org/districtinfo.html, accessed July 5, 2011.

Headed by the Chief, the MPFD is organized into the Administrative Services Division, the Fire Prevention Division, Operations and Suppression Division, and the training division.[15] The current equipment profile for the MPFD is seven Type 1 fire engines, one 100-foot aerial ladder truck, one battalion command vehicle, and one cross-staffed unit.[16]

The MPFD is staffed with 96 full-time employees: three Battalion Chiefs and 93 firefighters/engineers.[17] Based on the MPFD's resident population of 93,000 residents, the firefighter-to-resident ratio of the MPFD is 1.03 firefighters per 1,000 residents.[18] Based on a service population of approximately 115,662 people,[19] which includes employees within its jurisdiction, the MPFD provides 0.83 positions per 1,000 service population.[20]

The MPFD has indicated that it evaluates the impacts on fire services from development projects based on whether a project would create the need for additional fire safety personnel to maintain current staffing levels.[21] Although the MPFD has indicated that it is currently staffed at minimum levels needed to provide adequate fire services, [22] neither the MPFD nor the City has adopted a minimum required ratio of firefighters or fire safety personnel per resident population or service population. Furthermore, the MPFD has not indicated that such industry standards exist nor has it provided data showing that the current ratio the MPFD desires to maintain is the minimum required.

Fire Station 77 in Menlo Park and Fire Station 2 in East Palo Alto are the only two stations located north of US 101. However, Station 2 (approximately one mile southeast from the Project site) would generally not serve the Project site due to distance and the fact that Station 77 is significantly closer. Station 77, at 1467 Chilco Avenue, is expected to serve the Project and is approximately 0.5 miles southwest of the West Campus. Per shift, Station 77 is manned by three firefighting personnel (one Captain and two firefighters), one fleet manager, and one mechanic. The station operates Engine 77 (Type 1 Fire Engine), an air boat, urban search and rescue (USAR) vehicles, and other various utility vehicles owned by the MPFD.[23] In addition to providing fire protection within the district, Station 77 provides automatic aid to Redwood City and mutual aid to Fremont. In 2010, 688 total runs were made from Station 77.[24] Station 1 at 300 Middlefield Road (approximately 1.8 miles south of the

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15 Menlo Park Fire Protection District, "Divisions," website: http://www.menlofire.org/departments.html, accessed July 5, 2011.

16 Menlo Park Fire Protection District, 2010 Annual Report.

17 Menlo Park Fire Protection District, 2010 Annual Report.

18 (96 full-time fire fighters/93,000 residents) x 1,000 = 1.03

19 Although the MPFD did not provide a service population number that included residents and employees, based on the ratio provided, the MPFD has a service population of approximately 115,662 people. (96 fire fighters x 1,000 residents)/0.83 ratio = approximately 115,662 service population.

20 Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

21 Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

22 Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

23 Menlo Park Fire Protection District, "Station 77," website: http://www.menlofire.org/station7.html, accessed July 5, 2011.

24 Menlo Park Fire Protection District, 2010 Annual Report.

Project site) could serve the Project if a 100-foot aerial ladder truck were needed to reach taller buildings.[25]

The MPFD responded to approximately 7,247 incident calls with 70 percent of the calls responded to in less than five minutes.[26] The standard emergency response time is less than 6.59 minutes for Emergency Medical Incidents (single unit) and less than eight minutes for Fire Response, Hazardous Materials incidents, and other emergencies (multiple units). Non-emergency response times are not calculated, but would be longer.[27]

Schools

Four elementary/middle school districts and one high school district are within the boundaries of the City: the Menlo Park City School District, the Ravenswood School District, Redwood City School District, Las Lomitas School District, and the Sequoia Union High School District. However, this analysis does not consider the Redwood City or Las Lomitas School Districts. The small portion of the Redwood City School District that extends into the City is just south of Marsh Road and north of the Dumbarton Rail Corridor. According to the City's zoning map, this area is zoned as General Industrial (M-2), Commercial Business Park (M-3), and General Commercial (C-4). Due to these zoning designations, there is no potential for future housing in that area. In addition, the portion of the City that includes the Las Lomitas Elementary School District, which is generally bound by Alameda de las Pulgas to the north and I-280 to the south, is built-out with no potential for future housing. Thus, these two school districts are not further analyzed in this section since the Project would not indirectly induce the construction of new housing in these areas, which would result in the generation of new students.

Menlo Park City School District. The Menlo Park City School District (MPCSD) serves parts of Menlo Park, Atherton, and unincorporated San Mateo County.[28] There are approximately 2,626 students, kindergarten through eighth grade, enrolled in the four schools of the District.[29] Oak Knoll Elementary School and Hillview Middle School are located in the City, while Laurel Elementary School and Encinal Elementary School are located in the Town of Atherton.[30]

The MPCSD employed 265 full-time equivalent employees during the 2010-2011 school year with an average student-to-teacher ratio of 20.8:1 for grades kindergarten through third and 21:1 for grades fourth through eighth.[31] Pursuant to Education Code Section 52121-52128, the MPCSD strives to

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[25] Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

[26] Menlo Park Fire Protection District, 2010 Annual Report.

[27] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, Memo to Atkins, June 23, 2011.

[28] Menlo Park City School District, "About Us," website: http://district.mpcsd.org/modules/cms/pages.phtml?pageid=169038&sessionid=69d7bf3a3142231aa2155898b6f502d9, accessed July 7, 2011.

[29] CA Department of Education, "Enrollment by Grade for 2010-2011," 4168965 – Menlo Park Elementary, website: http://dq.cde.ca.gov/dataquest/, accessed July 22, 2011.

[30] Menlo Park City School District, "District Boundaries," website: http://district.mpcsd.org/modules/cms/pages.phtml?pageid=171241&sessionid=ace8f1cbb3bf78dafce27dbfc3ecf22b&sessionid=ace8f1cbb3bf78dafce27dbfc3ecf22b, accessed September 28, 2011.

[31] Menlo Park City School District, Ahmad Sheikholeslami, Director of Facility Planning and Construction, e-mail communication with Atkins, August 31, 2011.

provide class sizes of 20 students for grades kindergarten through third and 24 students for grades fourth through eighth.[32] As such, the MPCSD is close to its goal for grades kindergarten through third and exceeds its goal for grades fourth through eighth.

The MPSCD's schools and associated capacity is listed in Table 3.15-1 below. As shown, Laurel School and Hillview Middle School have additional capacity available for new students. However, Encinal School and Oak Knoll School are over capacity. Nonetheless, if a school is at capacity, students have the potential to attend another elementary school in the district. The MPSCD is required to accommodate the students within its boundary. If all classes are at capacity, then the MPSCD may accommodate additional students by either increasing the class size or opening new classrooms.[33]

Table 3.15-1
MPSCD Capacity and Enrollment

School	Grades	Total Capacity[a]	Current Enrollment (2010-2011)[b]	Additional Capacity
Laurel School	K-3	460	444	16
Encinal School	K-5	744	746	-2
Oak Knoll School	K-5	728	739	-11
Hillview Middle School	6-8	771/1,028[c]	697	74/331[c]
Total		*2,703/2,960*[c]	*2,626*	*77/334*[c]

Sources:

a. Ahmad Sheikholeslami, MPCSD, personal communication, August 31, 2011.

b. Department of Education, 2011.

Note:

c. Hillview Middle School is currently under construction and the new school will open September 2012. As such, the two numbers represent the existing capacity/future capacity.

Ravenswood City School District. The Ravenswood City School District (RCSD) primarily serves the communities of East Palo Alto and the Belle Haven neighborhood in the City. RCSD serves approximately 4,287 students kindergarten through eighth grade in seven elementary schools. RCSD also includes Ravenswood Child Development Center (pre-kindergarten, three through five years of age) and San Francisco 49er's Academy (sixth through eighth grades, located at Costaño Elementary School). In addition, RCSD holds charters for five charter schools, including one high school.[34,35]

[32] Menlo Park City School District, Menlo Park Board Policies, Board Policy 5116.2, "Class Size and School Assignments," website: http://district.mpcsd.org/modules/cms/pages.phtml?pageid=171089#Philosophy, accessed September 28, 2011.

[33] Menlo Park City School District, Ahmad Sheikholeslami, Director of Facility Planning and Construction, e-mail communication with Atkins, August 31, 2011.

[34] Ravenswood City School District, "Homepage," website: http://www.ravenswood.k12.ca.us/, accessed July 15, 2011.

[35] CA Department of Education, "Enrollment by Grade for 2010-2011," 4168999 – Ravenswood City Elementary, website: http://dq.cde.ca.gov/dataquest/, accessed July 22, 2011.

RCSD employs 431 staff members, 185 of which are teachers. Classroom sizes established within the RCSD follow the guidelines established for the current year. Class sizes for grades kindergarten through third are 25 students per classroom, and grades fourth through eighth are 31 students per classroom. If a school reaches capacity, a newly enrolling student could attend another school in the RCSD. If the district were approaching capacity, they would work to increase capacity to accommodate increasing enrollment. Because almost all schools within the RCSD have remaining capacity, the RCSD does not have current plans to expand or renovate school facilities in the near future. As the economy recovers, the RCSD may begin modernization projects. The Ravenswood Education Foundation, and other corporate and local donors, participate regularly in small campus projects that refresh the facilities inside and out depending on what is needed at that time.[36]

The RCSD's schools and associated capacity is listed in Table 3.15-2 below. As shown, the only two schools within the District that do not have additional available capacity are James Flood Elementary School, since it will be merged with Brentwood Academy in the 2011/2012 school year, and East Palo Alto Stanford High School Charter School, since it will be closed on June 30, 2012.[37]

Sequoia Union High School District. Sequoia Union High School District (SUHSD) is the only high school district within the City. The SUHSD serves approximately 8,757 students from ninth grade to twelfth grade in the communities of Atherton, Belmont, East Palo Alto, Menlo Park, Portola Valley, Redwood City, Redwood Shores, San Carlos, and Woodside. In addition, Middle College (a nontraditional high school collaboration between the Sequoia district and Cañada College grades ninth to twelfth), and Sequoia District Adult School (lifelong learning) are within the boundaries of the SUHSD.[38,39]

SUHSD currently employs 425 teachers with an average student-to-teacher ratio of 27.5:1. This is considered adequate as it is the ratio the district strives to maintain. The SUHSD's schools and associated capacity is listed in Table 3.15-3 below. As shown, Carlmont High School, Menlo-Atherton High School, Woodside High School, Redwood High School, and Sequoia High School have additional capacity available for new students. However, Aspire East Palo Alto Phoenix Academy and Summit Preparatory High School have an unknown capacity. Nonetheless, if a school is at capacity, students can attend another high school in the district. Future growth is anticipated based on elementary school projected enrollments, which feed into the SUHSD.[40]

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36 Megan Curtis, Ravenswood City School District, Chief Business Official, e-mail communication with Rachel Grossman, City of Menlo Park, November 4, 2011.

37 Megan Curtis, Ravenswood City School District, Chief Business Official, e-mail communication with Rachel Grossman, City of Menlo Park, November 4, 2011.

38 Sequoia Union High School District, Schools, Overview, "District Schools," website: http://www.sequoiadistrict.org/20441082519242520/site/default.asp, accessed July 18, 2011.

39 CA Department of Education, "Enrollment by Grade for 2010-2011," 4169062 – Sequoia Union High School, website: http://dq.cde.ca.gov/dataquest/, accessed: July 22, 2011.

40 Sequoia Union High School District, Susan Berghouse, Director, e-mail communication with Atkins, October 14, 2011.

Table 3.15-2
RCSD Capacity and Enrollment

School	Grades	Total Capacity[a]	Current Enrollment (2010-2011)[b]	Additional Capacity
Belle Haven Elementary School	K-8	1,075	542	533
Brentwood Academy	K-5	643	487	156
Cesar Chávez Academy	6-8	776	265	511
Costaño Elementary School	K-5	945	504	441
Green Oaks Academy	K-5	641	544	97
James Flood Elementary School	K-5	405	275	-275[c]
Ronald McNair Academy	6-8	589	316	273
Willow Oaks Elementary School	K-8	816	613	203
East Palo Alto Charter School	K-12	500	458	42
East Palo Alto Stanford High School Charter School	9-12	465	283	-283[d]
Total			*4,287*	*1,698*

Sources:

a. Megan Curtis, RCSD, personal communication, October 28, 2011.

b. Department of Education, 2011.

Notes:

c. Merged James Flood with Brentwood Academy July 1, 2011, Campus will be a part of Brentwood Academy in 2011/2012 school year.

d. Stanford High School Charter School will be closed on June 30, 2012.

Table 3.15-3
Sequoia Union High School District Capacity and Enrollment

School	Grades	Total Capacity[a]	Current Enrollment (2010-2011)[b]	Additional Capacity
Carlmont High School	9-12	2,210	2,144	66
Menlo-Atherton High School	9-12	2,122	2,049	73
Woodside High School	9-12	2,128	1,776	352
Redwood High School	Continuation school 9-12	507	362	145
Aspire East Palo Alto Phoenix Academy	9-12	Unknown	82	Unknown
Sequoia High School	9-12	1,963	1,922	41
Summit Preparatory High School	9-12	Unknown	422	Unknown
Total		*8,930*	*8,757*	*173*

Sources:

a. Susan Berghouse, SUHSD, personal communication, October 14, 2011.

b. Department of Education, 2011.

Parks and Recreation

The Menlo Park Community Services Department (Department) is responsible for providing recreational and cultural programs for the residents of the City. The Department's facilities include 221 acres of parkland distributed among 14 parks, two community centers, two public pools, two child care centers, and two gymnasiums. Included in the parks and recreational areas are tennis courts, softball diamonds, picnic areas, playgrounds, swimming pools, gymnastics centers, soccer fields, and open space.[41] The parks and facilities administered by the Department that are located on the north side US 101, in the vicinity of the Project site, are identified in Table 3.15-4.

Table 3.15-4
Parks and Community Facilities Located Within the Vicinity of the Project Site

Park Name	Location	Size	Distance from Site (miles)[a]	Description
Bedwell-Bayfront Park	Bayfront Expressway & Marsh Road	155 acres	1.15	Bedwell Bayfront Park is located at the east end of Menlo Park, along the Bay at US 101 and Marsh Road. Parking is available along the entrance road and in two paved lots near the back of the park. The park's 155 acres are surrounded on three sides by the Don Edwards San Francisco Bay National Wildlife Refuge. Recreational activities include hiking, running, bicycling, dog walking, bird watching, kite flying, and photography. The park has an extensive trail system, most of which is unpaved. The relatively flat 2.3-mile trail around the perimeter of Bedwell Bayfront Park is part of the San Francisco Bay Trail.
Kelly Park	100 Terminal Avenue	8.3 acres	1.0	Kelly Park was remodeled in 2011 and includes a synthetic turf soccer field with lights, full size track with four different exercise apparatuses, lighted tennis courts, lighted basketball court, benches, bleachers, and a full bathroom facility.
Market-place Park	Ivy Drive & Market Street	1 acre	0.75	This park is located across from the Boys and Girls Club and includes playground, open grass areas, and walkways. The park was recently renovated as part of the Belle Haven neighborhood improvement program. The project included new tube steel fencing for the tot-lot, new concrete walks, new site furnishings, irrigation modifications, planting and park lighting.
Hamilton Park	Hamilton Avenue (Sage Street and Hazel Street)	1.2 acres	0.55	The park includes a play structure, picnic tables, and open grass area.

[41] City of Menlo Park Community Services Department, "Community Services Department," website: http://www.menlopark.org/departments/dep_comservices.html, accessed July 12, 2011.

Table 3.15-4
Parks and Community Facilities Located Within the Vicinity of the Project Site

Park Name	Location	Size	Distance from Site (miles)[a]	Description
Community Facilities				
Belle Haven Child Center	410 Ivy Drive	6,600 sf	0.75	The Belle Haven Child Development Center is licensed by the Department of Social Services to provide quality subsidized, full-time child development services to families in Menlo Park and surrounding cities.
Belle Haven After School Center	100 Terminal Avenue	2,485 sf	1.0	The Belle Haven School-Age Child Care Program is licensed by the Department of Social Services to provide care for children in kindergarten to sixth grade.
Senior Center	110 Terminal Avenue	11,200 sf	1.0	The Center offers health, recreational, and educational programs, as well as cultural events and social services for older adults.
Onetta Harris Community Center	100 Terminal Avenue	11,000 sf	1.0	The Onetta Harris Community Center offers a wide variety of programs and services from the traditional recreation program to social services. The facility includes a gym, weight room, computer lab, a large multipurpose room with adjacent kitchen, three classrooms, and office space.
Belle Haven Pool	100 Terminal Avenue	6,300 sf	1.0	The Belle Haven Pool is currently a seasonal pool that is open from mid-June to the end of August. The facility is designed to serve the Belle Haven neighborhood residents with a focus on water safety and recreational swimming. The facility provides a 25-meter pool with an additional shallow area as well as a small pool for children.

Source: Menlo Park Community Services Department, "City of Menlo Park – Recreation Facility Summary," Katrina Whiteaker, email to Atkins May 25, 2011.

Note:

a. As measured from the intersection of Bayfront Expressway and Willow Road.

The City has adopted a goal of maintaining a ratio of five acres of developed parkland per 1,000 residents.[42] Based on the current population of 32,391 residents and 221 acres of parkland, this translates to a ratio of 6.82 acres per 1,000 residents.[43] As such, the Department currently exceeds the existing goal. However, out of the total parks and recreational facility users in the City, approximately 66 percent are residents and 34 percent are non-residents.[44] Nonetheless, the Department has not identified any park capacity issues.[45]

[42] City of Menlo Park, General Plan, "General Plan Background Report, Public Facilities and Services, 1994, page B-VI-6.

[43] (221 acres/32,391 residents) x 1,000 = 6.82 acres per 1,000 residents

[44] Katrina Whiteaker, Recreation Services Manager, Menlo Park Community Services Department, email to Atkins, May 25, 2011.

[45] Cherise Brandell, Community Services Director, and Katrina Whiteaker, Recreation Services Manager, personal interview with Atkins, May 16, 2011.

In addition to the parks and facilities in Table 3.15-4, the Bay Trail travels along the Bayfront Expressway to the south of the East Campus. The Bay Trail is a series of existing and planned regional hiking and bicycle trails administered by the Association of Bay Area Governments (ABAG) that will eventually connect continuously around the perimeter of the San Francisco and San Pablo Bays and link 47 cities with 500 miles of trails.[46] Please refer to Sections 3.2, Land Use, and 3.5, Transportation, for more information about bicycle and pedestrian connections in the vicinity of the Project site.

Libraries

The City has two libraries accessible to San Mateo County residents that are included as part of the Peninsula Library System. These libraries include the Main Menlo Park Library and the Belle Haven Elementary School Branch Library. There are 24,792 registered borrowers, 4,387 of these being children. Community members have access to 58,294 children's books, 146,356 adult/juvenile books, 1,827 serial volumes, 9,412 electronic books, 14,309 physical audio books, 3,172 online audio books, 13,213 physical videos, 2,404 children's audio materials, and 3,404 children's video materials.[47] Generally, 50 percent of library users are residents of the City and 50 percent are non-residents. The non-resident users are diverse, including people who work in the City, people who shop in the City, and residents of neighboring cities.[48]

The Menlo Park Library is a 34,200-square-foot building in the Civic Center located at 800 Alma Street. This branch provides approximately 128,228 volumes of books in circulation to its patrons. In addition, story time is offered for children and speakers, authors, performers, and other reading groups are offered.[49]

In 1999, the City opened a 3,600-square-foot branch library in the Belle Haven Elementary School at 413 Ivy Drive as part of a joint venture with Ravenswood City School District. Students of Belle Haven Elementary have easy access to the 18,128 volumes or books in circulation at this library on the school campus.[50] There is enough capacity at the Belle Haven branch to support demand. However, due to its location at Belle Haven Elementary School, which deters many library patrons, a new location is being examined.[51]

According to the General Plan, the Menlo Park Library has a goal to maintain a ratio of 3.29 books per capita and a ratio of 1.02 square feet of library space per capita.[52] Currently, there are approximately

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46 Association of Bay Area Governments, "Overview," website: http://www.baytrail.org/overview.html, accessed July 12, 2011.

47 Nick Szegda, Purchase Suggestions; Film Group, Menlo Park Library, email to Atkins, July 12, 2011.

48 Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

49 City of Menlo Park Library, "Regular Events and Clubs," website: http://www.menloparklibrary.org/events-clubs.html, accessed July 8, 2011.

50 Lapkoff & Gobalet Demographic Research, INC, *Demographic Analysis of the Belle Haven Community for the Menlo Park Library,* August 5, 2010.

51 Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

52 City of Menlo Park, General Plan, "General Plan Background Report, Public Facilities and Services, 1994, page B-VI-8.

206,477 children's books, adult/juvenile books, and serial volumes and 37,800 sf of library space between the Main and Belle Haven branches. With a service population of approximately 32,391 residents, this equates to a ratio of 6.37 books per person[53] and 1.17 sf of library space per person,[54] exceeding the existing standard.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, and libraries.

Environmental Analysis

PS-1 ***Impacts to Police Services.*** *The Project, at the East Campus and West Campus, would not result in the need for new or physically altered police service facilities. Therefore, police service impacts would be less than significant. (LTS)*

East Campus

With implementation of the Project, the East Campus would accommodate approximately 6,600 employees, an increase of approximately 3,000 employees over the maximum currently allowable. Accordingly, the MPPD could experience an increased demand for police protection services and calls for service at the East Campus.

The MPPD considers each worker in the City as half of a resident. As such, an increase in 3,000 employees would be an increase in 1,500 residents and would reduce the existing officers per resident ratio from 0.99 to 0.96 officers per 1,000 residents.[55] Maintaining the existing ratio would equate to less than one additional sworn police officer within the MPPD. Any additional police officers needed as a result of the Project would be accommodated at the existing MPPD facilities.[56] Since a new police facility would not need to be constructed, the Project at the East Campus would result in a ***less-than-significant*** impact with respect to police services.

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[53] 206,477 books/32,391 residents = 6.37 books per person.

[54] 37,800 sf/32,391 residents = 1.17 sf per person.

[55] Existing daytime population in Menlo Park (including residents and employees is 47,480). Existing ratio = 47 officers/47,480 residents = 0.99 officers per 1,000 resident. The Project at the East Campus (a net increase of 3,000 employees, or 1,500 daytime population) would increase the daytime population to 48,980. New ratio = (47 officers/48,980 residents) x 1,000 = 0.96.

[56] Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

West Campus

The West Campus includes development of approximately 440,000 sf of office buildings and associated amenities. This area would provide space for approximately 2,800 new employees, which could increase the demand for police services at the West Campus.

Beat 3 of the MPPD currently covers the West Campus; however, since the West Campus is vacant, the MPPD would have to provide services for the increase of activity. The MPPD considers each worker in the City as half of a resident. As such, an increase in 2,800 employees would increase the residents by 1,400 people and would reduce the existing officers per resident ratio of 0.99 to 0.96 officers per 1,000 residents.[57] Maintaining the existing ratio would equate to less than one additional sworn police officer within the MPPD. Any additional police officers needed as a result of the Project would be accommodated at the existing MPPD facilities.[58] Since a new police facility would not need to be constructed, the Project at the West Campus would result in a ***less-than-significant*** impact.

Total Project

As discussed in more detail below, potential primary impacts to the MPPD would include impacts from overall calls for service, increased traffic, increased investigations, increased administrative impacts from servicing search warrant requests from out-of-state law enforcement agencies, and providing security for protests and dignitary visits. The City may seek to obtain reimbursement for some of these costs. The reimbursable impacts would include protests and dignitary visits, while the other impacts would be non-reimbursable.

Service Impacts. In total, the Project would increase employees at the Project site from 3,600 to approximately 9,400, for a net increase of approximately 5,800 new employees over baseline conditions. This would result in a decrease of the officers per resident ratio from 0.99 to 0.93 officers per 1,000 residents.[59] Adding to the service population would lead to an overall increase in service calls to the MPPD. Police surveillance in the Project area would continue with routine patrols and responses to calls for assistance. The Project would not require the MPPD to expand its current service boundary to include the Project area because it is already included in Beat 3. However, in addition to the MPPD's current responsibilities in the area, the Project would require additional services, such as online investigations and assistance with dignitary visits, as discussed further below.

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[57] Existing daytime population (including residents and employees) is 47,480. Existing ratio = (47 officers/47,480 residents) x 1,000 = 0.99 officers per 1,000 residents. The Project at the West Campus (a net increase of 2,800 employees, or 1,400 daytime population) would increase the daytime population to 48,880. New ratio = (47 officers/48,880 residents) x 1,000 = 0.96 officers per 1,000 residents.

[58] Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

[59] The Project at the East Campus and West Campus (a net increase of 5,800 employees, or 2,900 daytime population) would increase the daytime population to 50,380. New ratio = (47 officers/50,380 residents) x 1,000 = 0.93 officers per 1,000 residents.

The majority of emergency calls placed from Facebook are related to medical incidents. In order to reduce the impacts to the MPPD and the MPFD (as discussed in more detail under Impact PS-2), Facebook plans to employ two trained EMTs to remain on-site. In addition, Facebook will train its employees to utilize the MPFD's website to file reports on-line and reduce the number of visits officers must make to the Project site for car break-ins or other minor criminal activities.[60]

However, as explained above, Facebook currently provides on-site security to protect its workers and to reduce calls for service from the PAPD. Currently, Facebook employs approximately five security control officers per daytime shift and four officers per nighttime shift. The amount of security guards is expected to increase to 25 to 30 officers during the day and 15 to 20 officers at night.[61] Other security features at the Project site would include fencing, security control stations within the buildings, and security control stations as stand-alone structures.[62]

Increased Traffic. High-speed traffic along Bayfront Expressway to and from the Dumbarton Bridge occurs adjacent to the East Campus and West Campus. Because traffic is flowing at high speeds, the intersection of Willow Road and the Bayfront Expressway has a high traffic accident rate and a high rate of pedestrian-related accidents. Increasing vehicle and pedestrian traffic associated with the Project could lead to more incidents requiring MPFD and MPPD responses. However, utilization of the existing pedestrian tunnel that travels under Bayfront Expressway and the proposed sidewalk along Willow Road to the east of the West Campus would reduce the potential for pedestrian-related accidents. MPPD staff indicates that the City can absorb new calls related to traffic without significant impacts to the department.[63]

Investigations. The existing Facebook campus in the City of Palo Alto requires a significant level of law enforcement service that has not historically been required by past tenants of the East Campus. The MPPD has obtained information from the PAPD showing that actual calls for service do not greatly impact the PAPD. However, the PAPD receives an increasing number of requests for investigations related to identity theft and other crimes that involve Facebook users. Facebook provides its own security to users via online channels, but not via phone. When users are unsatisfied with the communication or speed of customer support, they often contact the PAPD to initiate a formal investigation. Facebook security staff has stated that a new portal system will be provided in the future that allows Facebook users access to customer service representatives, which should reduce calls to the police department.[64]

Search Warrants. There is a significant level of effort noted by the PAPD Investigations Unit from out-of-state police agencies regarding search warrants for active out-of-state investigations

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60 Bay Area Economics, Fiscal Impact Analysis of Proposed Facebook Project, September 20, 2011.

61 James Bakken, Physical Security Manager, Facebook, Inc., email correspondence with Jennifer Renk, Partner, Luce, Forward, Hamilton & Scripps, August 15, 2011.

62 Gensler, "Facebook @ Menlo Park," October 20, 2011, Sheet WA.4.3, Campus Security Plan.

63 Bay Area Economics, Fiscal Impact Analysis of Proposed Facebook Project, November 9, 2011.

64 Bay Area Economics, Fiscal Impact Analysis of Proposed Facebook Project, November 9, 2011.

that have connections to the information stored on Facebook servers. Law enforcement agencies around the world require access to Facebook's files to search for evidence surrounding homicides, kidnappings, child abuse, and other violent criminal activities. Because laws vary between states and countries, a search warrant must be generated by the local agency where Facebook is located. The local law enforcement agency must request a search warrant from a local judge, serve the warrant to Facebook staff, collect the evidence, and send it back to the original requesting agency. In 2010, PAPD served over 40 warrants to Facebook from more than 300 requests. However, Facebook's own legal team directly deals with more than 800 law enforcement requests per week that the law does not require to go through the local police department.[65]

As Facebook's user population continues to grow, request for search warrants are expected to increase. These search warrants require PAPD detective time and remove officers from the streets. It is expected that the MPPD would experience similar demands on its staff with implementation of the Project.[66] This represents a potential increase in potential workload for the MPPD, which is smaller than the PAPD. Furthermore, the MPPD believes that warrants should be served for more categories of serious felonies than the three types currently being handled by the PAPD. The Project Sponsor has indicated that a security staff member will be appointed as a liaison to the MPPD to reduce workload. The MPPD has identified the need for one additional detective to handle search warrant requests.[67]

Protests and Dignitary Visits. On an irregular basis, most recently averaging four times per year, major events occur at Facebook that attract a large number of visitors. These events include protests or dignitary/celebrity visits which require police protection services. Dignitary visits to the Facebook campus have strained PAPD resources in the past, but depending on the dignitary, can range in the level of police support required. The PAPD has been required to provide police officers for crowd control, protest abatement, personal protection and security, and motorcades for previous dignitary visits. It is estimated that 103 local police officers and staff, including members of the PAPD and the MPPD, participated in a recent visit from President Obama.[68] Although this strains the police departments for a limited period of time, such visits remove officers from their regular patrols, focusing attention away from potential local issues.

Overall Impacts. The Project is anticipated to put an additional demand on the MPPD, require additional staff, and potentially increase response times. However, due to the proposed on-site security, the two on-site trained EMTs, and employee training, as discussed above, the Project would reduce some of the impacts to the MPPD. As such, only one additional MPPD

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65 Bay Area Economics, Fiscal Impact Analysis of Proposed Facebook Project, November 9, 2011.

66 Menlo Park Police Department, Memo to Megan Fisher, City of Menlo Park, May 13, 2011.

67 Bay Area Economics, Fiscal Impact Analysis of the Proposed Facebook Project, November 9, 2011.

68 Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

officer/detective would need to be hired as a result of the Project.[69] The addition of one staff member would not trigger the construction or expansion of police protection facilities to house additional staff since the existing MPPD facilities could house the new officer.[70] As explained above, a police substation is currently being constructed at Willow Road/Ivy Drive and the new facility would be able to accommodate the additional MPPD staff that would be needed with implementation of the Project. Therefore, although additional MPPD staff may be required, the Project would not trigger the need for the construction of a new police facility. As such, police service impacts would be ***less than significant***.

PS-2 ***Impacts to Fire Services.*** *The Project, at the East Campus and West Campus, would not result in the need for new or physically altered fire service facilities. Fire service impacts would be less than significant. (LTS)*

East Campus

Emergency access is provided from the main driveway off Bayfront Expressway, at Willow Road. Project implementation at the East Campus would not involve the construction of new buildings; therefore, the MPFD does not anticipate a major increase in fire-related calls.[71] However, since the number of employees at the East Campus would increase by approximately 3,000, there could be an increase in calls related to medical emergencies. The Project Sponsor has proposed to provide two trained EMTs on-site as part of the Project. This would reduce the number of calls for medical emergencies associated with the increased number of employees on-site.

The Project is anticipated to generate approximately 666 new residents in the City and approximately 447 new residents in East Palo Alto[72] for a total of approximately 1,113 additional residents in the MPFD's service area.[73] About 52 percent of the net new employees would be at the East Campus or approximately 579 additional residents. If there were no increase in MPFD staffing, the ratio would decrease by less than 0.01 firefighters per 1,000 residents.

The service population includes residents (as discussed above) plus employees within the MPFD jurisdiction. Each employee is considered a half of a resident. As such, the increase in

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69 Bay Area Economics, Fiscal Impact Analysis of the Proposed Facebook Project, November 9, 2011.

70 Lacey Burt, Commander, Menlo Park Police Department, Special Operations Division, personal interview with Atkins, May 16, 2011.

71 Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

72 Per ABAG Projections 2009, the City of East Palo Alto has 4.18 persons per household. The Project is expected to generate approximately 107 households in East Palo Alto as illustrated in Table 3.14-10. As such, 107 households x 4.18 persons per household = 447 new residents.

73 Please note that although Atherton and portions of unincorporated San Mateo County are included in the MPFD residential service population, the housing impacts to areas is not evaluated in the Housing Needs Analysis. As such, Project housing impacts in these jurisdictions are not included in the overall calculations. Nonetheless, it is expected that the Project would result in minimal housing units within Atherton and unincorporated San Mateo County.

employees with the implementation of the Project is anticipated to increase the service population by 2,900. Specifically, the East Campus, with its increase of approximately 3,000 employees, would increase the daytime service population by 1,500 persons. Including the increase in residents discussed above, the East Campus would increase the service population from approximately 115,662 to 117,741 persons.[74] With no increase in staffing (96 fire safety personnel), the ratio would decline very minimally from 0.83 to approximately 0.82 fire safety personnel per 1,000 service population.

The MPFD indicates that, in order to respond to increased calls associated with the increase in employee density at the East Campus, it would need to maintain its current staffing ratio.[75] With respect to the East Campus, maintaining the above described existing ratios would equate to less than one additional firefighter/fire safety person employed by the MPFD.

Stations 1 and 2 are the busiest stations with the highest call volumes, with 1,289 and 1,979 calls, respectively. Station 77, which would respond to calls from the Project site, responds to 688 calls per year.[76] Per the MPFD, Stations 1 and 2 do not have adequate staffing capacity and are slated for expansion. Station 2 is being expanded and construction is anticipated to commence by the end of 2011.[77] The less than one additional firefighter necessary to maintain the current staffing ratios could be housed at Station 2, which appears appropriate given the higher call volume, the need for increased staffing, and the imminent physical expansion of the station (which is unrelated to the Project). As the expansion of Station 2 is already underway, this is not a Project-related physical environmental impact. Furthermore, even if the MPFD felt it was necessary to maintain its current staffing ratio by placing the less than one additional staff member at Station 77, rather than the busier Station 1 or Station 2, increasing staffing from three to at most four, would require only minor remodeling of the existing station and would, therefore, be exempt from CEQA as a minor alteration to an existing facility[78] and would not have a significant environmental impact.

The Menlo Park Fire Protection District Fire Prevention Code, Ordinance 30, Section 903.2 requires automatic fire sprinkler protection buildings for commercial occupancies over 5,000 square feet if the building is 40 feet or taller. Adequate water pressure and fire flow is available at the East Campus.[79] The East Campus currently includes the required fire sprinkler protection.

As discussed in Sections 3.5, Transportation, and 3.13, Hazards and Hazardous Materials, the Project would increase traffic in the vicinity of the Project site. Without the installation of

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[74] 115,662 existing service population + 579 East Campus-induced residents + 1,500 daytime residents = 117,741 service population.

[75] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

[76] Menlo Park Fire Protection District Annual Report 2010.

[77] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

[78] CEQA Guidelines Section 15301.

[79] Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

traffic preemption devises, MPFD response times to the East Campus could be significantly impacted due to congestion at the Bayfront Expressway/Willow Road intersection.[80] However, there are emergency vehicle priority (Opticom) systems in place at all Willow Road approaches from Middlefield to Bayfront Expressway, as follows:

1. Willow Road at Middlefield (all approaches)
2. Willow Road at Gilbert (Willow Road approaches only)
3. Willow Road at Coleman (Willow Road approaches only)
4. Willow Road at Durham (Willow Road approaches only)
5. Willow Road at Bay (Willow Road approaches only)
6. Willow Road at Newbridge (all approaches)
7. Willow Road at O'Brien (Willow Road approaches only)
8. Willow Road at Ivy (Willow Road approaches only)
9. Willow road at Hamilton (Willow Road approaches only)
10. Willow Road at Bayfront (all approaches)

Because traffic preemption devices are already installed at all these locations, it is not anticipated that the increase in traffic in the area would significantly affect response times. Furthermore, due to the close proximity of the existing Station 77 (approximately 0.5 miles), the construction of a new facility would not be warranted to maintain response times. As such, it is not anticipated that the increase in traffic in the area would affect response times such that the Project would trigger the construction or expansion of new facilities. Therefore, impacts at the East Campus are considered ***less than significant***.

West Campus

The West Campus would include the development of new buildings up to four stories to accommodate approximately 2,800 workers. As such, the Project at the West Campus would increase fire and medical service calls and would affect local roadways, resulting in potentially increased response times.

Emergency vehicles would access the West Campus via five points. In addition to the main entry and the secondary access points along the Bayfront Expressway and Willow Road, emergency vehicles would access the West Campus via two possible fire lanes from the adjacent TE Connectivity property, to the west of the proposed parking structure. These access points would allow the emergency providers to avoid Bayfront Expressway and Willow Road, especially in light of the cut-through median proposal for Willow Road, which provides for emergency vehicle left-turn access from Willow Road, before the Bayfront Expressway intersection. However, given the presence of the Opticom devices discussed above, additional traffic resulting from the Project is not anticipated to adversely impact response times.

[80] Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

The Menlo Park Fire Protection District Fire Prevention Code, Ordinance 30, Section 903.2 requires automatic fire sprinkler protection buildings for commercial occupancies over 5,000 square feet if the building is 40 feet or taller. Existing water pressure and volume at the West Campus could currently be compromised by the corrosive soil on-site.[81] The Project Sponsor would be required to address this issue per the Fire Prevention Code and provide the required fire sprinkler protection.

MPFD staff has indicated that ladder trucks are required to respond to emergencies at buildings greater than three stories. Because the West Campus would include buildings above three stories in height, an aerial apparatus could be required for emergencies. Currently, the MPFD owns and operates one ladder truck. As discussed in the Existing Conditions section, Truck 1 is housed at Station 1 and its 100-foot ladder is pre-plumbed for elevated water application. Located 1.8 miles south of the West Campus, the response time for Truck 1 to the Project site would be within the acceptable standard of eight minutes, depending on traffic conditions.[82] In addition, based on the MPFD's 2004 Public Protection Classification Study completed by the Insurance Services Organization (ISO), the ladder truck is within the acceptable distance of a 2.5-mile radius from the Project site. Therefore, although the MPFD has indicated the purchase of an aerial ladder truck for Station 77 would be necessary to serve the West Campus, the above guidelines suggest the purchase of additional equipment to service taller structures would not be necessary.[83] Even if the MPFD determined a new aerial ladder truck was needed at Station 77 and, therefore, the station needed to be remodeled to accommodate such a truck, any such remodel would be exempt from CEQA as a minor alteration to an existing facility[84] and would not have a significant environmental impact.

The Project is anticipated to generate approximately 666 new residents in the City and approximately 447 new residents in East Palo Alto for a total of approximately 1,113 residents in the MPFD's service area. Approximately 48 percent of the net new employees would result from increased employment on the West Campus or approximately 534 additional residents. If there were no increase in MPFD staffing, the ratio would decrease by less than 0.01 firefighters per 1,000 residents.

The Project is anticipated to increase service population by 2,900. Specifically, the West Campus with its increase of approximately 2,800 employees would increase the service

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81 Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

82 Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

83 Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011. Harold Schapelhouman, Fire Chief, letter to Atkins dated June 23, 2011 indicating that the MPFD uses the ISO criteria and NFPA 1710 for assessing the significant of a proposed project's impacts. Since neither the MPFD nor the City has adopted standards for the acceptable distance of a ladder truck at the time of this Draft EIR, the ISO and NFPA 1710 standards provide the most appropriate guidelines. Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

84 CEQA Guidelines Section 15301.

population by 1,400 persons. Including the increase in residents, this would be an increase in the service population from approximately 115,662 to 117,596 persons.[85] With no increase in staffing (96 fire safety personnel), the ratio would decline very minimally from 0.83 to 0.82 fire safety personnel per 1,000 service population.

The MPFD indicates that, in order to respond to increased calls associated with the West Campus development, it would need to maintain its current staffing ratio.[86] Maintaining the above described existing ratios with respect to the West Campus would equate to less than one additional firefighter/fire safety person employed by the MPFD. As discussed above, this less than one additional person could be accommodated by the upcoming Station 2 expansion or with minor alterations to Station 77 that would not result in a significant environmental impact.

Since the Project would not trigger the need for new or expanded facilities that would have a significant impact to the physical environment, the impacts at the West Campus are considered ***less than significant***.

Total Project

The Project (both the East Campus and West Campus) would be required to comply with all applicable MPFD codes and regulations and would be required to meet MPFD standards related to fire hydrants, water fire flow requirements, spacing of hydrants, design of driveway turnaround and access points to accommodate fire equipment, and other fire code requirements. Specifically, the Menlo Park Fire Protection District Fire Prevention Code Section 903.2 requires automatic fire sprinkler protection buildings for commercial occupancies over 5,000 square feet if the building is 40 feet or taller. Adequate water pressure and fire flow is available at the East Campus; however, existing water pressure and volume at the West Campus could currently be compromised by the corrosive soil on-site.[87] The Project Sponsor would be required to address this issue per the Fire Prevention Code and provide automatic fire sprinkler protection.

The Project is anticipated to generate approximately 666 new residents in the City and approximately 447 new residents in East Palo Alto for a total of approximately 1,113 residents in the MPFD's service area. If there were no increase in MPFD staffing (96 fire safety personnel), the ratio would decrease very minimally from 1.03 firefighters per 1,000 residents to 1.02 firefighters per 1,000 residents.[88]

The Project is anticipated to increase daytime population by 2,900 people. In addition to the residential increase, the Project would result in an increase in the service population from

[85] 115,662 existing service population + 534 West Campus-induced residents + 1,400 daytime residents = 117,596 service population.

[86] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

[87] Harold Schapelhouman, Fire Chief, and Geoffrey Aus, Fire Marshal, Menlo Park Fire Protection District, personal interview with Atkins, May 16, 2011.

[88] 93,000 existing residential population + 1,113 new residents as a result of the Project = 94,113 total residential population. (96 firefighters/94,113 residents) x 1,000 = 1.02 firefighters per 1,000 residents

approximately 115,662 persons to 119,675 persons.[89] With no increase in staffing (96 fire safety personnel), the ratio would decline from 0.83 to 0.80 fire safety personnel per 1,000 service population.[90]

The MPFD indicates that in order to respond to increased calls associated with the increase in employee density at the East Campus and development of the West Campus, it would need to maintain its current staffing ratio.[91] Maintaining these current staffing ratios would require the addition of one additional firefighter/fire safety person. As discussed above, this one additional person could be accommodated by the upcoming Station 2 expansion or with minor alterations to Station 77 that would not result in a significant environmental impact.

Upon Project completion, the MPFD would continue to serve the Project area and respond to calls for assistance from its existing stations. Three MPFD fire stations are less than 2 miles from the Project site. In addition, the MPFD has an automatic aid agreement with the City of Redwood City to provide back up and respond in the event of a major fire and an automatic aid agreement with the City of Palo Alto. Within an eight to nine minute response time, Station 1 houses the MPFD's one aerial ladder truck that would be available, if necessary. Nevertheless, the MPFD has indicated a new aerial ladder truck would be needed at Station 77 to respond to the West Campus. The Project Sponsor would be required to pay applicable facilities fees, as will be outlined in the Fire Impact Fee nexus study, for the new construction at the West Campus if the fee is adopted prior to the issuance of a building permit. Payment of this fee would address the perceived need for an aerial ladder truck at Station 77.[92] The MPFD indicates that, as a result of the Project, one additional person would be required.[93] Because this one additional person can be accommodated in the expansion of Station 2 or with the minor remodel of Station 77, which would not have a significant physical environmental impact, the Project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered fire and emergency service facilities, in order to maintain acceptable service ratios, response times, or other performance objectives. As such, fire service impacts as a result of the Project would be ***less than significant***.

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[89] 115,662 existing service population + 1,113 Project-induced residents + 2,900 daytime residents = 119,675 service population.

[90] (96 firefighters/119,675 service population) x 1,000 = 0.80 firefighters per 1,000 residents.

[91] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

[92] Menlo Park Fire Protection District, "District Fire Prevention Code Ordinance #30 & District Standards, Local Ordinance to 2007 California Fire Code & Fee Schedule," website: http://www.menlofire.org/fireprevention/forms/Ordinance%2030.pdf, accessed July 6, 2011.

[93] Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, Memo to Atkins, June 23, 2011; Harold Schapelhouman, Fire Chief, Menlo Park Fire Protection District, personal meeting October 24, 2011.

PS-3 ***Impacts to School Facilities.*** *The Project, at the East Campus and West Campus, would not result in the need for new or physically altered school facilities. Impacts related to school facilities would be less than significant impact. (LTS)*

The Project would consist of office uses and would not construct residential units that would generate school-age students. However, as discussed in Section 3.14, Population and Housing, the Project would indirectly induce housing demand by increasing employment within the City. The Project would result in a demand of 3,257 new households within the region. As stated in Section 3.14, Population and Housing, 254 new households are expected to be generated in the City as a result of the Project.[94] Menlo Park's share of added employee households associated with the Project would be 131 households at the East Campus[95] and 123 households at the West Campus.[96] However, for purposes of this analysis, the 254 total new employee households will be discussed.

As previously stated, four elementary/middle school districts and one high school district serve the City. However, two of the elementary/middle school districts would not be impacted by the indirect population increases associated with the Project. The portion of the Redwood City School District located within the City is zoned as industrial and commercial uses and, therefore, no future housing would be constructed in this area. In addition, the portion of the City that includes the Las Lomitas Elementary School District is built-out and there is no potential for the construction of additional housing. As such, these two school districts are not further analyzed in this section since the Project would not indirectly induce the construction of new housing in these areas.

Student generation rates have been determined for the school districts based on data received from district staff. For elementary/middle school students, each new single-family/townhouse unit would generate approximately 0.39 new students and multifamily units would generate approximately 0.12 new students. For high school students, each new single-family/townhouse unit would generate 0.2 new students and multifamily units would generate approximately 0.09 high school students. These figures are for student generation through 2019, due to the fact that projections are based primarily on existing enrollments and birth data, which do not permit longer-range estimates.[97]

At this time, the type of housing units that the Project employees would occupy is unknown. Therefore, this analysis assumes a similar break-down in housing units as existing housing unit types within the City. According to the U.S. Census Bureau, approximately 61.2 percent of housing units within the City are single-family units/townhouses and 38.4 percent are

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[94] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, September 2011, p. 21.

[95] West Campus: 1,658 net added employee households x 0.078 Menlo Park's share = 131 employee households.

[96] East Campus: 1,572 net added employee households x 0.078 Menlo Park's share = 123 employee households.

[97] Bay Area Economics, Fiscal Impact Analysis of the Proposed Facebook Project, November 9, 2011.

multifamily units.[98] Using the same distribution, the Project would generate approximately 73 elementary/middle school students[99] and approximately 40 high school students.[100]

Elementary/Middle Schools. Two elementary/middle school districts would serve the new housing indirectly induced by the Project. For the purposes of this analysis, it is assumed that half of the projected students would attend MPCSD and half would attend RCSD, which equates to approximately 37 students per district.

MPCSD. As shown in Table 3.15-1, there is currently capacity for a total of 334 additional students within the MPCSD, with elementary schools having the least remaining capacity of approximately three students. The 37 students generated by the Project, if evenly distributed between the brackets (elementary, kindergarten through fifth; middle, sixth through eighth), would result in approximately 25 new students at the elementary schools and 12 new students at the middle school.

With the completion of the Hillview Middle School expansion (estimated to be in September 2012), there would be additional capacity for approximately 331 new students. As such, the 12 new middle school students generated by the Project would be able to be accommodated within Hillview Middle School. However, two of the three elementary schools currently exceed capacity and combined, the elementary schools are close to capacity. As such, the 25 new students at the elementary schools would not be able to be accommodated in the existing facilities without increasing class sizes. If a school reaches capacity within the school district, then students would be sent to the next closest school. Nevertheless, none of the schools would be able to accommodate the increase of approximately 25 new elementary students, which could trigger the need for new or expanded school facilities.

RCSD. As shown in Table 3.15-2, there is currently capacity for a total of 1,698 additional students within the RCSD. The 37 students generated by the Project, if evenly distributed between the grade levels, would result in approximately 25 new students at the elementary schools and 12 new students at the middle school. As such, RCD would be able to easily accommodate the increase in students generated by the Project.

High Schools. Only one high school district, the SUHSD, serves the City. As such, it is assumed that all high school students induced by the Project would attend the SUHSD, which

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98 U.S. Census Bureau, American Fact Finder, American Community Survey (ACS) 2008-2010, ID S2504, "Physical Housing Characteristics for Occupied Housing Units, website: http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t, accessed November 10, 2011.

99 254 housing units generated by the Project x 61.2 percent = 156 single-family/townhouse units x 0.39 students per household = 61 students. 254 housing units generated by the Project x 38.4 percent = 98 multifamily units x 0.12 students per household = 12 students. 61 students + 12 students = 73 elementary/middle school students.

100 254 housing units generated by the Project x 61.2 percent = 156 single-family/townhouse units x 0.2 students per household = 31 students. 254 housing units generated by the Project x 38.4 percent = 98 multifamily units x 0.09 students per household = 9 students. 31 students + 9 students = 40 elementary/middle school students.

equates to approximately 40 students. As shown in Table 3-15-3, the SUHSD has an existing capacity for approximately 173 new students. The Project would generate approximately 40 new students that would attend the SUHSD. As such, SUHSD would be able to accommodate the increase in students generated.

Overall School Impacts. As discussed above, the Project would result in an increase in students within the City, which could impact the MPCSD, the RCSD, and the SUHSD. It should be noted, however, that the actual generation of new students would be a tertiary impact of the Project. The Project would directly increase employment, which is expected to generate housing demand, and thus induce more housing, a secondary impact. Construction of more housing units would generate more students, a tertiary impact. In addition, the housing needed to serve these 254 households would have to be constructed for any of the possible impacts to occur.

Non-residential development, including the Project, is subject to SB 50 School Impact Fees (established by the Leroy F. Greene School Facilities Act of 1998). As a result of the wide-ranging changes in the financing of school facilities, including the passage of State school facilities bonds intended to provide a major source of financing for new school facilities, Section 65996 of the State Government Code explains that payment of school impact fees established by SB 50 is deemed to constitute full and complete mitigation for school impacts from development that may be required from a developer by any State or local agency.

In addition, the new residential development that may indirectly result from the increase in employment and that would generate students would be subject to separate CEQA review and would also be subject to residential school impact fees (which are higher than non-residential school impact fees). As a result, the tertiary impacts related to schools would be ***less than significant.***

PS-4 ***Impacts to Parks and Recreation Facilities.*** *The Project, at the East Campus and West Campus, would not result in the need for new or physically altered parks and recreation facilities. Park and recreation impacts would be less than significant. (LTS)*

East Campus

According to the Department, employees at the former Oracle (formerly Sun Microsystems) campus did not frequently utilize the parks and recreation facilities in the Belle Haven neighborhood or along the Bayfront.[101] Although the number of employees would increase with implementation of the Project, it is anticipated that these employees would mainly use the on-site facilities rather than the neighboring City parks. Recreational facilities available at the East Campus would include the open space area in the central courtyard, the 11,799-sf fitness center, and its adjacent sports field and lighted basketball court. Because open space areas and recreation opportunities would be provided as part of the Project, it is not expected that a large

[101] Cherise Brandell, Community Services Director, and Katrina Whiteaker, Recreation Services Manager, personal interview with Atkins, May 16, 2011.

number of Facebook employees at the East Campus would use nearby parks. Impacts to park and recreational facilities would thus be ***less than significant***.

West Campus

Development of the West Campus would include a central courtyard that would provide open space areas and an amenities building (Building T2) that would include a second-story fitness center. It is expected that the employees at the West Campus would generally use the recreational and open space facilities at the Project site and would not go to nearby parks to use those facilities. As such, development of the West Campus would not result in the need for new City facilities or cause the substantial physical deterioration of the existing facilities. Impacts to park and recreational facilities would thus be ***less than significant***.

Total Project

As discussed above, on-site amenities would be provided at both campuses for the employees, thereby reducing the likelihood of employees utilizing or overburdening City facilities. Combined, the East Campus and West Campus would add approximately 5,800 net new employees to the area. Although the number of employees would increase, it is likely that these employees would mainly use the on-site facilities during work hours rather than the neighboring City parks. In addition to the on-site open space and fitness centers, a connection between the East Campus and West Campus would be enhanced via improvements to an existing undercrossing under Bayfront Expressway. The rehabilitated undercrossing would also improve Bay Trail access for area employees and local residents. Due to the enhanced connection, it is expected that Facebook employees would use the existing Bay Trail during breaks and after work; however, this would not trigger the need for expanded Bay Trail facilities.

As stated in Section 3.14, Population and Housing, 254 new households are expected to be generated in the City as a result of the Project. These employees and their families could use the park facilities during non-work hours. Nonetheless, as explained above, the Department currently exceeds its goal of five acres per 1,000 residents and has not identified any existing capacity issues. Currently, the DOF estimates that the City averages approximately 2.62 persons per household.[102] As such, the addition of approximately 666 new residents as a result of the Project would slightly reduce the parks service ratio from 6.82 to 6.69 persons per 1,000 acres of parklands. Given the availability of City-maintained parks, population growth related to the Project is not anticipated to increase the use of recreational resources such that substantial physical deterioration would occur. In addition, the Project would be subject to supplemental property taxes to pay for bonds issued for park and recreation.

The Project would include open spaces and fitness facilities at the campuses, which could offset the potential deterioration of City parks due to the increase in employees at the East Campus and West Campus. Although the residential population in the City would increase as a result of

[102] Total population of 32,319 / 12,359 total households = 2.62 persons per household.

the Project, there are no capacity issues and the existing facilities would be able to accommodate the increase in residents. In addition, the Project would be subject to the City's property taxes that finance the maintenance of City parks. The Project would not trigger the need for the construction or expansion of parks or other recreational facilities. Therefore, impacts would be ***less than significant.***

PS-5 ***Impacts Library Facilities.*** *The Project, at the East Campus and West Campus, would not result in the need for new or physically altered library facilities, resulting in a less-than-significant impact. (LTS)*

East Campus

The increased intensity at the East Campus with implementation of the Project would increase by approximately 3,000 people over existing conditions. This could likely bring new residents to the City who would utilize library services. Nonetheless, the existing libraries would be able to accommodate an increase in employment at the Project site.[103] Currently, there is adequate capacity at the Main and Belle Haven branches to support existing and future demand. Therefore, impacts to libraries and library services would be ***less than significant***.

West Campus

The West Campus would increase employment by approximately 2,800 workers. As such, the Project at the West Campus would increase people visiting and moving to the City. However, the existing libraries in the City would be able to accommodate the increase in employment at the West Campus.[104] Impacts to libraries and their services would thus be ***less than significant***.

Total Project

As discussed above, Menlo Park's libraries have a wide range of resources accessible to the community. The library staff has stated that generally non-residential uses have little impact on the library system. According to staff, residential developments have the greatest impact because of the demand for children's programs, many of which currently operate at or near full capacity. However, large development projects, such as the Project, could have an impact due to the new employees.[105]

Combined, the East Campus and West Campus would add approximately 5,800 net new employees to the area. As a result, the Project is expected to increase the population in the City by approximately 666 residents. As stated above, the Menlo Park Library has a goal to maintain a ratio of 3.29 books per capita and a ratio of 1.02 square feet of library space per

[103] Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

[104] Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

[105] Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

capita. The increase in 666 residents would slightly degrade the existing ratios from 6.37 to 6.25 books per capita and from 1.17 to 1.14 square feet per capita. Nonetheless, this would still be above the current goals and standards. It is expected that the existing libraries in the City would be able to accommodate an increase in employment at the Project site and the associated increase in residents.[106] As such, impacts would be ***less than significant***.

Cumulative Impacts

The geographic context for this cumulative public services analysis is the service area of the service in question. For instance, the geographic context for cumulative impacts on police service and park/recreational facilities is the City, because these services are provided on a citywide basis and service ratios by which demand is estimated based on citywide figures. However, the fire protection cumulative context area would include the cities of Menlo Park, Palo Alto, Atherton, East Palo Alto, and parts of unincorporated San Mateo County to correspond with the MPFD's service area. Likewise, the cumulative analysis for impacts on schools would include the communities served by the six school districts discussed in this analysis.

The projects associated with the Tier 2 analysis (as included in Table 3.1-2 and illustrated in Figure 3.1-1 in Section 3.1, Introduction to Environmental Analysis) span a larger geographical area. Without the Saltworks Project, the identified Tier 2 projects are relevant to the Menlo Park, East Palo Alto, and Redwood City areas. On the other hand, the development of the Saltworks Project has the potential to affect an even broader area due to the size of the project. This cumulative analysis examines the effects of the Project in the relevant geographic area, in combination with other current projects, probable future projects, and projected future growth.

C-PS-1 ***Cumulative Police Service Impacts.*** *The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on police services. (LTS)*

<u>Tier 1 and Tier 2</u>

Cumulative projects in the City, the service area for the MPPD, would increase population and development that would require police protection services and would increase the demand for these services. As noted, the MPPD's current service ratio is approximately 0.99 sworn officers per 1,000 residents. According to 2009 ABAG projections, there are expected to be 40,600 persons, 16,260 dwelling units, and 33,450 jobs in the City in 2025. As of 2011, the Menlo Park population was estimated at 32,319 persons.

The Project, in combination with other projected growth in the City, would increase population, employment, and housing in the City. The cumulative development projects within the City would include commercial, industrial, office, mixed-use, hotel, and residential developments and would increase the demand for police protection services.

[106] Susan Holmer, Library Director, City of Menlo Park Library, personal communication with Atkins, May 16, 2011.

Population forecasts are reviewed during the annual budgeting process to determine whether additional police services will be required to accommodate growth. In 2025, a resident population of 40,600 persons and worker population of 16,725 persons (based on MMPD calculation of each employee as "half" a resident) would result in a total MMPD service population of 57,325 persons. Based on the current MMPD staffing, this would result in a ratio of 0.82 officers per 1,000 residents, which is below the current service ratio.[107] Additional police officers and facilities would be required to accommodate the growth envisioned by the projected cumulative growth and to maintain the same level of service as under existing conditions. This would be a significant cumulative impact.

The Project would result in 5,800 net new employees in the City of Menlo Park. This would translate to 2,900 additional residents (based on MMPD calculations) that would place an additional demand on the MPPD, require additional staff, and potentially increase response times. However, the one new police officer required to accommodate the Project would not require the construction or expansion of police protection facilities to house additional staff as the existing MPPD facilities could house the new officers. As explained above, a police substation is currently being constructed at Willow Road/Ivy Drive and the new facility would be able to accommodate the additional MPPD staff that would be needed with implementation of the Project. Therefore, although additional MPPD staff may be required, the Project would not trigger the need for the construction of a new police facility. Thus, the Project would not make a cumulatively considerable contribution to the increased demand for police services, and the cumulative impact would be ***less than significant.***

C-PS-2 ***Cumulative Fire and Emergency Service Impacts.*** *The Project, in combination with other foreseeable development in the fire service area, would have a less-than-significant cumulative impact on fire and emergency services. (LTS)*

Tier 1 and Tier 2

Cumulative development in the MPFD service area will result in increased demand for fire and emergency services to accommodate growth. As noted, above, the firefighter-to-resident ratio of the MPFD is currently 1.03 firefighters per 1,000 residents. The current staffing model is a minimum of 25 safety personnel on-duty per day, which equates to roughly one firefighter per 4,000 residents. The MPFD's staffing is currently adequate for daily operations based on the current risk profile, population, and call volumes. Similar to police services, the MPFD considers growth forecasts during its annual budgeting process. With an increase in population and development, new fire stations may be required, as well as new equipment and personnel, to maintain acceptable service ratios. This would be considered a significant cumulative impact.

The Project would add approximately 5,800 employees, which translates to a service population of 2,900, and 946 residents to the service area. The additional service population

[107] (47 sworn police officers/57,325 service population) x 1,000 = 0.82 police officers/1,000 residents.

and residents as a result of the Project represent only two percent of the anticipated future growth and would not substantially change the service ratio or response times for the MPFD. Station 77, at 1467 Chilco Avenue, is expected to serve the Project and is approximately 0.5 miles southwest of the West Campus. Any need for an aerial ladder truck at Station 77 to serve the height of the West Campus buildings would be appropriately addressed by the impact fee, if adopted before issuance of building permits for the West Campus, and moreover, such a truck could be accommodated at the existing station though minor remodeling of the existing station which would be exempt from CEQA as a minor alteration to an existing facility and would not have a significant environmental impact. Therefore, the Project would not make a cumulatively considerable contribution to the cumulative impact on fire and emergency services. The Project's cumulative impact would be ***less than significant***.

C-PS-3 ***Cumulative School Service Impacts.*** *The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on school services. (LTS)*

Tier 1 and Tier 2

The geographic context for an analysis of cumulative school impacts is the area served by the MPCSD, the RCSD, and the SUHSD. Future housing projects in this area would generate additional students that would need to be accommodated within the school districts. As aforementioned, it is unlikely that housing would be built in either the Redwood City School District, which is zoned for industrial and commercial uses, and the portion of the City that includes the Las Lomitas Elementary School District, which currently built out. As such, these school districts are not discussed further.

Projects identified for consideration in the Tier 1 and Tier 2 cumulative scenario would be addressed case-by-case during the review of the respective development. In addition, as previously discussed, Section 65996 of the State Government Code explains that payment of school impact fees established by the Leroy F. Greene School Facilities Act of 1998 is deemed to constitute full and complete mitigation for school impacts. The MPCSD, RCSD, and SUHSD have enacted development fees in accordance with the Leroy F. Greene School Facilities Act and levy these fees on development projects within its service area. Cumulative projects would be required to pay the school impact fees, which are based on the amount of proposed residential and commercial space. This process and fee payment would ensure that services to accommodate current and future citywide growth could be reasonably provided within the cumulative context.

The Project would not directly contribute new students to the cumulative enrollment growth since the development of housing units is not proposed as part of the Project. On a tertiary level, the Project would add approximately 73 elementary school students and 40 high school students to the respective school districts. This contribution would not be considerable to the cumulative enrollment growth that is assumed to necessitate construction of new facilities. Therefore, the Project's cumulative impact would be ***less than significant***.

C-PS-4 ***Cumulative Parks and Recreation Impacts****. The Project, in combination with other foreseeable development in the City, would result in a less-than-significant cumulative impact on parks and recreation. (LTS)*

Tier 1 and Tier 2

The geographic context for an analysis of cumulative impacts to parks and recreation is the City, as the Menlo Park Community Services Department is responsible for providing recreational and cultural programs for the residents of the City. The City has adopted a goal of maintaining a ratio of 5 acres of developed parkland per 1,000 residents. Based on the current population of 32,391 residents and 221 acres of parkland, the current ratio is 6.82 acres per 1,000 residents, which exceeds the goal. According to ABAG projections, which reasonably includes the Tier 1 and Tier 2 projects as well as ambient growth, the population could increase to 40,600 by 2025, an increase of 8,209 residents from 2011. A total population of 40,600 utilizing 221 acres of parkland yields a ratio of 5.44 acres per 1,000, which still exceeds the goal. Even though 34 percent of park users in the City are non-residents, these users do not factor into the City's parkland standard of 5 acres per 1,000 residents. Therefore, cumulative development is not expected to result in a significant cumulative impact to parks and recreation.

The Project would add approximately 5,800 new employees and 666 residents to the City. Based on the existing population of 32,391, a total residential population of 33,045 would result in a parkland ratio to 6.69 acres per 1,000 residents. Based on a projected future population of 40,600, 666 new residents as a result of the Project added to the projected 2025 population would result in a parkland ratio of 5.36, still above the acceptable threshold, even without the construction of any new parks or recreational facilities. Therefore, the Project's cumulative impact would be ***less than significant.***

C-PS-5 ***Cumulative Library Service Impacts.*** *The Project, in combination with other foreseeable development in the City, would have a less-than-significant cumulative impact on library services. (LTS)*

Tier 1 and Tier 2

The geographic context for an analysis of cumulative impacts to library services is the area served by the Peninsula Library System, a consortium of 32 city, county, and community college libraries in San Mateo County. Cumulative development in this service area would place additional demand on library services. This would be a significant cumulative impact if new libraries are not constructed to accommodate regional growth. According to the General Plan, the City of Menlo Park has a goal to maintain a ratio of 3.29 books per capita and a ratio of 1.02 sf of library space per person. Cumulative development of the Tier 1 and Tier 2 projects in combination with ambient growth would, without construction of new libraries or expansion of existing libraries, result in a reduction of the number of books per capita, and

could force the existing ratio of 6.37 books per person and 1.17 sf of library space per person to below the acceptable threshold. This is a potentially significant cumulative impact.

The Project would not directly add resident population to the City, although some employees may choose to reside within the City. As noted earlier, the Project is expected to indirectly increase the population in the City by approximately 666 residents. As stated above, the Menlo Park Library has a goal to maintain a ratio of 3.29 books per capita and a ratio of 1.02 square feet of library space per capita. The increase in 666 residents would slightly degrade the existing ratios from 6.37 to 6.25 books per capita and from 1.17 to 1.14 square feet per capita. Therefore, the Project would not result in a cumulatively considerable contribution to any potential cumulative impact on library services. The Project's cumulative impact would be ***less than significant.***

3.16 UTILITIES

Introduction

This section identifies the primary utility providers serving the Project area with water, wastewater, solid waste, storm drainage, and energy services. Information on the existing available capacity is presented, along with estimates of future demand for these services after implementation of the Project.

The primary resources used for this analysis include the Water Supply Assessment (WSA) for the Project (November 2011) (included as Appendix 3.16-A of this Draft EIR);[1] City of Menlo Park 2010 Urban Water Management Plan (UWMP), adopted July 2011; the San Francisco Public Utilities Commission (SFPUC) 2010 UWMP (June 2011); and the SFPUC Water System Improvement Program (WSIP) Program Environmental Impact Report (PEIR), adopted October 30, 2008. This section also includes data received during direct communication with service and utility providers including the West Bay Sanitary District, the South Bayside Waste Management Authority (Rethink Waste), and Pacific Gas and Electric (PG&E), as well as online research regarding the respective water, wastewater, storm drainage, solid waste, and energy providers.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. Applicable issues that were identified pertain to the need to consider the Project's water demand, the conveyance of wastewater, and the possibility of constructing underground power lines to serve the Project site.

Applicable Plans and Regulations

Refer to Section 3.12, Hydrology and Water Quality, for information regarding applicable National Pollutant Discharge Elimination System permits associated with the regulation of stormwater.

Federal

Safe Drinking Water Act. The U.S. Environmental Protection Agency (EPA) administers the Safe Drinking Water Act (SDWA), the primary federal law that regulates the quality of drinking water and establishes standards to protect public health and safety. The Department of Health Services (DHS) implements the SDWA and oversees public water system quality statewide. DHS establishes legal drinking water standards for contaminates that could threaten public health.

State

Urban Water Management Planning Act. Section 10610.4 of the California Urban Water Management Planning Act specifies that "Urban Water Suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies." The Menlo Park

[1] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

Municipal Water Department (MPMWD) adopted the 2010 UWMP and Update to the Water Shortage Contingency Plan in June 2011.[2]

Senate Bill 610. Effective January 1, 2002, the State of California, through Senate Bill 610 (SB 610) requires that a city or county, and the associated public water system, prepare a WSA for projects that meet certain criteria: (1) a project creating the equivalent demand of 500 residential units, (2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet (sf) of floor space, and (3) a commercial office building employing more than 1,000 persons or having more than 250,000 sf of floor space. The Project meets the criteria for requiring a WSA because it would create employment for over 1,000 persons and would include more than 250,000 sf of floor space. The WSA that is required as part of the CEQA process must include, among other information, an identification of existing water supply assessments, water rights or water service contracts relevant to the identified water supply for the Project, and water received in prior years pursuant to those entitlements, rights, and contracts. A WSA was prepared for the Project by Winzler & Kelly (Appendix 3.16-A), the results of which are incorporated in this section.

Senate Bill x7-7 2009 (Water Conservation Act of 2009). Effective January 1, 2010, Senate Bill x7-7 (SBx7-7) requires the State to achieve 20 percent reduction in urban per capita water use by December 31, 2020. In addition, SBx7-7 requires agricultural water management plans and efficient water management practices for agricultural water suppliers, and promotes expanded development of sustainable water supplies at the regional level. The portion of SBx7-7 focused on urban water management establishes processes for urban water suppliers to meet the statewide water conservation targets. Further, SBx7-7 requires Department of Water Resources (DWR) review and reporting on urban water management plans; creates a Commercial, Industrial, and Institutional (CII) Task Force to develop best management practices (BMPs) for water use in this sector; requires DWR to promote implementation of regional water resource management practices through increased incentives; and requires DWR in consultation with SWRCB to develop or update statewide targets for recycled water, brackish groundwater desalination, and urban stormwater runoff.

California Integrated Waste Management Act (Assembly Bill 939). To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the State Legislature passed Assembly Bill 939, the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties in California are required to divert 25 percent of all solid waste from landfill or transformation facilities by January 1, 1995, and 50 percent by January 1, 2000.

Solid waste plans are prepared by each jurisdiction to explain how each city's AB 939 plan is integrated with its county plan. The plans must promote in order of priority: source reduction, recycling and composting, and finally, environmentally safe transformation and land disposal. The City/County Association of Governments of San Mateo County (C/CAG) is responsible for review and comment of

[2] *City of Menlo Park 2010 Urban Water Management Plan*, website: http://www.menlopark.org/departments/pwk/MP_2010_UWMP_Final.pdf, accessed July 22, 2011.

a Countywide Integrated Solid Waste Management Plan (CIWMP) through their Solid Waste Advisory Committee.

Public Resources Code (PRC) Sections 41770 and 41822, and Title 14, California Code of Regulations (CCR) Section 18788 require that each city and county is required to review and revise, if necessary, the CIWMP at least once every five years. The 2009 CIWMP is the most recent iteration of the C/CAG's CIWMP.[3]

State Model Ordinance California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327). This Act requires development projects to reserve adequate areas for collecting and loading recyclables. The City, similarly, has requirements for including garbage and recycling enclosures in site design, including space for recycling containers and access for recycling and garbage collection trucks.

Title 24 Building Energy Efficiency Standards. Building energy consumption is regulated under Title 24 of the California Code of Regulations. The efficiency standards contained in this title apply to new construction, both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water, and lighting.

Local

City of Menlo Park General Plan. The General Plan guides development and use of land within the City. Several goals and policies of the General Plan apply broadly to utilities in the City. The following policies from the Land Use Element[4] of the General Plan pertain to the Project.

> *Policy I-H-1:* The community design should help conserve resources and minimize waste.
>
> *Policy I-H-2:* The use of water-conserving plumbing fixtures in all new public and private development shall be required.
>
> *Policy I-H-3:* Plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance.
>
> *Policy I-H-7:* The use of reclaimed water for landscaping and any other feasible uses shall be encouraged.
>
> *Policy I-H-12:* Street orientation, placement of buildings, and the use of shading should contribute to the energy efficiency of the community.

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[3] The County of San Mateo, Public Works Department, *Five Year Countywide Integrated Waste Management Plan Review Report,* San Mateo County, December 2009, website: http://www.co.sanmateo.ca.us/bos.dir/BosAgendas/agendas2010/Agenda20100126/20100126_att1_54.pdf , accessed July 22, 2011.

[4] City of Menlo Park, Menlo Park General Plan, adopted December 1, 1994 with amendments through December 7, 2010.

Municipal Code, Chapter 12.44. Chapter 12.44[5] defines water-efficient landscaping standards that must be employed by new developments. All property owns of regulated projects shall complete and submit the landscape project application, comply with the landscape and irrigation maintenance schedule, and maintain landscape irrigation facilities to prevent water waste and runoff.

Municipal Code, Chapter 12.48. Chapter 12.48[6] of the Municipal Code specifies landfill diversion requirements of construction and demolition debris. Commercial construction projects of 5,000 sf or greater are required to divert at least 60 percent of total generated waste tonnage from landfills by using recycling, reuse, salvage, and other diversion programs. Before obtaining a building or demolition permit, project applicants must submit a form and obtain approval from the building division.

City of Menlo Park Climate Action Plan. The City's Climate Action Plan (CAP) recommends an extensive list of emission reduction strategies related to energy, water, and solid waste. Near term emission reduction strategies that would also result in the decreased use and/or generation of energy, water, and solid waste include, but are not limited to, an energy efficiency and renewable energy financing program, enhancements to recycling services, incentives for building practices that reduce energy consumption beyond current codes, and the MPMWD conservation programs.

West Bay Sanitary District Code of General Regulations. Under WBSD's Code of General Regulations, a Class 3 permit is required for construction of sewer mains, pumping stations and other wastewater. The WBSD Manager or his representative shall examine the plans submitted under a Class 3 sewer permit to verify that they are in accordance with good engineering practices and in compliance with the standard specifications and policies of WBSD. Plans which have been so examined and approved will be submitted to the WBSD Board for approval, alteration, or rejection. After approval of the plans by the WBSD Board, actual construction may be started and all work shall be performed under the inspection of, and in accordance with the standard specifications of WBSD.

All work shall be inspected by WBSD when construction is completed but before use is made of the facilities constructed. Inspection shall be made at such other times as the WBSD Manager may require. Subsequent to the District Board's acceptance of a sewer system constructed pursuant to a Class 3 permit, but prior to connection of and discharge into the District's wastewater facilities, a Class 2 permit, required for non-residential sewer connections, must be obtained by the applicant. The applicant shall give 24 hours advance notice to the WBSD Manager that construction performed under a Class 2 sewer permit is ready for inspection. The applicant shall give 48 hours advance notice with respect to such construction performed under a Class 3 sewer permit.

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[5] City of Menlo Park, Municipal Code, Title 12: Buildings and Construction, Chapter 12.44: Water-Efficient Landscaping, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

[6] City of Menlo Park, Municipal Code, Title 12: Buildings and Construction, Chapter 12.48: Recycling and Salvaging of Construction and Demolition Debris, passed August 23, 2011, website: http://www.codepublishing.com/CA/menlopark/, accessed September 28, 2011.

Existing Conditions

Water Supply, Storage, Treatment, and Distribution

Water Supply. The Project area is served by the MPMWD, which supplies water to an area of four square miles and a population of about 14,000 people. The remainder of the City is served by the California Water Services Company (Cal Water) and the O'Conner Tract Cooperative Water Company. MPMWD purchases wholesale water from the SFPUC Regional Water System (RWS). The SFPUC RWS is comprised of three regional water supply and conveyance systems: Hetch Hetchy, Alameda, and Peninsula systems.

SFPUC obtains approximately 85 percent of its water from Sierra Nevada snowmelt stored in the Hetch Hetchy reservoir, which is situated on the Tuolumne River in Yosemite National Park. The water from Hetch Hetchy travels more than 160 miles across California by gravity to reach Menlo Park. The remaining 15 percent of water supply comes from runoff in the Alameda and Peninsula watersheds, which is captured in reservoirs within San Mateo and Alameda counties.[7] The Hetch Hetchy system delivers 260 million gallons per day (mgd) of water to 1.7 million San Francisco Bay Area residents, businesses, and community organizations.[8] The supply sources and quantities for the SFPUC RWS, for normal rainfall years and for multiple dry years, are shown in Table 3.16-1.

Table 3.16-1
SFPUC Water Supply Sources and Quantities

		Normal Year Supply Source		Approximate Multiple Dry-Year Supply Source (20% System-wide Reduction)	
SFPUC Water Sources	**Origin/System**	**mgd**	**Approximate % of Supply**	**mgd**	**Approximate % of Supply**
Local Source	Alameda System[a]	39.75	15	14.84	7
	Peninsula System[b]				
Imported Source	Hetch Hetchy System[c]	225.25	85	197.16	93
	Total	**265.00**	**100**	**212.00**	**100**

Source: San Francisco Public Utilities Commission, 2005, Urban Water Management Plan, p. 11.

Notes:

a. Calaveras Reservoir, San Antonio Reservoir.

b. Crystal Springs Reservoir, San Andreas Reservoir, Pilarcitos Reservoir.

c. Hetch Hetchy Reservoir, Lake Lloyd, Lake Eleanor, New Don Pedro Reservoir, Tuolumne River System.

[7] Bay Area Water Supply & Conservation Agency, "Hetch Hetchy Water System," website: http://bawsca.org/water-supply/hetch-hetchy-water-system/, accessed August 10, 2011.

[8] Bay Area Water Supply & Conservation Agency, "About," website: http://bawsca.org/about/, accessed August 10, 2011.

On the San Francisco Peninsula, SFPUC uses Crystal Springs Reservoir, San Andreas Reservoir, and Pilarcitos Reservoir to capture local watershed runoff. In the Alameda Creek watershed, SFPUC uses the recently constructed Calaveras Reservoir and San Antonio Reservoir for water storage. In addition to capturing runoff, these facilities provide storage for Hetch Hetchy diversions and serve as an emergency water supply in the event of an interruption to Hetch Hetchy diversions.

Water Contracts and Agreements. The business relationship between San Francisco and its Wholesale Customers is largely defined by the current Water Supply Agreement (agreement) between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County entered into in July 2009. The new agreement replaced the Settlement Agreement and Master Water Sales Contract that expired June 2009. The agreement addresses the rate-making methodology used by San Francisco in setting wholesale water rates for its wholesale customers and also addresses water supply and water shortages associated with the SFPUC RWS. The agreement has a 25-year term.[9]

The agreement provides for a 184 mgd "Supply Assurance" to SFPUC's wholesale customers, subject to reduction to the extent and for the period made necessary by reason of water shortage, due to drought, emergencies, or by malfunctioning or rehabilitation of the regional water system.[10] Each member holds an Individual Water Supply Contract with SFPUC and the agreement governs these Individual Water Supply Contracts. Under the agreement and the Individual Water Supply Contract each agency negotiates an Individual Supply Guarantee (ISG), described further under Menlo Park Municipal Water District, below.

Section 7.01 of the 1984 Settlement Agreement and Master Water Sales Contract (MSA) states "Supply Assurance continues in effect indefinitely, even after expiration of the MSA in 2009" and this is still the case in the new agreement. The condition is a reflection of case law, which holds that a municipal utility acts in a trust capacity with respect to water supplied to outside communities (*Durant v. City of Beverly Hills*, 39 Cal. App. 2d 133, 102 P.2d 759 (1940)); and *Hansen v. City of San Buenaventura*, 42 Cal. 3d 1172 (1986)). Entire communities have developed a reliance on these water supplies. Consequently, the Supply Assurance of up to 184 mgd will survive the termination of the agreement and the Individual Water Supply Contracts.

Water Supply Improvements. In order to enhance the availability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has undertaken the WSIP, approved October 31, 2008. The WSIP includes a total delivery reliability goal of 265 mgd of supply with no greater than 20 percent rationing in any one year of a drought. In approving the Program Environmental Impact Report (PEIR) for the WSIP, the SFPUC adopted a Phased WSIP Variant for water supply. This Phased WSIP Variant establishes a mid-term water supply planning milestone in 2018 at which point SFPUC will reevaluate water demands through 2030. Concurrent with the adoption of the Phased WSIP Variant by the SFPUC, the Interim Supply Limitation (ISL) was also imposed by the SFPUC, which limits the volume of water

[9] Menlo Park Municipal Water District, *Final Urban Water Management Plan 2010,* June 2011.
[10] Menlo Park Municipal Water District, *Final Urban Water Management Plan 2010,* June 2011.

that member agencies and San Francisco can collectively purchase from RWS to 265 MGD, until at least 2018. According to the SFPUC's 2010 UWMP, as of July 1, 2010, the WSIP was 27 percent complete overall with the planning and design work over 90 percent complete.

The SFPUC committed to provide fishery flows below Calaveras Dam and Lower Crystal Springs Dam, as well as bypass flows below Alameda Creek Diversion Dam, by adopting project-specific approvals for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvement Project, which are part of the WSIP. These fishery flows could potentially create a shortfall in meeting the SFPUC demands of 265 mgd and slightly increase the SFPUC's dry-year water supply needs. However, in the last few years, SFPUC deliveries have been below this level. Recent deliveries were: 247.5 mgd in fiscal year (FY) 2006, 257 mgd in FY 2007, 254.1 mgd in FY 2008, 243.3 mgd in FY 2009, and 225.2 mgd in FY 2010. If this trend continues, the SFPUC may not need 265 mgd from its watersheds to meet purchase requests through 2018. As a result, the need for supplemental supplies of 3.5 mgd starting in 2013 and increasing to 7.4 mgd in 2015 to offset the water supply loss associated with fish releases may be less than anticipated.[11]

The Interim Supply Allocations (ISA) refers to each individual wholesale customer's share of the ISL. On December 14, 2010, SFPUC established each agency's ISA through 2018. In general, SFPUC based the allocations on the lesser of the projected FY 2017-2018 purchase projections or the ISG for each agency. The ISA's are effective only until December 31, 2018, and do not affect the Supply Assurance or the ISGs. MPMWD's ISA is 4.1 mgd or approximately 4,590 acre feet per year (AFY). As stated in the agreement, the wholesale customers do not concede the legality of some of the SFPUC's actions, including establishment of the ISA, and expressly retain the right to challenge these provisions, if and when imposed, in a court of competent jurisdiction.

The agreement includes a Water Shortage Allocation Plan (WSAP) that addresses shortages of up to 20 percent of system-wide use. The Tier One Shortage Plan allocates water from the RWS between San Francisco and the wholesale customers, during system-wide shortages of 20 percent or less. The WSAP also anticipated a Tier Two Shortage Plan, adopted by the wholesale customers, which would allocate the available water from the RWS among the wholesale customers.

The Tier One Shortage Plan replaced the prior Interim WSAP, adopted in 2000, which also allocated water for shortages up to 20 percent. The Tier One Plan also allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. The Tier One Plan will expire in 2034 at the end of the term of the Agreement, unless extended by SFPUC and the wholesale customers.

The wholesale customers have negotiated and adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers (that comprise the Bay Area Water Supply Conservation Agency [BAWSCA]). The Tier

[11] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

Two Plan will expire in 2018 unless extended by the wholesale customers. This Tier Two allocation is based on a formula that takes multiple factors for each wholesale customer into account, including:

- The ISG;
- Seasonal use of all available water supplies; and
- Residential per capita use.

As discussed above, the SFPUC has stated a commitment to meeting its contractual obligation to its wholesale customers of 184 mgd and its delivery goal of 265 mgd with no greater than 20 percent rationing in any one year of a drought. In Resolution No. 10-0175 adopted by SFPUC on October 15, 2010, SFPUC directed staff to provide information to the Commission and the public by March 31, 2011, on how the SFPUC has the capability to attain its water supply levels of service and contractual obligations. This directive was in response to concerns expressed by SFPUC and the Wholesale Customers regarding the effect on water supply of the instream flow releases required as a result of the Lower Crystal Springs Dam Improvement Project and the Calaveras Dam Replacement Project. In summary, the SFPUC has a projected shortfall of available water supply to meet its Level of Service goals and contractual obligations. The SFPUC has stated that current decreased levels of demand keep this from being an immediate problem, but that in the near future, the SFPUC must resolve these issues.

On August 9, 2011, SFPUC held a Strategic Planning Retreat and considered, among other things, future water demand and supply. On September 9, 2011, SFPUC staff provided a Memorandum on its activities regarding water demands and supplies. Future water supply options considered in the Memorandum include: water transfers, desalination projects, recycled water projects, modifications to water rights arbitration awards between SFPUC and the Alameda County Water District, and the development of alternative water supplies. The Memorandum concludes with a commitment by SFPUC staff to report back by January 31, 2012 with additional information and a master schedule for when the various water supply options will be presented to the Commission for consideration.[12] Under critical dry and multiple dry years, due to supply curtailments by SFPUC of 10 and 20 percent, the City, along with all the other BAWSCA members, can anticipate regional supply shortages of varying degrees now and over the next 20 years. It should be noted that after 2018, SFPUC could increase diversions off the Tuolumne River and eliminate the need for supply reductions. The agreement assumed that diversion increases may not occur, and therefore, supply curtailments would be necessary.

Bay Area Water Supply Conservation Agency. MPMWD is part of BAWSCA, created in 2003 through State legislation (AB 2058) to represent the interests of 24 cities and water districts and two private utilities in Alameda, Santa Clara, and San Mateo counties that purchase water on a wholesale basis from SFPUC's regional water system.[13] In particular, there are two primary BAWSCA activities that

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[12] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

[13] Bay Area Water Supply & Conservation Agency, "About," website: http://bawsca.org/about/, accessed August 10, 2011.

impact MPMWD's water supply and demand projections, the Water Conservation Implementation Plan (WCIP) and the Long Term Reliable Water Supply Strategy.

In September 2009, BAWSCA completed the WCIP, which includes 37 potential demand management activities including 32 existing measures and five new measures that were defined and developed as part of the WCIP. It is an implementation plan for BAWSCA and its member agencies to attain the water use efficiency goals that BAWSCA's member agencies committed to in 2004 as part of the PEIR for SFPUC's WSIP. The WCIP also identifies how BAWSCA member agencies can use water conservation as a way to continue to provide reliable water supplies to their customers through 2018 given the SFPUC's 265 mgd ISL.

In addition, BAWSCA is developing the Long-Term Reliable Water Supply Strategy to meet the projected water needs of its member agencies and their customers through 2035 and to increase their water supply reliability under normal and drought conditions. Additional information regarding the WCIP and the Long-Term Reliable Water Supply Strategy can be found in the WSA, as included in this Draft EIR as Appendix 3.16-A.

Menlo Park Municipal Water District. As part of the Individual Water Supply Contract that MPMWD holds with the SFPUC, MPMWD has an ISG of 4.465 mgd (or approximately 4,993 AFY).[14] Menlo Park purchased 3.19 mgd from SFPUC to meet customer needs in fiscal year 2009-2010, or about 71.6 percent of its allocation.[15] Table 3.16-2 shows MPMWD's current and future water deliveries by customer sector. Table 3.16-3 provides a summary of the existing and planned water supply sources for MPMWD. As shown by Table 3.16-2 and Table 3.16-3, current and projected MPMWD water demand is below MPMWD's projected water supply.

Table 3.16-2
MPMWD Existing and Projected Water Deliveries by Customer Sector (in AFY)

Water Use Sectors	2010	2015	2020	2025	2030	2035
Single Family	1,171.0	1,053.9	959.0	962.4	965.7	969.1
Multi-Family	333.0	299.7	272.7	279.6	286.7	293.9
Commercial, Industrial, and Institutional (CII)	1,366.0	1,867.0	1,680.3	1,742.9	1,808.2	1,876.7
Landscape	436.0	428.0	400.0	400.0	400.0	400.0
Other	85.0	96.3	87.7	86.8	88.6	90.5
Total	**3,910.0**	**3,744.9**	**3399.7**	**3,471.7**	**3,549.2**	**3,630.2**

Source: Winzler & Kelly, 2011, Appendix 3.16-A

Notes:

AFY = acre feet/year; 1 acre foot = 325,850 gallons

[14] Menlo Park Municipal Water District, *Final Urban Water Management Plan 2010,* June 2011.

[15] Bay Area Water Supply and Conservation Agency, *Annual Survey*, *FY 2009-2010*, May 2011.

Table 3.16-3
MPWMD Existing and Planned Sources of Water (in AFY)

Wholesale Sources	Contracted Volume	2015	2020	2025	2030	2035
San Francisco Public Utilities Commission	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
BAWSCA Long Term Strategy	-	-	-	-	-	-
Groundwater Supplies	-	-	-	-	-	-
Totals	**4,993.0**	**4,993.0**	**4,993.0**	**4,993.0**	**4,993.0**	**4,993.0**

Source: Winzler & Kelly, 2011, Appendix 3.16-A.

Water Treatment. The City purchases 100 percent of its treated water supplies from SFPUC as agreed upon in the WSA and its ISG. The purchased water is treated at both the Sunol Valley Water Treatment Plant (WTP) and the Harry Tracy WTP. As of 2011, SFPUC is engaged in a variety of water treatment and distribution system improvements projects that comprise its WSIP, which evolved out of its earlier Water System Master Plan (2000). The WSIP EIR evaluated the impacts associated with implementation of the WSIP, but individual projects would be subject to project-specific environmental review. SFPUC is in the process of completing the environmental review for expansion at the Sunol Valley WTP; once completed the Sunol Valley WTP would have sustainable capacity[16] to treat up to 160 mgd. The Harry Tracy WTP treats 120 mgd, and there are plans for expansion and upgrades to sustainably treat 180 mgd. As of 2011, the Sunol Valley WTP and Harry Tracy WTP are forecasted to be completed in June 2013 and March 2015, respectively. Therefore, at capacity, SFPUC would be capable of treating up to 340 mgd. In addition, once operational, SFPUC's Tesla Water Treatment Facility in Tracy, California, will be the largest ultraviolet disinfection treatment plant in California, capable of producing 315 mgd.[17] The final completion date for construction of the Tesla Water Treatment Facility is projected for June 28, 2012. Therefore, after 2015, SFPUC would be able to treat up to 655 mgd.

Water Storage and Distribution. The MPMWD maintains 59 miles of water mains, 5,006 (including 4,300 residential) metered water services, two reservoirs, and one pump station. Eight hundred valves, 330 fire hydrants, 600 backflow prevention devices, 40 flushing points, and five service connections to SFPUC complete the system. MPMWD's water distribution system is split into four different service area zones based on water pressure, as described below:

- The **lower zone** is located north and east of El Camino Real and serves primarily residential and small commercial land uses. The zone includes the Belle Haven, Bay Road, and Willows neighborhoods.

[16] Sustainable capacity is the highest flow rate at which a treatment plant can be expected to operate, given normal source water conditions, while meeting regulatory water quality and routine maintenance requirements.

[17] San Francisco Public Utilities Commission, News, "San Francisco, Federal and State Officials to Dedicate California's Largest Ultraviolet Water Treatment Facility," July 19, 2011, website: http://www.sfwater.org/Index.aspx?page=17&recordid=24, accessed July 21, 2011.

- The **high pressure zone** is located in northern Menlo Park between US 101 and the Bayfront Expressway and serves primarily industrial land uses. It includes the Bohannon Industrial Park and Tyco Properties.
- The **upper pressure zone** is located in western Menlo Park and is geographically and hydraulically disconnected from other zones. It serves primarily the Sharon Heights residential neighborhood, the Sharon Heights Golf Course, and the Stanford Linear Accelerator.
- The **Menlo Business Park zone** is located along O'Brien Drive between Willow Road and University Avenue. It serves primarily light industrial land uses.

The high pressure zone is hydraulically disconnected from the other zones with inter-tie capabilities. The upper pressure zone is hydraulically and geographically separated from the other zones. The Project site is located in two separate zones; the East Campus is in the Menlo Business Park service area while the West Campus is in the lower zone.[18]

Wastewater Collection and Treatment

The West Bay Sanitary District (WBSD) collects wastewater from customers within Menlo Park (including the Project site), Atherton, East Palo Alto, Redwood City, Woodside, and unincorporated San Mateo and Santa Clara counties. WBSD serves an area of approximately 13 square miles and operates and maintains approximately 200 miles of public sewer main lines, which range in size from 3 to 54 inches in diameter. WBSD transports wastewater via main line trunk sewers to the Menlo Park Pumping Station (MPPS) located at Bayfront Expressway and Marsh Road, west of the Project site. From there, wastewater is transported to the South Bayside System Authority (SBSA) Regional Treatment Plant, located at the eastern end of the Redwood Shores peninsula in Redwood City, approximately 6 miles northwest of the City. The WBSD operates a separate sanitary sewer and stormwater conveyance system.

The East Campus is served by a privately owned on-site pump station and force main that connects to a WBSD facility located near Willow Road and the railroad crossing, south of the East Campus. Wastewater generated at the East Campus is conveyed to the SBSA treatment plant via WBSD's sewer mains along Hamilton Avenue (westward) to a WBSD Pump Station near Hamilton Avenue and Henderson Avenue, known as the Hamilton Henderson Pump Station (HHPS), southwest of the East Campus. Then, flow is conveyed along a force main within an easement to a 30-inch sewer trunkline that ends at the MPPS at Bayfront Expressway and Marsh Road; at which point wastewater is conveyed along a force main to the SBSA Regional Treatment Plant in Redwood Shores.[19] The SBSA Regional Treatment Plant is permitted by the San Francisco Regional Water Quality Control Board (RWQCB) to discharge treated wastewater into San Francisco Bay. The SBSA Regional Treatment Plant is jointly owned and operated by WBSD and the cities of Redwood City, Belmont, and San Carlos as a joint powers authority (JPA). Under The SBSA's National Pollutant Discharge Elimination System (NPDES) permit, the Regional Treatment Plan has a permitted dry weather capacity of 27 mgd and

[18] City of Menlo Park, Municipal Water Department, *Final 2010 Urban Water Management Plan and Update to the Water Contingency Plan,* June 2011.

[19] West Bay Sanitary District, Written Response to Atkins Data Request, August 2, 2011.

peak wet-weather-capacity of 71 mgd. SBSA is two years into implementing its Conveyance System Master Plan, which is a 10-year capital improvement program (CIP) intended to accommodate projected increases in wastewater flows through 2030. Renovation and refurbishing of SBSA facilities under the CIP will increase treatment capacity to 29 mgd during dry weather and 80 mgd during peak wet weather.[20] The majority of these improvements are anticipated for completion in 2015 with full completion anticipated by 2018.[21]

SBSA puts its entire wastewater stream through primary, secondary, and post-secondary treatment in order to comply with RWQCB requirements for discharge to San Francisco Bay. SBSA treats some of its effluent to meet recycled water standards for unrestricted beneficial reuse per California Code of Regulations, Title 22. Certain sections of the SBSA's service area, excluding MPMWD's service area accept highly treated wastewater for reuse. Table 3.16-4 illustrates the existing and planned wastewater flows and recycled water capabilities.

Table 3.16-4
SBSA Existing and Projected Wastewater Collection and Treatment and Recycled Water Delivery Capability (mgd)[a]

Type of Wastewater	2010[b]	2015	2020	2025	2030
SBSA Wastewater Collected & Treated in Service Area	15.09	15.79	16.50	17.20	17.85
SBSA Volume That Meets Recycled Water Standard	100%	100%	100%	100%	100%

Source: City of Menlo Park, UWMP, June 2011.

Notes:

a. Values were originally in AFY and were converted using a factor of 1 AFY=0.00089274 mgd.

b. SBSA Conveyance System Master Plan, April 2011 (Winzler & Kelly) Table 2.3. 2007 baseline is used for the 2010 estimates. Estimates based on ADWF.

In 2009, SBSA received a dry weather average of 15 mgd from residential and commercial customers in the SBSA service area. SBSA's actual peak wet weather flow in 2009 was 62 mgd, less than in 2008 when peak wet weather flow was 70 mgd.[22] During wet weather events, when wastewater flows exceed SBSA's capacity, flows are temporarily diverted to a 10-million-gallon equalization basin near the connection of the WBSD sewer collection system to SBSA's system at the end of Marsh Road near Bayfront Park.[23] This temporary holding pond is owned and maintained by WBSA and can receive excess flows from WBSD or other member agencies of the JPA. WBSD's entitled allocation of the SBSA plant dry weather flow capacity is approximately 7.975 mgd. The WBSD's current average dry weather flow is 4.58 mgd and the daily peak wet weather flow is 14.4 mgd.[24] As such, there is available capacity in the WBSD's entitled allocation of wastewater to the SBSA to accommodate

[20] South Bayside System Authority (SBSA), *SBSA Announces $339 Million, 10-Year Capital Improvement Program,* Press Advisory, May 9, 2008.

[21] Dan Child, South Bayside System Authority, email correspondence, September 21, 2011.

[22] Dan Child, South Bayside System Authority, email communication, September 22, 2011.

[23] Bill Kitajima, West Bay Sanitary District, email communication, October 25, 2011.

[24] Bill Kitajima, West Bay Sanitary District, email communication, August 1, 2011.

growth within the WBSD's service area. Further, as described above, the SBSA is in the process of ensuring that future wastewater treatment demands are met through implementation of the CIP.

Solid Waste Collection and Disposal

Prior to January 1, 2011, Allied Waste Services was the main service provider for the City. As of 2011, Recology San Mateo provides recycling, compost, and garbage collection services within the Cities of Atherton, Belmont, Burlingame, Hillsborough, San Mateo, Foster City, Redwood City, San Carlos, Menlo Park, unincorporated areas of San Mateo County, and WBSD. Recology San Mateo collects solid waste from the City and hauls it to the Shoreway Environmental Center (previously known as the Shoreway Recycling and Disposal Center) at 225 and 333 Shoreway Road, east of US 101. The Shoreway Environmental Center is operated by South Bay Recycling under contract with the South Bayside Waste Management Authority (RethinkWaste) as of January 1, 2011.

The Shoreway Environmental Center serves as a regional solid waste and recycling facility for the receipt, handling, and transfer of refuse and recyclables collected from the RethinkWaste service area. The facility is permitted by the California State Integrated Waste Management Board (CIWMB) to receive 3,000 tons per day of refuse and recycles and currently receives approximately 1,500 tons per day.[25] After solid waste is collected at the Shoreway Environmental Center, it is transported to the Ox Mountain Sanitary Landfill, north of State Route 92 and Skyline Boulevard near the City of Half Moon Bay. Ox Mountain is permitted by CIWMB to receive 3,598 tons per day or approximately 1.15 million tons per year and has a permitted maximum total capacity of approximately 49 million cubic yards. As of 2011, the Ox Mountain Landfill receives an average of 2,260 tons per day or approximately 700,600 tons per year.[26] It is estimated that the remaining available capacity at Ox Mountain Landfill is approximately 20.2 million cubic yards and the landfill is expected to reach capacity in 2034. However, it is important to note that this is an approximation and the remaining available capacity at the Ox Mountain Landfill is dependent on the method of estimation as well as market conditions that could affect the generation of waste. In 2010, Menlo Park generated approximately 20,941 tons total of solid waste and roughly 13,725 tons strictly from commercial disposal.[27]

Storm Drainage System

The City's Public Works Department constructs, operates, and maintains the storm drainage system for the City, including the Project area. Existing storm drain lines serve the East Campus. These lines range in size from 12-inches to 24-inches in diameter and convey stormwater from the parking lots, courtyard, and existing buildings to a 24-inch line that discharges south of the property.[28] The runoff is

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[25] Monica G. Devincenzi, South Bayside Waste Management Authority, RethinkWaste, email correspondence with Atkins, August 4, 2011.

[26] Monica G. Devincenzi, South Bayside Waste Management Authority, RethinkWaste, email correspondence with Atkins, August 4, 2011.

[27] Monica G. Devincenzi, South Bayside Waste Management Authority, RethinkWaste, email correspondence with Atkins, August 4, 2011.

[28] BKF Engineers, "Facebook @Menlo Park East Campus Storm Drain Report," June 1, 2011.

conveyed to the Caltrans Pump Station to the south of Bayfront Expressway, which eventually pumps stormwater into Ravenswood Slough.[29]

The West Campus drains to the Willow Road storm drain system and is served by a 78-inch diameter storm drain line beneath Willow Road.[30] The on-site storm drain system at the West Campus also serves approximately seven acres of the east end of the adjacent TE Connectivity property. In addition, an existing swale (Swale A) within the Dumbarton Rail Corridor (south of the West Campus) drains to Willow Road through a portion of the on-site storm drain system.[31] In summary, these two areas discharge stormwater through the West Campus on-site storm drain system to the storm drainage system along Willow Road.

Once runoff from the West Campus enters the 78-inch diameter storm drain line along Willow Road, it is conveyed to the Caltrans Pump Station, described above.[32] Local drainage facilities in the vicinity of the Project site are sized for the development in the area. As of 2011, the existing peak flow in the Willow Road storm drainage system measured at an inlet near the intersection of Willow Road and Bayfront Expressway is 287.7 cubic feet per second (cfs) during the 10-storm event and 352.0 cfs during the 100-year storm event.[33] According to the West Campus Hydrology Report, the on-site storm drain system does not have capacity to convey flows associated with the 100-year storm event and the existing West Campus would experience localized flooding (discussed further in Section 3.12, Hydrology and Water Quality). There are two existing conditions that contribute to this insufficiency in the storm water drainage system. First, the existing on-site storm drain system was not originally designed for the 100-year storm event. Second, during the 100-year storm event, Swale A drains to Willow Road through a portion of the on-site storm drain system and essentially displaces on-site runoff.[34]

Natural Gas and Electricity

With a relatively mild Mediterranean climate and strict energy efficiency and conservation requirements, California has lower energy consumption rates than other parts of the country. According to the Department of Energy (DOE), per capita energy use in California is approximately 70 percent of the national average, the third lowest state in the nation. California has the lowest annual electrical consumption rates per person of any state and uses 20 percent less natural gas per person. Per capita, transportation energy use in the State is near the national average. Nevertheless, with a population of approximately 35 million residents, the State is the tenth largest consumer of energy in the world.

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29 Steffens, Kent, City of Menlo Park, Menlo Park Municipal Water District, email correspondence with Atkins, May 16, 2011.

30 BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

31 BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

32 BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

33 BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

34 BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

The City is located in a coastal climate zone (Climate Zone 3 in the Title 24 Climate Zone designation mapping) and with the moderating influence of the Bay, requires less energy for heating and cooling than other parts of the State. PG&E delivered 5,116 million kilowatt (kW) hours to customers in San Mateo County in 2008. Approximately 68 percent of this power was sold to non-residential accounts.[35] In 2008 (baseline condition for this analysis) electricity usage at the East Campus was approximately 61,349,150 kilowatt-hours (kWh) per year. This demand for electricity at the East Campus was driven by the operation of large server farms which are highly energy intensive. Because the West Campus has been unoccupied in recent years, for the purposes of this Draft EIR, existing electricity demand is zero.

In 2008, PG&E delivered 231 million therms of natural gas to San Mateo County, with about 41 percent sold to non-residential customers.[36] The existing development at the East Campus is served by a natural gas pipeline. In 2008, the occupants of the East Campus used approximately 332,492 therms of natural gas. As identified above, the existing buildings at the West Campus have not been occupied in recent years. Under existing conditions, the West Campus buildings are currently not using natural gas, although natural gas infrastructure is in place.[37]

PG&E provides natural gas and electric service within 94,000 square miles of northern and central California, including the City and Project site. PG&E purchases both gas and electrical power from a variety of sources, including other utility companies. PG&E's service area extends from Eureka to Bakersfield (north to south), and from the Sierra Nevada to the Pacific Ocean (east to west). PG&E obtains its energy supplies from power plants and natural gas fields in northern California and from energy purchased outside its service area and delivered through high voltage transmission lines. PG&E operates a grid distribution system that channels all power produced at the various generation sources into one large energy pool for distribution throughout the service territory. Additionally, the City obtains methane gas from a decommissioned landfill located beneath Bedwell Bayfront Park, immediately north across Bayfront Expressway and west of Project site. The City uses this methane gas to generate electricity, which is then sold back to PG&E. The City has a contract with Fortistar Methane Group (formerly Laidlaw Gas Recovery Systems) to operate and maintain the gas wells, pipelines, and generation plant facilities.[38]

PG&E's gas piping system delivers natural gas from three major sources (Canada, southwestern United States, and California) to its residential, commercial, industrial, and agricultural customers. While most customers purchase their gas from PG&E, large customers can purchase gas from other third-party suppliers. Natural gas typically comes out of the ground via gas wells. Its pressure lets it rise to the surface naturally. Gas from a well is cleaned and treated, removing sand, dust, and water.

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[35] California Energy Commission (CEC), *Electricity Consumption by County,* website: http://www.ecdms.energy.ca.gov/elecbycounty.aspx, accessed November 17, 2011.

[36] California Energy Commission (CEC), *Electricity Consumption by County,* website: http://www.ecdms.energy.ca.gov/gasbycounty.aspx, accessed November 17, 2011.

[37] KEMA, Facebook Menlo Park Campus Energy Demands, Memorandum from Erik Dyrr, KEMA, to City of Menlo Park, August 2, 2011.

[38] City of Menlo Park, *Menlo Park General Plan Background Report*, December 1994, website: http://www.menlopark.org/departments/pln/gp/mp_gp_land-use-and-circulation.pdf, accessed July 22, 2011.

Impacts and Mitigation Measures

Standards of Significance

The Project would result in a significant impact if it would:

- Exceed water supplies available to serve the Project from existing entitlements and resources.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Exceed wastewater treatment requirements of the applicable RWQCB.
- Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.
- Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs.
- Fail to comply with federal, State, and local statutes and regulations related to solid waste.
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Result in a determination by the gas and electric provider that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments, and would result in wasteful, inefficient, and unnecessary consumption of energy.

Methodology

Baseline conditions considered in the following analysis differ between the East Campus and West Campus. Because the East Campus was recently occupied (and operational), the following analysis assumes a baseline condition of operation of the East Campus in 2008. Comparatively, because the West Campus has not been operational for a number of years, and because the Project would result in demolition and construction of a new building to house office uses, all baseline conditions at the West Campus are assumed to be zero (as if the property were undeveloped). Refer to Section 3.1, Introduction to Environmental Analysis, for further details regarding baseline conditions.

Water Supply. The analysis in this section focuses on the nature and magnitude of the change in levels of water use compared with existing and projected water use in the MPWMD service area. To determine potential impacts, future water consumption was estimated from demand projection calculations and quantitative evaluation of data for existing land uses, approved projects, and proposed development, including that proposed for the Project area. The primary resources used for this analysis include the WSA for the Project, Winzler & Kelly (October 28, 2011); the City's 2010 UWMP, adopted June 2011; the SFPUC 2010 UWMP (June 2011); and the SFPUC Water Supply Improvement Program. The methodology presented by the U.S. Green Building Council in the Leadership in Energy

and Environmental Design (LEED) for New Construction and Major Renovation Reference Guide, 2.2 was used to determine individual employee water use. The demand analysis also assumes the installation of water-conserving fixtures and other water demand reduction strategies that are part of the Project's sustainability program (refer to Chapter 5 of the California Green Building Standards Code).[39] To account for the fact that employees would typically occupy the Project site longer than a typical 8-hour day, the number of bathroom visits was increased by one from those suggested in the California Green Building Code guidelines. The City's Water Budget Calculation Form was used to estimate irrigation demands for landscaping at the West and East Campuses.

Wastewater. It is assumed that 100 percent of the water consumed indoors at the two campuses would become wastewater conveyed to the SBSA Regional Treatment Plant. The wastewater demands of the Project are compared to the available capacity of WBSD sanitary sewer system and the SBSA Regional Treatment Plant to assess the potential for significant environmental impacts.

Solid Waste. Solid waste generation for the Project is based on generation rates from a solid waste analysis prepared by the Project Sponsor.[40] The Project's solid waste generation is then compared to available capacity at solid waste facilities that serve the Project area (Shoreway Environmental Center and Ox Mountain Sanitary Landfill).

Storm Drain. Analysis of potential impacts to the City's storm drainage system is based on information provided by BKF Engineers, which is included as relevant stormwater technical information in Appendix 3.12-C of this Draft EIR.[41] Refer to Section 3.12, Hydrology and Water Quality, for further information regarding the Project's impact on stormwater runoff.

Energy Services. Energy services were assessed based on information provided in the Menlo Park Facebook Campus Project Energy Demands technical memorandum prepared by KEMA.[42] The energy demand memorandum is included as Appendix 3.16-B of this document.

Environmental Analysis

UT-1 ***Water Demand.*** *The Project, at both the East Campus and West Campus, would not exceed water supplies available under normal year conditions to serve the Project from existing entitlements. Therefore, implementation of the Project would have a* ***less-than-significant*** *impact on water supplies. (LTS)*

<u>East Campus</u>

The Project would not increase the net square footage of the existing development at the East Campus; however, the intensity of use would increase. The Project would modify the CDP from an employee cap to a trip cap that would allow an increase in the number of employees

[39] BKF Engineers, *Facebook @ Menlo Park Water Demand Summary,* August 4, 2011.

[40] Facebook, Trash Analysis, August 29, 2011.

[41] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

[42] KEMA, "Facebook Menlo Park Campus Energy Demand," technical memorandum from Erik Dyrr, KEMA, to the City of Menlo Park, August 2, 2011.

on the East Campus from a maximum 3,600 to approximately 6,600 workers, thereby increasing water demand.

Table 3.16-5 shows existing annual water demand and estimated future water demand for the East Campus after implementation of the Project. As part of its sustainability program, the Project Sponsor would retrofit the existing buildings on the East Campus with new, water-conserving plumbing fixtures. These fixtures would include dual flush toilet valves that allow for a reduced flush of 1.1 gallons and a full flush at 1.6 gallons, 0.13 gallon per flush high efficiency urinals, and sensor activated 0.5 gallon per minute faucets. Additionally, the Project Sponsor has implemented a landscape program in the East Campus courtyard area to reduce site irrigation and adhere to water efficiency and conservation measures mandated by the California Green Building Code, 2010 California Plumbing Code, and the City's Water Efficient Landscape Ordinance. The East Campus was fully occupied until as recently as 2008 by Sun Microsystems and was partially occupied by Oracle, which placed demands on MPMWD's water system that were accounted for in the 2010 UWMP. Therefore, to derive an accurate Project-related water demand (net new demand), the water demand associated with Sun Microsystems occupation of the East Campus is subtracted from the projected water demand associated with the Project. Existing demand, projected demand, and net new demand are shown in Table 3.16-5, below.

The WSA assumed that the East Campus would use water supplied through the existing MPMWD entitlement. As shown in Table 3.16-5, implementation of the Project would result in a net increase in water demand at the East Campus of approximately 54.0 AFY or 48,240 gallons per day (gpd) (0.048 mgd). As of 2010, the MPMWD used approximately 78 percent of its ISG from SFPUC, leaving approximately 1,083 AFY (0.97 mgd) of available water supply. Operation of the East Campus would require approximately 54.0 AFY (0.048 mgd), or about 5 percent of the available capacity in MPMWD's ISG.

The WSA concluded that in normal and single dry years MPMWD has adequate capacity in its water entitlements to supply the East Campus through the year 2035. MPMWD could experience slight shortages (under 5 percent) in multiple dry years. However, MPMWD's water shortage contingency plan provides the MPMWD with the tools and authority to enforce modest demand reduction measures to ensure that the water supply would be adequate in the second and third year of multiple dry year events. Therefore, operation of the East Campus would have a ***less-than-significant*** impact on the existing water supplies and would not require the expansion of existing entitlements or the expansion or construction of new facilities.

West Campus

Implementation of the Project would result in the construction of approximately 440,000 sf of office buildings and amenities structures on the West Campus. The West Campus would be developed to accommodate approximately 2,800 employees at full buildout. As identified in Section 2, Project Description, the West Campus is unoccupied.

Table 3.16-5
Existing and Proposed Water Demand at the East Campus and West Campus

	Existing Demand (gpd)	Proposed Demand (gpd)	Net New Demand (gpd)
East Campus			
Building Demand	41,832	91,872	31,937
Irrigation Demand	13,400	11,600	-1,800
Subtotal	55,232	103,472	48,240
Subtotal in AFY	61.9	115.91	54.04
West Campus			
Building Demand	0	38,976	38,976
Irrigation Demand	0	19,400	19,400
Subtotal	*0*	*58,376*	*58,376*
Subtotal in AFY	*0*	*65.39*	*65.39*
Total	**55,232**	**161,848**	**106,616**
Total in AFY	**61.9**	**181.3**	**102.38**

Source: Winzler & Kelly, 2011.
Note:
See Appendix 3.16-A for assumptions.

Table 3.16-5 presents the existing annual water demand and estimated future water demand for the West Campus after implementation of the Project. Development of the West Campus would include a comprehensive sustainability plan that would involve the same water conservation fixtures as described with respect to the East Campus, above. Furthermore, the Project would implement a landscape program on the West Campus that would include drought tolerant, bay friendly plant species to reduce irrigation by approximately 50 percent of standard design baseline. Development at the West Campus would likewise adhere to the California Green Building Code and 2010 California Plumbing Code.

As shown in Table 3.16-5, implementation of the Project would result in a net increase in water demand at the West Campus of approximately 65.4 AFY, or 58,376 gpd (0.058 mgd). As of 2010, the MPMWD uses approximately 78 percent of its allocation from SFPUC leaving approximately 1,083 AFY of unutilized water supply. Operation of the West Campus would require approximately 65.4 AFY, which represents about six percent of MPMWD's excess capacity.

The WSA concluded that, in normal and single dry years, MPMWD has adequate capacity in its water supply to supply the West Campus through the year 2035. MPMWD could experience slight shortages (under five percent) in multiple dry years. However, MPMWD's water shortage contingency plan provides the MPMWD with the tools and authority to enforce modest demand reduction measures to ensure that the water supply would be adequate in the second and third year of multiple dry year events. Therefore, operation of the West Campus

would have a ***less-than-significant*** impact on the existing water supplies and would not require the expansion of existing entitlements.

Total Project

Implementation of the Project (East Campus and West Campus) would result in a total water demand of approximately 161,848 gpd, or 181.3 AFY at full buildout, as shown in Table 3.16-5. As described in the WSA, MPMWD's 2010 UWMP anticipated the Project in its demand projections and concluded that MPMWD would have an adequate supply to meet its projected demands in normal and single dry years. There is the potential for modest near-term shortages in the second and third year of multiple dry years, when demand would exceed supply by, at most, 150 AFY or four percent. However, as identified in the WSA, MPMWD has an established Water Shortage Contingency Plan, including legal authority to implement that plan, which provides methods to reduce water demands by as much as 50 percent in four stages. The modest demand reduction required to manage small supply restriction (approximately four percent) in multiple year droughts can, therefore, be achieved by MPMWD.[43] As such, implementation of the Project (East Campus and West Campus together) would have a ***less-than-significant*** impact on water supplies in the MPMWD's service area and expansion of existing entitlement would not be necessary to accommodate the Project.

UT-2 ***Impacts to Water Treatment Facilities.*** *The Project, at both the East Campus and West Campus, would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, which could cause significant environmental effects. Therefore, the Project would have a* ***less-than-significant*** *impact on water treatment facilities. (LTS)*

As described under "Existing Conditions," MPMWD purchases 100 percent of its treated water supplies from the SFPUC. The purchased water is treated at the Sunol Valley WTP and the Harry Tracy WTP. The Sunol Valley WTP has a peak capacity of 160 mgd and a sustainable capacity of 120 mgd, and the Harry Tracy WTP has a peak capacity of 140 mgd and sustainable capacity of 120 mgd. As part of the WSIP, the Sunol Valley WTP would be expanded to sustainably treat 160 mgd and the Harry Tracy WTP would be expanded to sustainably treat 180 mgd. When both of these WTPs are operating at capacity, SFPUC would be capable of supplying up to 340 mgd. Furthermore, the newly constructed SFPUC Tesla Water Treatment Facility in Tracy, California, (part of the WSIP) will be the largest ultraviolet disinfection treatment plant in California, capable of producing 315 mgd.[44] Therefore, after 2015, SFPUC would be able to deliver up to 655 mgd of treated water.

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[43] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

[44] San Francisco Public Utilities Commission, News, *San Francisco, Federal and State Officials to Dedicate California's Largest Ultraviolet Water Treatment Facility,* July 19, 2011, website: http://www.sfwater.org/Index.aspx?page=17&recordid=24, accessed July 21, 2011.

East Campus

As shown in Table 3.16-5, above, operation of the East Campus would result in approximately 54.0 AFY, or 0.048 mgd, of additional water demand from the MPMWD. As described in Impact UT-1 above, the MPMWD has capacity within its ISG of 4,993 AFY, or 4.465 mgd, to accommodate the additional water demand that would result from operation of the East Campus. As a result, the East Campus, even at higher employment levels than when occupied by Sun Microsystems, would not require the MPMWD to purchase additional water supplies from the SFPUC and would not require the SFPUC to deliver additional water supplies over its normal-year system-wide target of 265 mgd. SFPUC's Regional Water System (RWS) has sufficient capacity in its water treatment facilities to meet its daily system-wide demands (BAWSCA and City of San Francisco). Furthermore, at the time the East Campus is fully occupied, the water treatment facility improvement projects described previously would be complete and the SFPUC would be capable of treating and delivering up to 655 mgd. Therefore, implementation of the Project at the East Campus would not require the expansion of existing water treatment facilities or the construction of new facilities. The East Campus would have a ***less-than-significant*** impact with regard to existing water treatment facilities.

West Campus

Similar to the East Campus, the West Campus would acquire its water supply from the MPMWD. Implementation of the Project at the West Campus would result in approximately 65.39 AFY, or 0.058 mgd, of additional water demand from the MPMWD. As described in Impact UT-1, above, the MPMWD has capacity within its ISG of 4,993 AFY, or 4.465 mgd, to accommodate the additional water demand that would result from operation of the West Campus. Operation of the West Campus would not require the MPMWD to purchase additional water supplies from the SFPUC and, therefore, would not require the SFPUC to deliver additional water supplies over its normal-year system-wide target of 265 mgd. As of 2011, the SFPUC's RWS has sufficient capacity in its water treatment facilities to meet its daily system-wide demands (BAWSCA and City of San Francisco). Furthermore, at the time the West Campus is operational, the water treatment facility improvement projects described previously would be complete and the SFPUC would be capable of treating up to 655 mgd. Therefore, implementation of the Project at the West Campus would not require the expansion of existing water treatment facilities or the construction of new facilities. The West Campus would have a ***less-than-significant*** impact with regard to existing water treatment facilities.

Total Project

As described above, implementation of the East Campus and the West Campus individually would not require expansion of the existing water treatment facilities serving the MPMWD. Further, as described in Impact UT-1, the MPMWD has sufficient capacity under normal year conditions to accommodate the water demands of the Project within its ISG. As such, the Project would not require the MPMWD to acquire additional water supplies, nor would the Project require the SFPUC to deliver more than its system-wide water-supply target of 265

mgd. The SFPUC has sufficient capacity in its water treatment facilities (Sunol Valley WTP and Harry Tracy WTP) to deliver treated water to its customers (BAWSCA and City of San Francisco). Completion of the water treatment facility expansion projects under the WSIP would provide the SFPUC with the capability of treating up to 655 mgd by 2015. Therefore, implementation of the Project would not require the expansion of existing water treatment facilities or the construction of new facilities. The Project would have a ***less-than-significant*** impact related to water treatment facilities.

UT-3 ***Wastewater Generation.*** *The Project, at both the East Campus and West Campus, would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, or result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's expected demand and existing entitlements. However, the existing sanitary sewer system serving the Project site would not have sufficient capacity to accommodate the Project. Therefore, this impact would potentially significant. (PS)*

East Campus

It is estimated that 100 percent of building water demand at the East Campus would become wastewater conveyed to the SBSA Regional Treatment Plant. This wastewater flow excludes water used outdoors for irrigation or similar uses, as the WBSD does not have a combined sewer system. As identified in the WSA, operation of the East Campus would require approximately 0.092 mgd of water for indoor uses (approximately 0.032 mgd beyond existing conditions).

A technical study was conducted by West Yost Associates to evaluate the potential effects of the proposed wastewater flows from the Project (East Campus and West Campus) compared to WBSD's existing sewer collection system capacity. There is a 114-foot long section of 12-inch diameter sewer pipe that runs north along Hamilton Avenue, beginning at the Hamilton Avenue/Willow Road intersection, that conveys flows from the East Campus. Under existing conditions, the 12-inch diameter pipeline is operating at capacity and would not accommodate additional flows from the East Campus.[45] The existing pumps at the HHPS have sufficient capacity to convey the additional wastewater that would result from full occupancy of the East Campus if both pumps are utilized for primary conveyance. As a standard practice, WBSD reserves one pump as a standby to ensure redundancy in the system and the additional wastewater generated by the East Campus would demand both pumps operate in an alternating manner.

The SBSA Regional Treatment Plant is permitted by the RWQCB to treat an average dry weather flow of 27 mgd and a peak wet weather flow of 71 mgd.[46] WBSD's average daily flow

[45] West Yost Associates, *Technical Memorandum: Evaluation of Proposed Flows From the New Facebook Campus as Compared to Existing District Sewer System Capacity*, October 3, 2011.

[46] Child, Dan, South Bayside Sanitary District, email communication, September 22, 2011.

during dry weather flow is approximately 4.58 mgd, compared to WBSD's dry weather allocation from SBSA of approximately 7.975 mgd.[47] Operation of the East Campus would contribute approximately 0.032 mgd of additional wastewater to the WBSD, which constitutes about one percent of the remaining capacity entitlements to WBSD from SBSA. The East Campus would comply with all current WBSD Regulations and Standards. As such, the available capacity at the WBSD and the SBSA Regional Treatment Plant would be sufficient to accommodate the wastewater generated by the proposed East Campus. Therefore, because the SBSA Regional Treatment Plant would have adequate capacity to process the wastewater generated from the East Campus, implementation of the Project would not exceed the wastewater treatment requirements of the RWQCB. However, due to the limitations of the WBSD sanitary sewer pipeline and HHPS, the Project at the East Campus would result in a ***potentially significant*** impact with regard to wastewater conveyance infrastructure.

West Campus

Using the same assumptions for wastewater generation as identified for the East Campus above, implementation of the Project at the West Campus would result in the generation of approximately 0.039 mgd of wastewater associated with indoor uses. The technical study prepared by West Yost Associates evaluated the effects of the West Campus, as well as the East Campus, on the existing WBSD sewer collection system. As previously described, the existing 12-inch diameter pipeline that runs north along Hamilton Avenue, beginning at the Hamilton Avenue/Willow Road intersection is operating at capacity. Therefore, additional flows generated from operation of the West Campus would not be accommodated by the existing pipeline. The existing pumps at the HHPS have sufficient capacity to convey the additional wastewater that would result from operation of the West Campus, if both pumps are utilized for primary conveyance. As a standard practice, WBSD reserves one pump as a standby to ensure redundancy in the system and the additional wastewater generated by the East Campus would demand both pumps operate in an alternating manner and, therefore, WBSD could not guarantee the necessary redundancy at the HHPS.

As described above, the WBSD's average daily flow during dry weather is approximately 4.58 mgd, compared to WBSD's dry weather allocation of approximately 7.975 mgd. Wastewater discharge from the West Campus would constitute approximately one percent of WBSD's remaining, available capacity entitlements from SBSA. Therefore, WBSD's available capacity entitlements from SBSA would be sufficient to accommodate the projected wastewater flow that would result from implementation of the West Campus. Because the SBSA Regional Treatment Plant would have adequate capacity to process the wastewater generated from the West Campus, implementation of the Project at the West Campus would not exceed the wastewater treatment requirements of the RWQCB.

[47] Bill Kitajima, West Bay Sanitary District, letter response to data request, August 2, 2011.

Implementation of the West Campus would require a new wastewater line to connect to the WBSD's main sewer system along Willow Road. However, extension of the sanitary sewer system would comply with the WBSD Class 3 and Class 2 sewer permits.

Total Project

The technical study prepared by West Yost Associates evaluated the combined impact of wastewater flows from both the East Campus and West Campus on the existing WBSD sewer collection system. The technical study determined that, under existing conditions, the 12-inch diameter pipeline is operating at capacity and would not accommodate additional flows from the Project.[48] Further, the existing pumps at the HHPS have sufficient capacity to convey the additional wastewater that would result from full implementation of the Project if both pumps are utilized for primary conveyance. As a standard practice, WBSD reserves one pump as a standby to ensure redundancy in the system, and the additional wastewater generated by the East Campus would demand both pumps operate in an alternating manner.

Implementation of the Project would result in the generation of approximately 0.13 mgd of wastewater from indoor water use (approximately 0.071 mgd of net new indoor water use). Using the same methodology as employed for the individual campuses, above, the Project's combined wastewater contribution would be approximately two percent of the WBSD's remaining, available capacity entitlements from SBSA. The Project would comply with all current WBSD Regulations and Standards. In light of this, the available capacity at the WBSD and the SBSA Regional Treatment Plant would be sufficient to accommodate the wastewater generated by the proposed East Campus. Further, because the SBSA Regional Treatment Plant would have adequate capacity to process the wastewater generated from the West Campus, implementation of the Project at the West Campus would not exceed the wastewater treatment requirements of the RWQCB. As identified above, implementation of the West Campus would require a new wastewater line to connect to the WBSD's main sewer system. However, extension of the sanitary sewer system would comply with the WBSD Class 3 and Class 2 sewer permits. Due to the limitations of the WBSD sanitary sewer pipeline and HHPS, the Project at the East Campus and West Campus would result in a ***potentially significant*** impact with regard to wastewater conveyance infrastructure.

MITIGATION MEASURE. The technical study prepared by West Yost Associates determined that the existing wastewater conveyance system serving the Project site would have insufficient capacity to accommodate the Project. Mitigation Measure UT-3.1 would ensure that necessary capacity improvements are implemented so that the WBSD sanitary sewer system has sufficient capacity to accommodate additional wastewater generated by the Project. The following measure would reduce potentially significant impacts associated with the Project to a ***less-than-significant*** level. (LTS)

[48] West Yost Associates, *Technical Memorandum: Evaluation of Proposed Flows From the New Facebook Campus as Compared to Existing District Sewer System Capacity*, October 3, 2011.

UT-3.1 *Sanitary Sewer System Improvements*. The Project Sponsor shall upsize 114 linear feet of the existing 12-inch diameter pipeline that runs north along Hamilton Avenue, beginning at the Hamilton Avenue/Willow Road intersection, to a 15-inch diameter pipe. To ensure that this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 200 percent of the estimated cost of the work. In addition, the Project Sponsor shall purchase a third wastewater pump to be placed into reserve in case of pump failure at HHPS. To ensure this work is completed, the Project Sponsor shall enter into an agreement with the City concurrently with granting of land use entitlements for the East Campus and post a bond equal to 120 percent of the cost of the wastewater pump.

UT-4 ***Solid Waste Generation.*** *The Project would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accept the Project's solid waste disposal needs. The Project, at both the East Campus and West Campus, would comply with federal, State, and local statutes and regulations related to solid waste. Therefore, impacts on solid waste facilities would be less than significant. (LTS)*

East Campus

Operation of the East Campus would increase the number of employees from the current employee cap of 3,600 workers to approximately 6,600 employees, thereby increasing the generation of solid waste. According to estimates provided by the Project Sponsor, operation of the East Campus would generate approximately 1,846 tons of solid waste per year or approximately 5.06 tons per day. As of 2010, the City had achieved a total measured diversion rate of approximately 50 percent. [49] It is assumed that the East Campus would be subject to the same programs for waste reduction and recycling associated with operational waste and would, therefore, achieve similar or better diversion rates as the rest of the City. Table 3.16-6 shows existing and proposed solid waste generation rates for the East Campus.

Table 3.16-6
Existing and Proposed Solid Waste Generation Rates for the East Campus and West Campus (tons/yr)

	Existing Solid Waste Generation	Proposed Solid Waste Generation	Net New Solid Waste Generation
East Campus	1,035	1,846	811
West Campus	0	784	784
Total (Project)	**1,035**	**2,630**	**1,595**

Source: Facebook, August 2011.

Note: Campus rates are based on a per capita solid waste generation rate of 0.28 tons per employee.

[49] Monica G. Devincenzi, South Bayside Waste Management Authority, RethinkWaste, email correspondence with Atkins, August 4, 2011.

As described in the Project Description, the Project Sponsor will pursue LEED Commercial Interiors 2009 Gold rating for all nine existing buildings at the East Campus. As part of the sustainability measures proposed for the East Campus, the Project would implement a composting and recycling program to reduce the amount of landfill waste to the extent feasible.

As described under "Existing Conditions" above, waste generated at the East Campus would be collected by Recology San Mateo and hauled to the Shoreway Environmental Center. The Shoreway Environmental Center is permitted to receive 3,000 tons of refuse per day and receives approximately 1,500 tons per day. Once collected and sorted at the Shoreway Environmental Center, solid waste is transported to the Ox Mountain Sanitary Landfill. The landfill is permitted to receive 3,598 tons per day or 1.15 million tons per year and has a total remaining capacity of 20.2 million cubic yards. The Ox Mountain Landfill receives approximately 2,260 tons of solid waste per day. Solid waste generated by operation of the East Campus represents approximately 0.3 percent of the remaining, available daily capacity at the Shoreway Environmental Center and approximately 0.2 percent of the available daily capacity at the Ox Mountain Landfill. As such, both the Shoreway Environmental Center and the Ox Mountain Landfill would have sufficient capacity to serve the East Campus. Further, because the Project would implement recycling and composting facilities at the East Campus, the Project would comply with all applicable policies and regulations, including AB 1327, as discussed under "Applicable Plans and Regulations," above. Operation of the East Campus would, therefore, have a ***less-than-significant*** impact regarding landfill capacities, and would not violate applicable solid waste regulations.

West Campus

According to the solid waste analysis provided by the Project Sponsor,[50] operation of the West Campus would generate approximately 784 tons of solid waste per year, or approximately 2.15 tons per day, as shown in Table 3.16-6. Further, the solid waste analysis assumes that the development at the West Campus would implement a composting and recycling program to reduce landfill waste. Additionally, as mentioned under East Campus above, the City achieved a diversion rate of 50 percent in 2010. It is assumed that the West Campus would be subject to the same programs for waste reduction and recycling associated with operational waste and would, therefore, achieve similar or better diversion rates as the rest of the City.

Based on the daily flow rates and capacities for the Shoreway Environmental Center and Ox Mountain Landfill described above, solid waste generated at the West Campus would represent approximately 0.14 percent of the remaining, available daily capacity at the Shoreway Environmental Center and approximately 0.1 percent of the available daily capacity at the Ox Mountain Landfill. As such, both the Shoreway Environmental Center and the Ox Mountain Landfill would have sufficient capacity to serve the West Campus.

[50] Facebook, Trash Analysis, August 29, 2011.

Construction of the West Campus would result in the demolition of two existing buildings (approximately 127,246 total sf), a guard house, landscape features, and several asphalt parking areas. Once cleared, the West Campus would be developed to accommodate a maximum of approximately 2,800 employees in approximately 440,000 sf of building space. Construction activities at the West Campus would generate demolition and construction waste. However, as identified in Section 2, Project Description, the Project would implement a construction waste management plan to recycle at least 75 percent of construction debris. As a result, construction and operation of the West Campus would comply with applicable plans and regulations, including AB 1327 and Chapter 12.48 of the City's Municipal Code, resulting in a ***less-than-significant*** impact with regard to solid waste.

Total Project

At full buildout and occupancy, the Project would generate approximately 2,630 tons of solid waste per year, or approximately 7.2 tons per day, as shown in Table 3.16-6. For the purposes of this analysis, it is anticipated that approximately 50 percent of the solid waste generated by operation of the Project would be diverted from the Ox Mountain Landfill through aggressive recycling and composting programs. Therefore, with a 50 percent waste diversion factor, the Project would generate approximately 1,315 tons of solid waste per year, or approximately 3.6 tons per day. This solid waste generation represents roughly 0.24 percent of the remaining, available daily capacity at the Shoreway Environmental Center and approximately 0.16 percent of the available daily capacity at the Ox Mountain Landfill. As such, both the Shoreway Environmental Center and the Ox Mountain Landfill would have sufficient capacity to serve the Project. Therefore, the Project would have a ***less-than-significant*** impact on solid waste facilities.

UT-5 ***Stormwater Generation.*** *Implementation of the Project, at both the East Campus and West Campus, would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, resulting in a* ***less-than-significant*** *impact. (LTS)*

East Campus

The East Campus has existing storm drain lines throughout the site that range in sizes from 12-inches to 24-inches in diameter. The highest elevation on the campus is in the courtyard area between Buildings 10 through 18. The site slopes gently from the courtyard towards the perimeter of the campus. Storm drain lines throughout the East Campus collect stormwater from the parking lots, courtyard, and existing buildings. Stormwater is then conveyed to a 24-inch storm drain line and discharged to the south of the site. The Project Sponsor has not indicated any plans to alter the existing utility storm drain system leaving the East Campus.[51] In order to determine whether or not the Project would have an impact on the existing 24-inch storm drain that currently serves the East Campus, BKF Engineers modeled the projected change in stormwater runoff associated with courtyard improvements (described further in

[51] BKF Engineers, *East Campus Storm Drain Report*, June 1, 2011.

Section 2.0, Project Description). According to analysis conducted in the Hydrology Report for the East Campus, the existing stormwater flow associated with the courtyard area is 7.7 cubic feet per second (cfs) and after implementation of the Project the stormwater flow would remain unchanged.[52] Courtyard improvements associated with the Project would not have an effect on stormwater runoff. Therefore, implementation of the Project would have a ***less-than-significant*** impact on the existing East Campus storm drain system.

West Campus

The 22-acre West Campus drains to the Willow Road storm drain system, which conveys water to the Caltrans Dumbarton Pump Station. The eastern end of the adjacent TE Connectivity property and the drainage swale between the West Campus and the railroad tracks, both drain through the West Campus before connecting with the Willow Road storm drain system.[53] The existing storm drain system has sufficient capacity to convey the 10-year storm event. During the modeled 100-year storm event, the on-site storm drain system does not have capacity to convey peak flows and the West Campus would experience localized ponding and the upstream storm drain system along Hamilton Avenue experiences flow reversal.[54] Refer to Section 3.12, Hydrology and Water Quality for more information regarding stormwater runoff. Further, the contribution of offsite stormwater flow through the West Campus adds to the 100-year storm flow incapacity.

Development of the West Campus would result in a slight increase in on-site pervious surface cover, thereby reducing stormwater runoff minimally. However, the reduction in stormwater runoff associated with the decrease in impervious cover would not be sufficient to eliminate on-site ponding during the 100-year storm event. Although minor ponding would occur during the 100-year storm event, development of the West Campus would not exacerbate flow reversal issues associated with the Hamilton Avenue storm drain system under existing conditions. According to the Hydrology Report prepared for the West Campus, on-site storm water facilities would be sized to accommodate the 100-year storm event in order to reduce the potential for localized ponding.[55] Because the Hamilton Avenue and Willow Road storm drain systems would not be adversely affected by development of the West Campus, impacts would be ***less than significant***.

Total Project

The increased intensity at the East Campus and the development of the West Campus would not result in adverse impacts to the City's storm drain system. Further, implementation of the Project would adhere to provisions included in the Regional Stormwater NPDES Permit and the City's grading and drainage policies, which regulate the quantity of stormwater runoff from new development (refer to Section 3.12, Hydrology and Water Quality), specifically

[52] BKF Engineers, *East Campus Storm Drain Report*, June 1, 2011.
[53] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.
[54] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.
[55] BKF, *Facebook @ Menlo Park West Campus Hydrology Report,* November 21, 2011.

prohibiting a net increase in the rate of runoff from new development. No new facilities would be required. Therefore, implementation of the Project would have a ***less-than-significant*** impact on the City's storm drain system.

UT-6 ***Energy Demand.*** *The Project, at both the East Campus and West Campus, would not exceed existing gas and electric supply. Therefore, this impact would be less than significant. (LTS)*

East Campus

The East Campus would be served by existing connections to PG&E's gas and electric facilities, as described above under Existing Conditions. Previous operation of the East Campus (considered the baseline condition for purposes of this analysis) used approximately 61,349,150 kWh of electricity and 332,492 Therms of natural gas per year. Implementation of the East Campus component of the Project would intensify use at the existing office buildings, but would not result in new construction. However, the Project Sponsor would pursue LEED Commercial Interiors 2009 Gold ratings for all nine buildings at the East Campus. This LEED program includes strategies that optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. Energy conservation measures would include, but would not be limited to:

- Energy-efficient modifications to building lighting to reduce lighting power requirements by 25 percent from California energy code standards;
- Heating, Ventilation, and Air Conditioning (HVAC) system and building controls retro-commissioning and optimization; and
- Daylighting controls and occupancy sensors.

Although the allowable number of employees at the East Campus would substantially increase under the Project, the estimated electricity usage would be reduced to approximately 20,272,270 kWh per year, while natural gas usage would total roughly 338,455 Therms per year. Refer to Table 3.16-7, below, for a summary of the existing and proposed energy demand at the East Campus. As shown, implementation of the Project would result in a 67 percent reduction in electricity demand at the East Campus, as a result of the energy conservation measures included in the Project Sponsor's sustainability plan and the lack of a server farm, while natural gas usage would only increase by less than two percent.

The energy consumption demands of the East Campus would conform to the State's Title 24 energy conservation standards, such that operation of the East Campus would not be expected to wastefully use gas and electricity. Since the East Campus would exceed Title 24 conservation standards, would be served by PG&E, and would result in a substantial reduction in electricity usage, operation of the East Campus under the Project would not directly require the construction of new energy generation or supply facilities. Therefore, there would be no substantial, adverse environmental impacts related to energy demand and, consequently, the impact would be ***less than significant.***

Table 3.16-7
Existing and Projected Energy Demand at the East Campus and West Campus

	Electricity (kWh/year)	Natural Gas (Therms/year)
East Campus		
Existing Energy Demand (2008 Baseline)	62,349,150	332,492
Projected Energy Demand	20,272,270	338,445
Reduction (percent)	67	-2
West Campus		
Projected Energy Demand	6,473,213	68,703
Project (East Campus and West Campus)		
Projected Energy Demand	26,745,483	407,148

Source: KEMA, August 2011.

West Campus

The West Campus was formerly owned by GM and Tyco Electronics and was last occupied in 2003. As such, the West Campus has existing electricity and natural gas infrastructure and was formerly served by PG&E. Development of the West Campus would require the demolition of existing buildings and the construction of five office buildings, and amenities buildings, totaling approximately 440,000 sf. The West Campus is currently vacant and the existing buildings do not use electricity or natural gas. Therefore, development of the West Campus would increase electricity and natural gas use over existing conditions. The Project Sponsor intends to pursue LEED Building Design and Construction (BD+C) Gold certification for the West Campus. This LEED program would include strategies that would optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. Energy-related goals and strategies would include, but would not be limited to:

- Energy-efficient site lighting and design to meet the Illuminating Engineering Society of North America (IESNA) lighting density and control standards for minimizing light pollution;
- Heat island effect mitigation by shading more than 50 percent of parking and other hard surfaces with shade trees and using highly reflective and grid paving techniques;
- Building orientation on an east-west axis to capitalize on climate-responsive design benefits of south-facing façades;
- Floor plates that are conducive to daylighting strategies;
- Natural ventilation strategies;
- Building systems designed to avoid the use of heating, refrigeration, and fire suppression systems that include chlorofluorocarbons or halon compounds;
- Building energy modeling to improve energy performance beyond California Title 24 Energy Code Standards to a minimum of 25 percent better than code;

- Energy efficient building envelope design, including high performance glazing, cool roof, and optimized insulation levels;
- Energy efficient lighting and HVAC equipment;
- Extensive building commissioning practices to fine-tune energy using system performance;
- Building energy management controls system to optimize energy performance on an ongoing basis; and
- Consideration of renewable energy general potential at the office buildings or parking structure, including, where feasible, the roof and façades of the parking structure treated with photovoltaic panels to support on-site energy efficiencies.

In addition, gas and electric service to the West Campus would be provided to meet the needs of the West Campus as required by the CPUC, which obligates PG&E to provide service to its existing and potential customers. Since development at the West Campus would exceed Title 24 conservation standards by 20-30 percent and would be served by PG&E, the West Campus would not directly require the construction of new energy generation or supply facilities. Further, the West Campus is zoned for general industrial use and, therefore, development of the West Campus would comply with the City's programmed land use designation. In designating a particular land use the City anticipates a corresponding demand on energy services, and because the Project would comply with the existing land use designation, the associated energy demand would be within the City's forecasts as well. Therefore, development of the West Campus would not result in adverse environmental impacts related to energy demand, and consequently, the impact would be ***less than significant***.

Total Project

As described above, implementation of the East Campus and West Campus individually would result in less-than-significant impacts on existing electricity and natural gas supply and associated infrastructure. According to the Menlo Park Facebook Campus Energy Demand memorandum, implementation of the Project would result in an overall 67 percent reduction in per capita energy consumption over existing conditions.[56] Further, gas and electric service to the West Campus would be provided to meet the needs of the West Campus as required by the CPUC, which obligates PG&E to provide service to its existing and potential customers. Because the Project would be served by PG&E and would result in substantial per capita energy reductions, impacts related to electricity and natural gas supply would be ***less than significant.***

[56] Existing conditions for the East Campus are based on the previous occupant's (Sun Microsystems) energy usage in 2008. Existing conditions for the West Campus are simply based on Title 24 energy requirements.

Cumulative Impacts

The geographic context for a discussion of cumulative impacts on utilities is the service area of the utility provider. The geographic context for cumulative impacts on wastewater treatment is the WBSD and SBSA service area. The geographic context for cumulative impacts on water supply is MPMWD's service area. The geographic context for cumulative impacts on solid waste is the RethinkWaste's and Ox Mountain Landfill's service area. With regard to storm drainage, the geographic context would be the City, which oversees the City's storm drain system. Additionally, the geographic context for cumulative impacts on electricity and natural gas is PG&E's service area in northern California.

C-UT-1 ***Cumulative Water Demand.*** *The Project, in combination with other development within the City, would increase water demand, but there are sufficient water supplies available to serve the cumulative projects from existing entitlements under normal, dry and multiple dry years, and the increased demand would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, which could cause significant environmental effects. This cumulative water supply impact would be less than significant. (LTS)*

Tier 1

Tier 1 cumulative projects could develop up to 200 dwelling units and 969,492 sf of office/retail/commercial uses. This growth would increase the demand for water supplied by the MPMWD. The MPMWD's 2010 UWMP provides water use projections through 2035 for its service area. As noted, above, MPMWD will not only meet but exceed its 2015 reduction target.

Of the 15 Tier 1 projects considered in this cumulative analysis, one project has been completed, six projects are under construction, four projects have been approved, and the remaining four projects have been proposed and are awaiting City approval. According to the WSA, the City's UWMP accounted for an increase in the CII demand sector (commercial) between 2010 and 2015 because of the approved WSA for Menlo Gateway (the largest single cumulative project considered for this analysis) and in anticipation of additional growth (including the Project). Because the other development projects (single-family residential, multi-family residential, and non-residential) are primarily infill development projects, and approximately 70 percent of these projects are either under construction or approved, it is assumed that these cumulative development projects are encompassed by the growth factors used in the City's UWMP to estimate future water demand.[57] Further, it is assumed that these projects would be constructed by 2035 (the end date for the WSA and UWMP projections).[58] The SBx7-7 water demand targets described

[57] According to the City's 2010 UWMP, an annual growth factor of 0.07 percent per year is applied to single family residential accounts and an annual growth factor of 0.5 percent is applied to multi-family residential accounts. Commercial, Industrial and Irrigation (CII) are assumed to grow at 1 percent per year.

[58] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

above equate to a service area demand of approximately 3.3 mgd in 2015, 3.0 mgd in 2020, and 3.2 mgd in 2035. The Project would demand 106,616 gpd, which represents 3.2 percent of the projected citywide 2035 demand. Therefore, the Project, in combination with other development within the MPMWD service area, would have sufficient water supplies available during normal year conditions under its ISG of 4.465 mgd. During multiple dry years, the Water Shortage Contingency Plan would ensure that the water supply from SFPUC would be adequate in the second and third year of multiple year droughts.[59] Therefore, there is no significant cumulative impact from Tier 1 projects combined with the Project.

As described under Impact UT-1 above, MPMWD has sufficient capacity in its ISG to accommodate the water demand of the Project under normal year and single dry year conditions. As described under Impact UT-2 above, the Project would not result in the need for the expansion of existing water treatment facilities. According to the WSA, the City's total water demand in the year 2035 is approximately 3.241 mgd (3,63.2 AFY), at which point it is assumed that the cumulative projects considered in this analysis would be constructed and would be contributing to overall water demand at that time. Completion of the Tesla Water Treatment Facility and expansion of the Sunol Valley WTP and Harry Tracy WTP in 2012 would allow the SFPUC to deliver up to 655 mgd. The MPMWD's projected demand in 2035 is well within the capacity of its ISG and the MPMWD could serve the cumulative projects with its existing entitlements. In light of these facts, the Project's cumulative impact on water supply and treatment would be ***less than significant.***

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1 in Section 3.1 consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. As shown in Table 3.1-2 in Section 3.1, Tier 2 projects could result in more than 16,000 residential units and over 2.7 million sf of non-residential uses. In most cases, it is unknown whether these projects would be built. In other cases, future development is programmed through a large-scale planning document and when build-out may occur is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will increase the demand for water supply and treatment. If the development exceeds the MPMWD's existing entitlements and water treatment capacity, this could be a significant cumulative impact. The Project would demand 106,616 gpd, which represents 3.2 percent of the projected citywide 2035 demand. This incrementally small increase in demand would not be cumulatively considerable, and the Project's cumulative impact with respect to water treatment and demand with the Tier 2 projects would be ***less than significant.***

[59] Winzler & Kelly, *Water Supply Assessment for Facebook at Menlo Park,* prepared for the Menlo Park Municipal Water District, November 7, 2011.

C-UT-2 ***Cumulative Wastewater Generation.*** *The Project, in combination with other development within the West Bay Sanitary District service area, would not exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, nor result in a determination by the South Bayside System Authority that it has inadequate capacity to serve the Project's expected demand and existing entitlements. Therefore, this cumulative wastewater impact would be less than significant. (LTS)*

Tier 1

As of 2011, WBSD uses about 60 percent of its dry weather capacity entitlement from SBSA, with a remaining available allocation of approximately 3.395 mgd of average daily dry weather wastewater flows. The Project is forecasted to generate an average daily demand of approximately 0.132 mgd of wastewater, which is about four percent of the City's current allocation at SBSA. Existing wastewater flows from WBSD on an annual average basis total approximately 4.58 mgd.

In order to comply with SBx7-7, the City must reach a 10 percent reduction in water use by 2015 and a 20 percent reduction by 2020. As previously mentioned, for the purposes of this analysis a 1:1 ratio of water use to wastewater generation is assumed. As of 2010, residential water demand totaled 1.342 mgd and CII sector demand totaled 1.219 mgd. By 2035, the UWMP estimates that residential water demand would decrease by 0.092 mgd and the CII sector demand would increase by 0.456 mgd (including water demand associated with the Project), representing an overall increase of 0.364 mgd over 2010 conditions. Assuming a 1:1 water use to wastewater generation ratio, Tier 1 cumulative growth within the City would represent approximately 11 percent of WBSD's remaining wastewater flow allocation from SBSA. Therefore, WBSD's current wastewater entitlement from SBSA would be sufficient to accommodate wastewater generated by Tier 1 cumulative development projects. Because cumulative wastewater flows would be within the WBSD's existing wastewater entitlement, the Project in combination with cumulative development would not cause the SBSA Regional Treatment Plant to process more than its RWQCB permitted treatment capacity and there would be no cumulative impact. Consequently, the Project's contribution to wastewater generation would not be substantial and the cumulative impact would be ***less than significant.***

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. In most cases, it is unknown whether these uses would be built. In other cases, future development is programmed through a large-scale planning document and build-out is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will increase the demand for wastewater treatment and conveyance capacity. If the development

exceeds the provider's existing entitlements and wastewater treatment capacity, this could be a significant cumulative impact. The Project's incrementally small four percent increase in wastewater generation would not be cumulatively considerable, and the Project's cumulative impact with respect to wastewater treatment with the Tier 2 projects would be ***less than significant.***

C-UT-3 ***Cumulative Solid Waste Generation.*** *The Project, combined with other development within the RethinkWaste's service area, would be served by Ox Mountain Sanitary Landfill, which has sufficient permitted capacity to accommodate future solid waste disposal needs through 2034. These cumulative projects would be expected to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, this cumulative solid waste impact would be less than significant. (LTS)*

Tier 1

Data presented in the Five-Year Countywide Integrated Waste Management Plan for San Mateo County shows that solid waste disposal for Menlo Park decreased from 58,927 tons in 1998 to 32,653 tons in 2008, representing a 45 percent decrease.[60] Similarly, solid waste disposal at Ox Mountain Landfill decreased from 925,158 tons in 1998 to 665,924 in 2008, representing a 27 percent decrease.[61] As of 2011, the Ox Mountain Sanitary Landfill has a remaining capacity of about 20.2 million cubic yards (approximately 40 percent of maximum total capacity) and a remaining life period of approximately 23 years.[62] This estimate is based on current disposal and diversion rates and assumptions about future development within the landfill service area. It is assumed that the Tier 1 cumulative projects fit within the future solid waste disposal projections used to estimate the remaining lifespan of the Ox Mountain Landfill, as they are consistent with ABAG growth projections. Further, according to the City's Climate Action Plan, expanded recycling services began in January 2011. It is expected that the expanded recycling services will increase the diversion of bottles, cans, paper and plastic by approximately 15 percent.[63] In addition, Chapter 12.48 of the City's Municipal Code requires that commercial development projects of 5,000 sf or greater divert at least 60 percent of a given project's anticipated debris. This ordinance would apply to the cumulative projects that would result in development of 5,000 sf or more. In light of these considerations, there would be sufficient landfill capacity to accommodate solid waste until the landfill's approximated closing date of 2034, and there would be no significant cumulative impact. The City would continue to require the Project and other foreseeable development to minimize solid waste disposal to the Ox Mountain Sanitary Landfill through recycling and other diversion

[60] San Mateo County, *Five Year Countywide Integrated Waste Management Plan Review Report,* December, 2009.

[61] San Mateo County, *Five Year Countywide Integrated Waste Management Plan Review Report,* December, 2009.

[62] Monica G. Devincenzi, South Bayside Waste Management Authority, RethinkWaste, email correspondence with Atkins, August 4, 2011.

[63] City of Menlo Park, *Climate Change Action Plan,* 2009.

practices, as well as enforce compliance with the State Model Ordinance California Solid Waste Reuse and Recycling Access Act of 1991. The Project would generate approximately 1,315 tons of solid waste per year, or approximately 3.6 tons per day. This solid waste generation represents roughly 0.24 percent of the remaining, available daily capacity at the Shoreway Environmental Center and approximately 0.16 percent of the available daily capacity at the Ox Mountain Landfill. Therefore, the Project would have a ***less-than-significant*** cumulative impact on solid waste disposal services.

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. In most cases, it is unknown whether these uses would be built. In other cases, future development is programmed through a large-scale planning document and build-out is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will increase the demand for solid waste disposal capacity. If the development generates solid waste that exceeds the available capacity of the servicing landfills, this could be a significant cumulative impact. The Project's incrementally small contribution to solid waste would not be cumulatively considerable, and the Project's cumulative impact with respect to solid waste with the Tier 2 projects would be ***less than significant.***

C-UT-4 ***Cumulative Stormwater Generation.*** *The Project, in combination with cumulative development in the City, could require the construction or expansion of stormwater facilities. However, the Project's contribution to this impact would be less than significant. (LTS)*

Tier 1

Cumulative development of the Tier 1 projects in the City would primarily consist of infill and redevelopment, which would not substantially increase impervious surfaces in the City. Therefore, there would be no significant cumulative impact on the storm drain system. The Project would not increase demand on the City's storm drainage system, nor would it result in the construction of new facilities or expansion of existing facilities, because the Project area is expected to result in equal to or less stormwater runoff than under existing conditions. As described in Section 3.12 Hydrology and Water Quality, the Project would be subject to the provisions contained in the San Mateo Countywide Municipal NPDES Permit (Municipal Stormwater NPDES Permit. Provision C.3 of the Municipal Stormwater NPDES Permit requires that the Project implement a Stormwater Management Plan that includes limitations on increases in peak runoff discharge rates in addition. Further, as described under Impact UT-5 above, implementation of the Project would reduce the amount of impervious cover at the West Campus, thereby increasing stormwater retention and reducing peak discharges to the City's storm drain system. Tier 1 projects that would include 10,000 sf or more would also have to comply with the Municipal Stormwater

NPDES Permit and the provisions therein. Therefore, the Project's cumulative impact would be ***less than significant***.

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. In most cases, it is unknown whether these uses would be built. In other cases, future development is programmed through a large-scale planning document and build-out is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will not substantially increase the amount of impervious surfaces in the region, since the region is primarily built out. The Project's cumulative impact combined with Tier 2 projects would be ***less than significant.***

C-UT-5 ***Cumulative Energy Demand.*** *The Project, in combination with other development served by PG&E, would not exceed existing gas and electric supply capacity. Therefore, this cumulative impact would be less than significant. (LTS)*

Tier 1

All cumulative development would be required to comply with California's Title 24 energy conservation standards for new construction. Consequently, the Project, in combination with other cumulative development in the City, would not be expected to wastefully use gas and electricity. Existing and planned gas and electric service would be provided to meet the needs of the cumulative development customers as required by the California Public Utilities Commission, which obligates PG&E to provide service to its existing and potential customers. Since the Project and future cumulative development would comply with Title 24 conservation standards and would be served by PG&E, new development would not directly require the construction of new energy generation or supply facilities directly attributable to growth in the City, and there would be no substantial adverse environmental impacts related to energy demand. Therefore, the Project's cumulative impact would be ***less than significant***.

Tier 2

The Tier 2 projects illustrated in Figure 3.1-1, Section 3.1, consist of programmatic land use plans or large development projects that are either outside the City, somewhat speculative, or in the early stages of project planning. In most cases, it is unknown whether these uses would be built. In other cases, future development is programmed through a large-scale planning document and build-out is not necessarily reasonably foreseeable. Although these projects are speculative, it is expected that any future development will increase the demand for natural gas and electricity, but would also be expected to comply with Title 24 requirements. As natural gas and electricity providers are on-demand utilities,

i.e., they expand their infrastructure to meet growth needs, future expansions of service would be provided or further energy-consumption measures would be implemented. The cumulative impact would not be significant. The Project would reuse existing buildings and construct some new buildings, but would not substantially increase the demand for natural gas and electricity in the PG&E service area. The Project's cumulative impact with respect to natural gas and electricity demand with the Tier 2 projects would be ***less than significant.***

Section 4
Other CEQA Considerations

4.1 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

Section 21100(b)(2)(A) of the California Environmental Quality Act (CEQA) requires that a Draft Environmental Impact Report (Draft EIR) identify any significant environmental effects that cannot be avoided if the Project is implemented. Most impacts identified for the Project would either be less than significant or could be mitigated to a less than significant level. However, the Project would result in significant impacts that cannot be mitigated to less than significant levels; these impacts are listed below.

East Campus

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased delays at the following intersections: Marsh and Middlefield Road; Willow Road and Bayfront Expressway; University Avenue and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-1)
- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in significantly increased ADT volumes on the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; Willow Road between Nash Avenue and Blackburn Avenue; and Middlefield Road between Linfield Drive and Survey Lane. (TR-2)
- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Near Term 2015 East Campus Only Condition would result in significant impacts to the following Routes of Regional Significance: SR 84 between US 101 and Willow Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Marsh Road and Willow Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-3)
- **Violation of any Air Quality Standard.** Operation of the East Campus would create NOx emissions that would exceed BAAQMD's significance thresholds. (AQ-2)
- **Substantial Permanent Increase in Noise Level.** Operation of the Project at the East Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. (NO-3)

West Campus

- **Violation of any Air Quality Standard.** Operation of the West Campus would create NOx emissions that would exceed BAAQMD's significance thresholds. (AQ-2)
- **Temporary Increases in Ambient Noise Level.** The West Campus would result in levels of vibration that would disrupt operations at nearby vibration-sensitive land uses. (NO-2)
- **Substantial Permanent Increase in Noise Level.** Operation of the Project at the West Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. (NO-3)

Total Project

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased delays at the following intersections: Marsh Road and Bayfront Expressway; Marsh Road and US 101 NB Ramps; Willow Road and Bayfront Expressway; Willow Road and Newbridge Street; Willow Road and Middlefield Road; University and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-6)
- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased volumes on the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; and Willow Road between Nash Avenue and Blackburn Avenue. (TR-7)
- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Near Term 2018 East Campus and West Campus Condition would result in significant impacts the following Routes of Regional Significance: SR 84 between US 101 and Willow Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-8)
- **Violation of any Air Quality Standard.** Operation of the Project, at both the East Campus and West Campus, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NOX, and PM10 and would exceed BAAQMD's significance thresholds. (AQ-2)
- **Exposure to Excessive Noise Levels.** The increase in vehicular traffic associated with implementation of the East Campus and West Campus, combined, would result in an increase in the exposure of off-site noise sensitive receptors to noise levels in excess of the standards established in the General Plan or Municipal Code. (NO-1)

Cumulative

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East and West Campuses Condition would result in increased delays at the following intersections: Marsh Road and Bayfront Expressway; Marsh Road and US 101 NB Ramps; Willow Road and Middlefield Road; Willow Road and Bayfront Expressway; Willow Road and Newbridge Street; University and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-11)

- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East and West Campuses Condition would result in increased volumes the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; Willow Road between Nash Avenue and Blackburn Avenue; and Middlefield Road between Linfield Drive and Survey Lane. (TR-12)

- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Cumulative East Campus Only Condition and Cumulative East and West Campuses Condition would result in significant impacts to the following Routes of Regional Significance: SR 84 between US 101 and Willow Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-13)

- **Violation of any Air Quality Standard.** The Project, in combination with other development within the City, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} resulting in a violation of an Air Quality Standard. (C-AQ-2)

- **Cumulative Construction Criteria Air Pollutant Emissions.** Construction activities associated with the West Campus, in combination with other construction activities in the City, would generate dust or diesel emissions, thus exposing people to particulate matter. (C-AQ-3)

- **Cumulative Toxic Air Contaminants Emissions.** The Project, in combination with other foreseeable development in the Project vicinity, would expose sensitive receptors to substantial TACs. (C-AQ-5)

- **Cumulative Exposure to Excessive Noise.** The Project, in combination with other development within the City, would result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code. The Project's contribution would be cumulatively significant. (C-NO-1)

- **Cumulative Permanent Increase in Noise Levels.** Operation of the Project and other cumulative developments would result in a substantial permanent ambient noise level increase in the Project vicinity. The Project's contribution would be cumulatively significant. (C-NO-3)

Due to these significant unavoidable environmental effects, approval of the East Campus and the West Campus would require the adoption of a Statement of Overriding Considerations, indicating that the City is aware of the significant environmental consequences and believes that the benefits of the Project outweigh the impacts.

4.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 21100(b)(2)(B) of CEQA requires that a Draft EIR identify any significant effect on the environment that would be irreversible if the Project were implemented. Section 15126.2(c) of the CEQA Guidelines identifies irreversible environmental changes as those involving a large commitment of nonrenewable resources or irreversible damage resulting from environmental accidents.

East Campus

The Project at the 56.9-acre East Campus would convert the 3,600-employee cap included in the existing Conditional Development Permit (CDP) that applied to the former Sun Microsystems site to a Trip Cap that allows for approximately 6,600 workers to occupy the East Campus. As outlined in the Project Description, Table 2-1, the East Campus is currently developed with nine buildings, totaling more than one million square feet (sf). The Project Sponsor would repurpose the existing buildings with building modifications that will make the facilities functional for Facebook while improving its sustainability with energy and water-conserving features. Project Description, Figure 2-2, depicts the existing site layout of the East Campus, which would not change with implementation of the Project.

No construction would be necessary at the East Campus; therefore, this component of the Project would not involve a commitment of nonrenewable resources, such as building materials and fossil fuels. It can be reasonably foreseen that post-construction commitment of nonrenewable resources would increase from current levels, although the amount and rate of consumption of these resources would not result in the unnecessary, inefficient, or wasteful use of resources due to the Project's energy-conserving features. It is also possible that new technologies or systems would emerge, or would become more cost-effective or user-friendly, to further reduce the reliance upon nonrenewable natural resources.

Accidents, such as the release of hazardous materials, may trigger irreversible environmental damage. Potential hazardous materials to be used at the East Campus could include cleaning products used for facility maintenance, asbestos-containing waste, liquids with polychlorinated biphenyls, mixed oil, and other organic solids. As such, exposure of site occupants to hazardous materials could occur in the following manner: improper handling or use of hazardous materials or hazardous wastes during occupancy of the East Campus, transportation accident, environmentally unsound disposal methods, and/or emergencies such as fires and explosions. However, safety requirements and the goals and policies adopted by federal, State, and local governments would reduce the public health and safety risks to reasonably prudent levels, so that significant irreversible changes from accidental releases would not be anticipated. These regulations are identified in Section 3.13, Hazardous Materials.

West Campus

The Project Sponsor intends to develop the 22-acre (963,684 sf), unoccupied property at the West Campus to accommodate approximately 2,800 workers. The developed, western portion of the site consists of approximately 13.5 acres (587,930 sf), with 12 percent of the parcel occupied by development. Existing development at this site includes two office buildings totaling 127,246 sf. The existing buildings at the West Campus would be demolished and developed with office buildings and amenities structures totaling approximately 440,000 sf. Although the Project Sponsor does not intend to apply for entitlements for the West Campus at this time, this subsequent phase of development is evaluated as part of the Project in this EIR. Due to the increase in floor space at the West Campus, it can be reasonably foreseen that post-construction commitment of nonrenewable resources would increase from current levels, although the amount and rate of consumption of these resources would not result in the unnecessary, inefficient, or wasteful use of resources. It is also possible that new technologies or systems would emerge, or would become more cost-effective or user-friendly, to further reduce the reliance upon nonrenewable natural resources.

Accidents, such as the release of hazardous materials, may trigger irreversible environmental damage. Development at the West Campus would result in demolition and construction. Testing and removal of asbestos in West Campus buildings prior to their demolition would be performed. It is likely that potential hazardous materials to be used at the West Campus would include standard office and cleaning materials and result in hazardous materials exposure similar to the East Campus. Safety requirements and the goals and policies adopted by federal, State, and local governments would reduce the public health and safety risks to reasonably prudent levels, so that significant irreversible changes from accidental releases would not be anticipated. These regulations are identified in Section 3.13, Hazardous Materials.

4.3 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines states that an EIR should discuss "…the ways in which the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth can be induced in a number of ways, including through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through precedent-setting action. CEQA requires a discussion of how a project could increase population, employment, or housing in the areas surrounding the project as well as an analysis of the infrastructure and planning changes that would be necessary to implement the project. This section of the EIR discusses the manner in which the Project could affect growth in the City, and the larger Bay Area.

In accordance with the CEQA Guidelines, Section 15126.2, this discussion of growth inducement is not intended to characterize the Project as necessarily beneficial, detrimental, or of little significance to the environment. The growth inducement discussion is provided for informational purposes so that the public and local decision-makers have an appreciation of the potential long-term growth implications of the Project.

In discussing growth inducement, it is useful to distinguish between direct and indirect growth. Direct growth occurs on a project site as a result of new facilities (buildings) being constructed, or an increase in developed space. Indirect growth occurs beyond a project site but is stimulated by the project's direct growth. Indirect growth is tied to increased direct and indirect investment and spending associated with the new direct growth. When CEQA refers to induced growth, CEQA means all growth—direct, indirect, or otherwise defined. For clarity, the discussion below distinguishes between direct growth from the construction and use of project facilities, and all secondary growth, or indirect growth.

Direct and Indirect Housing Growth. Section 3.14, Population and Housing, states that the total Project would not directly increase population by adding homes or displace housing or residents. However, it would indirectly induce growth by providing additional jobs.

As discussed in Section 3.14, the total Project would result in approximately 5,800 net new jobs. The increased employment would indirectly result in the need for additional housing in the City and other jurisdictions within commuting distance. As discussed in the Housing Needs Analysis for the Project (see Appendix 3.14), a total demand for 3,257 new housing units would be induced by the Total Project at 2025 full build-out and occupancy. As discussed in Section 3.14, The U. S. Census 2006-2008 American Community Survey (ACS) reports that 7.8 percent of those who work in Menlo Park also live in Menlo Park. The existing 7.8 percent share derived from the ACS has been applied to estimate the number of new workers of the Project who would seek and find housing in Menlo Park. 7.8 percent of the housing needs are the estimated Menlo Park "share" of total housing needs, which would result in a total of 254 new households.[1] As shown in Section 3.14, Population and Housing, Table 3.14-9, the indirect housing demand from the Project would represent a small percentage of the Association of Bay Area Governments (ABAG) projected housing growth for most jurisdictions in the Bay Area region. Therefore, the Project would not significantly impact the 2025 forecasted household growth within the City and other jurisdictions within the region, and the demand for housing as a result of the total Project would be less than significant.

Direct and Indirect Job Growth. Aside from direct increases in employment and indirect growth in housing demand, the Project would result in indirect job growth. The direct spending associated with re-purposing the East Campus and construction activities at the West Campus would stimulate production of associated products and services in the economy during the construction period. This impact would not be substantial in terms of the local or Bay Area economy, due to its temporary nature.

Improvements at the East Campus and construction of the West Campus would directly, but temporarily, increase construction employment. Given the limited duration and standard nature of the construction anticipated, the demand for construction employment would likely be met within the existing and future labor market in the City, in San Mateo County, or within the Bay Area. Neither a

[1] Keyser Marston Associates, Inc. *Housing Needs Analysis Menlo Park Facebook Campus Project*, September 2011, p. 21.

substantial quantity of specialized labor nor construction workers from outside the region would be expected to be induced to relocate temporarily or to commute extraordinarily long distances.

Indirect growth could also be generated through the expenditure patterns of employees associated with the Project. For example, future workers would spend money in the local economy, and the expenditure of that money would result in additional jobs. Indirect jobs tend to be in relatively close proximity to the places of employment.

To estimate this potential "multiplier effect" associated with Project-related jobs, ABAG has developed Type I and Type II economic multipliers for the San Francisco Bay Region based on an input-output model. Type I multipliers measure the direct and indirect effects of a change in economic activity and capture the initial economic change and the effect of local industries buying from each other in response to that initial change. Type II multipliers capture all of the effects in the Type I multiplier plus the impact of the change in income and expenditures by households. The additional Type II effects are commonly referred to as induced effects. [2] The jobs that would be generated by the Project would be classified as Management and Administrative from ABAG's list of industries, with a Type I multiplier of 1.15 and a Type II multiplier of 1.52. This means that for every 1 job created, there would be 0.15 indirect and induced jobs created locally and 0.52 jobs created regionally.

As shown in Table 4-1, below, applying the local and regional economic multipliers to the 5,800 net new jobs directly resulting from the Total Project would result in about 870 local and 3,160 regional indirect and induced jobs. Therefore, the combined total local employment growth (direct and indirect employment) with the Project would be about 6,670 new jobs, and the combined regional employment growth would be about 8,906 new jobs. This increase in regional employment represents 0.20 percent of the projected 4,379,900 total jobs within the San Francisco Bay Region by 2025, which is insignificant compared to the rest of the region.[3]

Table 4-1
Direct, Indirect, and Induced Jobs

Job Sector	Direct Jobs	Type I Multiplier[a]	Type II Multiplier[b]	Direct and Indirect Jobs	Direct, Indirect, and Induced Jobs
East Campus	3,000	1.15	1.52	450	1,650
West Campus	2,800	1.15	1.52	420	1,456
Total Project	**5,800**	**--**	**--**	**870**	**3,106**

Source: ABAG, 2004; Atkins, 2011.

Notes:

a. The Type I multiplier measures the direct and indirect jobs created.

b. The Type II multiplier measures the direct, indirect, and induced jobs created.

[2] ABAG, Center for Analysis and Information Services, *2001 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Table 5, 1987 Bay Area Employment Multipliers, p. 20, March 2004.

[3] ABAG, Projections 2009, December 2009.

Infrastructure Capacity/Land Use Changes. Growth in a geographic area may be induced by removing infrastructure barriers through the provision of new infrastructure (roads, sewers, water supply, storm drainage, energy) and/or improving transportation and circulation systems. Accordingly, the growth-inducing potential of the Project would be significant if the Project had a need for infrastructure improvements that would substantially exceed existing capacity.

Construction of the West Campus for office use would augment and reinforce existing office and industrial land uses surrounding the Project area (see Section 3.2, Land Use, regarding land uses in the project area). As indicated above, only minimal improvements to the existing East Campus would be made. Redevelopment of the project area for new office/R&D, and commercial support uses would not directly contribute to an increase in growth outside the City limits. Thus, the total Project would not induce growth by removing infrastructure barriers or by providing new infrastructure, nor would it create new transportation access to a previously inaccessible area.

Utilities and Public Services. To the extent that the Project would increase the employee and resident population, there would be an increase in the demand for the provision of public services. This includes an increased demand for police protection, fire protection and emergency services, school facilities, library services, and recreational areas proportional to the increased intensity of the Project site. As discussed in the Section 3.15 (Public Services), there would be no significant impacts on public services as a result of the Project. In this regard, the Project would not in and of itself indicate a substantial growth-inducing potential so as to inhibit the reasonable provision of public services. An increase in the demand for new public service facilities could lead to potential significant environmental impacts only if expanding or constructing new facilities were required that adversely affected the physical environment under the impact criteria established. Since the Project would not trigger the need for expanded or new public services facilities, no significant impact would occur.

Planning for the future expansion of utility, transportation, and public service facilities would take into account the Facebook Campus population levels. The increase in utility and public service personnel and equipment required to serve the Project would not be implemented beyond what is required to accommodate the Facebook Campus and there would be no significant growth inducements as a result.

The Project would be served by existing water entitlements as described in Section 3.16, Utilities. Existing electricity and natural gas infrastructure would continue to serve the Project site. Implementation of the East Campus would reduce electricity demand and the increase in natural gas demand would be negligible. The West Campus would result in an increase in energy demand over existing conditions, but would not require installation of additional electricity and natural gas infrastructure.

Summary. In conclusion, growth and the rate of growth shape both the physical and social structure of communities. As indicated above, the Project would not facilitate or contribute to direct population growth in Menlo Park and San Mateo County. The Project would, however, result in both direct and indirect employment growth, but not in excess of current ABAG projections. Similarly, this growth in the number of jobs in the Menlo Park and San Mateo County would not result in indirect population growth over ABAG population projections.

4.4 CUMULATIVE IMPACTS

CEQA Guidelines (Section 15355) define cumulative impacts as "…two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." The combination of the Project with other foreseeable projects in the vicinity or region affected by the Project, defines the cumulative scenario. Cumulative impacts and the Project's contribution to the cumulative impacts are addressed in Sections 3.2 through 3.16 of this EIR. These sections identify feasible mitigation measures that would reduce the Project's cumulatively considerable contributions to cumulative impacts to less-than-cumulatively-considerable levels. These sections also identify those cumulative impacts that would be significant and unavoidable even with the implementation of feasible mitigation measures. Please refer to those sections of the Draft EIR for a discussion of cumulative impacts.

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Section 5
Alternatives

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.) require that an Environmental Impact Report (EIR) "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6(a)). If mitigation measures or a feasible project alternative that would meet most of the basic project objectives would substantially lessen the significant environmental effects of a proposed project, then the lead agency should not approve the proposed project unless it determines that specific technological, economic, social, or other considerations make the mitigation measures and the project alternative infeasible (PRC Section 21002, CEQA Guidelines Section 15091(a)(3)). The EIR must also identify alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and should briefly explain the reasons underlying the lead agency's determination (CEQA Guidelines Section 15126.6(c)).

One of the alternatives that must be analyzed is the "No Project" Alternative. The "No Project" analysis must discuss the existing conditions at the time the Notice of Preparation (NOP) is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved and development continued to occur in accordance with existing plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2)). Therefore, pursuant with the CEQA Guidelines, this section discusses and analyzes a No Project Alternative.

In addition to the No Project Alternative, this section provides an additional alternative (Reduced Intensity Alternative) to the Project and analyzes the impacts of each. This section later provides a description of the alternatives and compares the significant impacts of the alternatives to the significant environmental impacts of the Project as proposed.

5.2 DESCRIPTION OF ALTERNATIVES CONSIDERED

As discussed in Section 2, Project Description, the Project Sponsor has identified the following Project objectives that are relevant to the physical impacts considered in this document:

- Establish Facebook's permanent headquarters in the City.
- Develop an integrated, multi-phased campus that is sized to accommodate Facebook's long-term growth potential.
- Maximize the opportunity for its employees and vendors to interact and meet, both formally and informally.

- Provide multiple transportation options to employees to minimize traffic and greenhouse gas emissions.
- Create a pedestrian-friendly, bicycle- and transit-enabled campus, which encourages reduction in private vehicle trips and use of transit solutions.
- Increase connectivity of neighborhood paths and bikeways, and promote access to the Bay Trail from the Belle Haven neighborhood.
- Minimize traffic flow to and from Bayfront Expressway and Willow Road.
- Redevelop idle, "brownfield" property at the West Campus to accommodate flexible work space for expansion of operations.
- Rejuvenate the industrial district along the Willow Road corridor near the Bayfront Expressway.
- Respect the campus surroundings and residential neighbors through appropriate building height, siting, and massing.
- Increase occupancy of outdated, underutilized buildings on the East Campus with employees who rely on robust transportation alternatives consistent with the Project's sustainability goals, which seek to avoid sprawl.
- Use "green" design practices and methods that promote energy efficiency and resource conservation.
- Create a pedestrian-friendly environment that enhances connectivity between the north side and south side of Bayfront Expressway, including use of existing tunnel.
- Provide new and diverse employment opportunities for the City's residents.
- Generate revenue for the City and other public entities.

As stated above, the alternatives to a proposed project are meant to feasibly attain most of the basic project objectives while avoiding or substantially lessening its significant impacts. Significant and unavoidable Project-specific and cumulative impacts from the Project include:

East Campus

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in increased delays at the following intersections: Marsh and Middlefield Road; Willow Road and Bayfront Expressway; University Avenue and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-1)
- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Near Term 2015 East Campus Only Condition would result in significantly increased ADT volumes on the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; Willow Road between Nash

Avenue and Blackburn Avenue; and Middlefield Road between Linfield Drive and Survey Lane. (TR-2)

- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Near Term 2015 East Campus Only Condition would result in significant impacts to the following Routes of Regional Significance: SR 84 between US 101 and Willow Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Marsh Road and Willow Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-3)
- **Violation of any Air Quality Standard.** Operation of the East Campus would create NOx emissions that would exceed BAAQMD's significance thresholds. (AQ-2)
- **Substantial Permanent Increase in Noise Level.** Operation of the Project at the East Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. (NO-3)

West Campus

- **Violation of any Air Quality Standard.** Operation of the West Campus would create NOx emissions that would exceed BAAQMD's significance thresholds. (AQ-2)
- **Temporary Increases in Ambient Noise Level.** The West Campus would result in levels of vibration that would disrupt operations at nearby vibration-sensitive land uses. (NO-2)
- **Substantial Permanent Increase in Noise Level.** Operation of the Project at the West Campus would result in a substantial permanent ambient noise level increase in the Project vicinity due to an increase in traffic. (NO-3)

Total Project

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased delays at the following intersections: Marsh Road and Bayfront Expressway; Marsh Road and US 101 NB Ramps; Willow Road and Bayfront Expressway; Willow Road and Newbridge Street; Willow Road and Middlefield Road; University and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-6)
- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Near Term 2018 East Campus and West Campus Condition would result in increased volumes on the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; and Willow Road between Nash Avenue and Blackburn Avenue. (TR-7)
- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Near Term 2018 East Campus and West Campus Condition would result in significant impacts the following Routes of Regional Significance: SR 84 between US 101 and Willow

Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-8)

- **Violation of any Air Quality Standard.** Operation of the Project, at both the East Campus and West Campus, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} and would exceed BAAQMD's significance thresholds. (AQ-2)
- **Exposure to Excessive Noise Levels.** The increase in vehicular traffic associated with implementation of the East Campus and West Campus, combined, would result in an increase in the exposure of off-site noise sensitive receptors to noise levels in excess of the standards established in the General Plan or Municipal Code. (NO-1)

Cumulative

- **Impacts to Intersections.** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East and West Campuses Condition would result in increased delays at the following intersections: Marsh Road and Bayfront Expressway; Marsh Road and US 101 NB Ramps; Willow Road and Middlefield Road; Willow Road and Bayfront Expressway; Willow Road and Newbridge Street; University and Bayfront Expressway; Bayfront Expressway and Chrysler Drive; and Middlefield Road and Lytton Avenue. (TR-11)
- **Impacts on Roadway Segments.** Increases in traffic associated with the Project under the Cumulative 2025 East Campus Only Condition and the Cumulative 2025 East and West Campuses Condition would result in increased volumes the following roadway segments: Marsh Road between Bay Road and the railroad tracks; Willow Road between Durham Street and Chester Street; Willow Road between Nash Avenue and Blackburn Avenue; and Middlefield Road between Linfield Drive and Survey Lane. (TR-12)
- **Impacts to Routes of Regional Significance.** Increases in traffic associated with the Project under Cumulative East Campus Only Condition and Cumulative East and West Campuses Condition would result in significant impacts to the following Routes of Regional Significance: SR 84 between US 101 and Willow Road; SR 84 between Willow Road and University Avenue; SR 84 between University Avenue and County Line; US 101 north of Marsh Road; US 101 between Willow Road and University Avenue; and US 101 south of University Avenue. (TR-13)
- **Violation of any Air Quality Standard.** The Project, in combination with other development within the City, would create new area and mobile sources of air pollutants that would generate emissions of ROG, NO_X, and PM_{10} resulting in a violation of an Air Quality Standard. (C-AQ-2)

- **Cumulative Construction Criteria Air Pollutant Emissions.** Construction activities associated with the West Campus, in combination with other construction activities in the City, would generate dust or diesel emissions, thus exposing people to particulate matter. (C-AQ-3)
- **Cumulative Toxic Air Contaminants Emissions.** The Project, in combination with other foreseeable development in the Project vicinity, would expose sensitive receptors to substantial TACs. (C-AQ-5)
- **Cumulative Exposure to Excessive Noise.** The Project, in combination with other development within the City, would result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code. The Project's contribution would be cumulatively significant. (C-NO-1)
- **Cumulative Permanent Increase in Noise Levels.** Operation of the Project and other cumulative developments would result in a substantial permanent ambient noise level increase in the Project vicinity. The Project's contribution would be cumulatively significant. (C-NO-3)

Based on the goal of reducing these significant and unavoidable impacts, the No Project Alternative and Reduced Intensity Alternative have been developed for the Project for evaluation in this Draft EIR. Table 5-1, below, provides a summary of key features of the Project and each alternative. Further details regarding each alternative are provided below.

Table 5-1
Comparative Description of the Project and Alternatives

	Project	No Project Alternative	Reduced Intensity Alternative
Floor Area (sf)			
East Campus[a]	1,035,840	1,035,840	1,035,840
West Campus	440,000	0	440,000
Total	1,475,690	1,035,840	1,475,690
Net Over Existing	440,000	0	440,000
Daily Trips			
East Campus	15,000	5,022	12,227
West Campus	6,350	0	4,763
Total	21,350	5,022	11,968
Net Over Existing	15,956	0	6,946
Employees			
East Campus Employees	6,600	3,600	4,950[b]
West Campus Employees	2,800	0	2,100[b]
Total	9,400	3,600	7,050[b]
Net Over Existing	5,800	0	3,450

Source: Atkins, 2011.

Notes:

a. East Campus floor area will not change over existing conditions for any of the alternatives.
b. The employee estimate with the Reduced Intensity Alternative is approximate.

Initially, it was determined that, in order to minimize significant and unavoidable impacts relative to transportation, noise, and air quality, an approximately 80 percent reduction in daily trips would be necessary. This reduction would not meet any of the Project Sponsor's objectives and, therefore, would not be a feasible alternative. Similarly, a 50 percent reduction was determined to be infeasible because it would result in fewer employees than what is permitted under the existing CDP for the East Campus and the Project Sponsor would have no basis to move forward with the Project as a whole. Finally, a 40 percent reduction was also evaluated. This scenario would have resulted in the allowance of approximately 350 more employees at the East Campus than what is currently permitted. It would also result in fewer employees at the West Campus than proposed with the Project. These reductions would not meet the Project Sponsor's most basic objective of establishing a permanent central headquarters that would accommodate its anticipated employment growth. The 25 percent reduction was chosen because it allows for some increase in occupancy at the East Campus and development of the West Campus, while decreasing the overall number of trips. It also allows for the attainment of the majority of the Project objectives. For these reasons, the Reduced Intensity Alternative reducing daily trips by 25 percent was chosen as the most feasible alternative.

No Project Alternative

Under the No Project Alternative, the existing two sites would remain as-is. The nine existing buildings at the East Campus that include 1,035,840 sf would remain. Based on the existing Conditional Use Permit (CDP), the No Project Alternative would allow a maximum of 3,600 employees. No daily trip cap would be implemented. At the West Campus, the existing buildings would not be demolished and the current site conditions would remain the same. There would be no new construction and Facebook would not occupy the West Campus.

Reduced Intensity Alternative

Under this alternative, there would be a 25 percent reduction in daily trips for the East Campus and the West Campus. This 25 percent reduction would equate to an 11,250 daily trip cap for the East Campus (compared to 15,000 daily trip cap with the Project) and 4,763 daily trips for the West Campus (compared to 6,350 daily trips with the Project). For informational purposes, this Reduced Project Alternative could translate to fewer employees with approximately 4,950 employees for the East Campus (compared to approximately 6,600 with the Project) and approximately 2,100 employees for the West Campus (compared to approximately 2,800 with the Project). As with the Project, the Reduced Intensity Alternative would use the existing buildings at the East Campus and the square footages would remain the same. The site plan for the West Campus would remain the same as with Project implementation at approximately 440,000 sf, resulting in a larger allocation of square feet per employee. In addition, the proposed bicycle/pedestrian linkages would be constructed and implemented to enhance circulation between the campuses.

As stated above, the footprint of the proposed buildings on the West Campus would not change with the Reduced Intensity Alternative. As such, all footprint-based impacts would be identical to the Project and are not discussed in detail below. Instead, the discussion for the Reduced Intensity Alternative focuses on those topics that could be affected by changes in intensity of use at the sites (i.e.,

population-based impacts). The Reduced Intensity Alternative does not include an analysis of the following footprint-based impacts: Aesthetics, Wind, Cultural Resources, and Biological Resources. The remaining technical topics (Transportation, Air Quality, Greenhouse Gas Emissions, Noise, Geology and Soils, Hydrology and Water Quality, and Hazards and Hazardous Materials, Population and Housing, Public Services, and Utilities) are discussed as they relate to the Reduced Intensity Alternative.

5.3 ATTAINMENT OF PROJECT OBJECTIVES

An evaluation of how each alternative meets or does not meet the basic Project objectives is provided below. Pursuant to CEQA Guidelines Section 15126.6(a), this analysis compares the alternatives to the objectives of the Project. As described in detail above, there are two alternatives for the Project: No Project Alternative and Reduced Intensity Alternative. The following analysis describes the extent to which these alternatives meet or do not meet the Project Sponsor's objectives as described in Section 2, Project Description, and reproduced above.

No Project Alternative

The No Project Alternative would not achieve the basic Project objectives. The No Project Alternative would not meet the primary objectives of providing a centralized headquarters and an integrated, highly connected campus. Although the No Project Alternative allows 3,600 employees at the East Campus, this would not accommodate Facebook's long-term growth potential. As a result, the Project site could not serve as Facebook's central headquarters. In addition, the No Project Alternative would not include demolition, renovation, or construction of buildings at the West Campus and the site would remain unoccupied and unmaintained.

Because the Project would not be implemented, the No Project Alternative would not provide multiple transportation options to minimize traffic and greenhouse gas (GHG) emissions, create a pedestrian-friendly, bicycle- and transit-enabled campus to reduce vehicle trips, increase connectivity of neighborhood paths and bikeways and promote access to the Bay Trail, or rejuvenate the industrial district along the Willow Road corridor. The "brownfield" property at the West Campus would not be developed. Without the proposed increase in trips at the East Campus, there would be a reduced incentive to develop a robust transportation demand management (TDM) program similar to what is proposed by the Project. Without the Project, there would be no need to cohesively develop the West Campus with the East Campus as a single integrated corporate headquarters, thereby eliminating the need for the enhanced connection under Bayfront Expressway. In fact, if the East Campus and West Campus were developed as separate projects by unrelated entities there may be an incentive to close the undercrossing. Thus, the No Project Alternative would not create a pedestrian-friendly environment that enhances connectivity between the north side and south side of Bayfront Expressway, including use of the existing tunnel, provide new and diverse employment opportunities for the City's residents, or generate revenue for the City and other public entities. The No Project Alternative would not include green design practices and sustainability features that promote energy efficiency and resource conservation, as well as reduce vehicle miles traveled, vehicle emissions, and GHG emissions,

particularly as these measures relate to development of the West Campus. This is also due to the fact that the TDM program would be less aggressive and the energy efficient West Campus would not be developed. As such, the No Project Alternative would not meet the majority of the Project objectives.

Reduced Intensity Alternative

The Reduced Intensity Alternative would meet several of the Project Sponsor's objectives. A reduction in daily trips of 25 percent would still allow the East Campus to be occupied at an employee level greater than existing conditions, but less than what is proposed with the Project. In addition, the Reduced Intensity Alternative would develop the West Campus with the same building program as the Project. However, at both sites, the total trips would be 25 percent less than what is proposed with the Project, which could translate to a reduction of employees. With the reduced trips, the Reduced Intensity Alternative would translate to approximately 7,050 employees instead of approximately 9,400 employees in total. This number of potential employees would not be able to accommodate Facebook's long-term growth projections.

Without the ability to accommodate Facebook's anticipated employee growth, it would not be feasible for Facebook to establish its permanent headquarters at the Project site since such permanence relies entirely on housing its future workforce. As such, the Project Sponsor would have to find a separate location to accommodate the employee shortfall, which could create other impacts at another location. This, in turn, would mean that the objective related to maximizing the opportunity for Facebook employees and vendors to interact and meet would not be met since the entire workforce could not be at one location. Finally, if Facebook had to seek space outside City limits to accommodate the overflow of employees who could not be housed at the Project site, the Reduced Intensity Alternative would also not fully meet the objective related to generating revenue for the City.

Since the Reduced Intensity Alternative would be in the same location, the Project would still be in a prominent location proximate to major transportation corridors. In addition, the same bicycle/pedestrian linkages would be constructed, including the Bayfront Expressway undercrossing, which would meet the objective of creating a pedestrian-friendly, bicycle- and transit-enabled campus, which encourages reduction in private vehicle trips and use of transit solutions. These bicycle/pedestrian linkages would also increase connectivity of neighborhood paths and bikeways, and promote access to the Bay Trail from the Belle Haven neighborhood.

The Reduced Intensity Alternative would be Leadership in Energy & Environmental Design (LEED) certified and designed in a sustainable manner. Since the same building program would be constructed with the Reduced Intensity Alternative, this alternative would meet the objective of having "green" design practices and methods that promote energy efficiency and resource conservation.

5.4 ALTERNATIVES CONSIDERED BUT REJECTED

CEQA Guidelines Section 15126.6(f)(2) states that an Draft EIR must consider off-site alternatives if such alternatives are deemed to be feasible by the Lead Agency. As stated in CEQA Guidelines,

Section 15126.6(f)(1), factors that may be considered when a Lead Agency is assessing the feasibility of an alternative include: "site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent)."

Alternative Locations

In 2010, the Project Sponsor started an extensive search for headquarter sites that could meet its projected growth demands and square footage needs. The Project Sponsor considered numerous options, including: 1) the incremental acquisition of facilities near its current Palo Alto headquarters in the Stanford Research Park; 2) the long-term lease or acquisition of an existing campus (e.g., HP's Page Mill campus, campuses in Mountain View, the Oracle/Sun Menlo Park campus, the Roche campus, or Moffett Towers); 3) the development of a new campus; and 4) bifurcated headquarters (e.g., Palo Alto and San Francisco).

The Project Sponsor rejected options 1 and 4 because they did not meet two of Project's most basic objectives: establishment of permanent headquarters and development of an integrated, highly-connected, multi-phased campus that offers sustained long-term growth plans. Option 1 required scattered acquisitions, which, even if within a relatively close distance to the existing campus, would not establish a centralized, permanent headquarters or develop an integrated, highly connected campus. It is unlikely that the Project Sponsor would be able to acquire properties adjacent to the existing Palo Alto campus, and developing properties near the present campus would not achieve the goal of an integrated campus. In addition, since incremental acquisitions would occur over possibly long periods of time, this option would not enable the Project Sponsor to sustain its long-term growth, as it would be dependent on property availability and market conditions. Similarly, a bifurcated campus (option 4) would not result in an integrated campus or a centralized headquarters. The remaining sites (e.g. HP's Page Mill campus, the Roche campus, or Moffett Towers) were then eliminated because of the infeasibility of acquiring or leasing those properties (whether for operational, economic, or other reasons).

Option 3, the development of an entirely new campus on an alternative site, was rejected as infeasible, as there was no property available in either Palo Alto or Menlo Park large enough to accommodate the Project and meet the Project Sponsor's long-term growth needs. The Project Sponsor desires to remain in its current geographic area to maintain its current employee base. Alternative locations outside the general area are not feasible because the Project Sponsor currently leases the East Campus and already occupies a portion of it. Further, within the City, there are no alternative sites that could accommodate the development intensity proposed, given the City's existing land use designations and zoning.

As such, because of the aforementioned issues relative to site suitability, economic viability, and acquisition and control, alternative site for the Project has been rejected as infeasible. Therefore, after much consideration, the Project Sponsor decided on a combination of options 2 and 3, which involved

purchasing the West Campus and entering into a long-term lease (with an option to purchase) of the East Campus.

Alternative Development Scenario

The Project Sponsor also considered development on the West Campus consistent with existing zoning ordinance requirements that allow a maximum of 35 feet in height. Under this scenario, the West Campus could be developed with buildings totaling approximately 440,000 square feet under existing FAR limitations. This would accommodate a similar number of employees as the Project. However, without an increase in height, the buildings would cover a larger portion of the site. Increasing the footprint would decrease the pedestrian-friendly campus atmosphere, reduce the landscaping, require significant on-grade parking, and result in a dramatic increase in impervious coverage. This would reduce the ability of the Project Sponsor to achieve its "green" building and design goals. The Project Sponsor rejected this alternative because the impacts resulting from the increase in population would remain without the commensurate improvements in work-environment connectivity, both in outdoor and indoor spaces, sustainability in design, site landscaping, and hydrology improvements.

5.5 IMPACT ASSESSMENT

This section evaluates whether the alternatives would reduce the significant impacts of the Project to less-than-significant levels and/or would generate impacts other than those identified for the Project. Summarized lists of recommended mitigation measures for each alternative are provided in the analysis below; however, these mitigation measures are fully described in Section 3, Environmental Analysis, of this document. In addition, a summary comparative analysis of the Project and its alternatives is provided in Table 5-5, at the end of this section.

No Project Alternative

As described above, under the No Project Alternative, the redevelopment of the West Campus would not occur and the employee cap on the East Campus would remain in place. No new land uses or rezoning would occur under this alternative.

Land Use

The Project would require a modification of the existing CDP for the East Campus to change the existing employee cap to a vehicle trip cap and a CDP at the West Campus to establish a new height limit. The No Project Alternative would not require discretionary review since the existing employee cap at the East Campus would remain and no development at the West Campus would occur. Similar to the Project, the No Project Alternative would result in no impact to an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plans, nor would it conflict with the existing land use designation. In addition, since the No Project Alternative would not increase operational traffic, the No Project Alternative would not result in policy conflicts with respect to the Noise Ordinance that would occur with the Project. Consistency with land use plans and policies is inherently a project-specific issue and each jurisdiction

would decide on project consistency on the project level. As such, there would be a less-than-significant cumulative impact as a result of cumulative development in the ABAG region and under the No Project Alternative, as with the Project.

The No Project Alternative would result in several other policy conflicts that would not occur with the Project. The General Plan and Bay Trail Plan promote the enhancement of bicycle and pedestrian linkages. The No Project Alternative would not enhance the existing Bay Trail by providing an improved connection at the intersection of Bayfront Expressway and Willow Road. Nonetheless, as described in Section 3.2, the ultimate findings of the General Plan consistency do not require that a project be entirely consistent with each individual General Plan policies. As such, because existing conditions would not change with the No Project Alternative, this alternative would be generally consistent with the applicable goals, policies, and actions, resulting in a less-than-significant impact.

Visual Quality

The No Project Alternative would not alter existing conditions, and therefore, would not block views from scenic vistas or change the existing visual character. The proposed development at the West Campus with implementation of the Project would significantly increase massing, height, and bulk over existing conditions and alter background views. While the impact would be less than significant under the Project, this impact would not occur under the No Project Alternative. The West Campus would remain unoccupied and its landscaping unimproved.

The Project would replace the abandoned West Campus with new buildings, enhanced landscaping, and bicycle/pedestrian amenities that would complement the existing office development at the East Campus and the other nearby commercial uses. These improvements to visual quality would not occur with the No Project Alternative. Since no new structures would be built under the No Project Alternative, a new source of light and glare would not be created compared to the potentially significant, but mitigable, light and glare impacts as a result of the Project. The less-than-significant shadow impacts of the Project would not occur under the No Project Alternative. No impact to visual quality would result with the No Project Alternative. (NI)

Wind

Similar to the Project, the No Project Alternative would not affect existing wind conditions on the East Campus because no exterior changes to the existing buildings would be made that would impact existing wind conditions. The West Campus has little shelter from northwest to north prevailing winds. It is likely that areas within and adjacent to the West Campus would experience accelerated winds due to the increased height, bulk, and alignment of the Project, which would not occur under the No Project Alternative. No wind-related impacts would result with the No Project Alternative. (NI)

Transportation

The No Project Alternative would retain existing conditions at the East Campus and West Campus and would not generate additional traffic or parking demand. This alternative would result in the same daily

vehicle trips and affected intersections as the baseline since no new uses would be added at the Project site. No transportation-related impacts would result with the No Project Alternative. (NI)

Air Quality

The No Project Alternative would not construct new uses at the Project site and would not generate air emissions above the baseline. Since no development would occur under the No Project Alternative existing uses would remain consistent with the Transportation Control Measures (TCMs) identified in the 2005 Ozone Strategy as critical to attaining the California Clean Air Act (CCAA) ozone standard. No impacts to air quality would result with the No Project Alternative. (NI)

Climate Change

The No Project Alternative would result in no new direct emissions from area and mobile sources, or indirect emissions from electricity generation and solid waste that would occur with intensification of use. Since this alternative would not construct new buildings and no new uses would operate at the Project site, there would be no increase in GHG emissions over the baseline, resulting in no impact. (NI)

Noise

Similar to the Project, the No Project Alternative would not result in noise impacts due to operations from public or private airports. The operational noise at the East Campus would remain the same. However, unlike the Project, the No Project Alternative would not result in a significant incremental increase in traffic noise levels at identified sensitive uses on Marsh Road and Willow Road and would not result in a significant cumulative impact from vehicular noise. Additionally, since construction at the West Campus would not occur, there would be no construction noise impacts to off-site receptors and the significant and unavoidable impact of the Project on vibration-sensitive users would be eliminated. There would be no exceedance of the City's Noise Ordinance. This alternative would avoid the potentially significant but mitigable operational noise impacts associated with generators and heating, ventilation, and air conditioning (HVAC) systems. No noise-related impacts would result with the No Project Alternative. (NI)

Cultural Resources

The existing structures on the Project site are not historically significant. Because no ground-disturbing construction would occur at the East Campus, similar to the Project, the No Project Alternative would result in no impact on historical resources. There is a moderate to high possibility that Native American sites exist on or near the Project site. With the No Project Alternative, unlike the Project, no ground disturbance would occur at the West Campus. The No Project Alternative would result in no impact on archaeological or paleontological resources or human remains. (NI)

Biological Resources

The No Project Alternative would not include the demolition of existing buildings, the construction of new buildings, or the removal of vegetation. As such, pallid bats and other potential crevice-roosting

bat species would not be impacted. Since no new buildings would be constructed, no new or additional nesting or perching opportunities would be provided to raptors or other predatory birds as a vantage point from which to prey on special-status species in the adjacent salt marshes. Migratory birds would not be impacted with the No Project Alternative because no trees would be removed and there would be no disruption of nesting habitat. As with the Project, since there is no riparian habitat, salt marsh, State or federally protected wetlands, and/or other sensitive natural community present in any portion of the site, there would be no impact on these resources. As such, no project or cumulative impacts would occur under the No Project Alternative and there would be no conflicts with local policies adopted to protect biological resources. No impacts to biological resources would result with the No Project Alternative. (NI)

Geology and Soils

There are no faults that cross the Project site and the site is not within an Alquist-Priolo Earthquake Fault Zone. There would be no impact from the No Project Alternative related to fault rupture. The Project site is primarily flat and not adjacent to any hillsides where seismically induced landslides or other downslope movement of rock or soil material that could pose a hazard. The No Project Alternative would not include any septic tanks or leach field systems. Consequently, the existence of soils incapable of supporting septic systems is not considered an impact associated with the Project and this impact is not evaluated. Thus, similar to the Project, the No Project Alternative would have no impact relative to fault rupture, landslide hazards, loss of topsoil, or septic systems.

Development of the Project site would involve the construction (West Campus) and occupancy (East Campus and West Campus) of buildings in a location where strong seismic groundshaking can be expected to occur over the life of the Project. The No Project Alternative would not construct new buildings or increase the amount of employees at the Project site over existing conditions. Therefore, the No Project Alternative would not expose additional people to groundshaking, resulting in no impact relative to seismic hazards, unlike the less-than-significant impact of the Project. (NI)

Hydrology

The No Project Alternative would not develop the West Campus or add employees to the East Campus over the baseline. Since no additional employees would be included with the No Project Alternative, additional people would not be exposed to the 100-year floodplain or potential sea level rise, resulting in no impact. Existing groundwater recharge potential within the Project area is minimal because portions of the site contain impervious surfaces, fill has been placed in other locations in conjunction with site remediation, and compacted gravel overlies other areas. The No Project Alternative would result in a similar less-than-significant impact on groundwater recharge potential. The potential for tsunami or seiche inundation is low, and the Project site is not subject to dam failure inundation. The No Project Alternative would not modify the existing conditions at the Project site, which would remain primarily covered with impervious surfaces, resulting in no impact.

Because the on-site storm drain system has capacity limitations, ponding at the West Campus and at the adjacent TE Connectivity site would continue to occur. The drainage swale would continue to provide

overflow storage. The flow reversals currently experienced in the Hamilton Avenue system would also continue to occur, as under the Project. The No Project Alternative would not include planned stormwater quality features, such as rain gardens and treatment areas, to temporarily store stormwater runoff and settle out pollutants. In addition, the West Campus is subject to 100-year flooding, which would occur with or without the Project. The Project would involve placement of fill to elevate finished floor elevations above the 100-year flood hazard elevation so that finished floor elevations of habitable structures would provide protection for the 100-year tidally induced flooding, consistent with requirements for development in the SFHA. This would not occur with the No Project Alternative, and therefore, the No Project Alternative would have a greater impact on stormwater runoff, and potential pollutants, than with the Project. Nonetheless, since this is an existing condition, the No Project Alternative would result in no impact. (NI)

Hazards and Hazardous Materials

Unlike the Project, the No Project Alternative would not demolish any structures or disturb the soil, and would, therefore, would result in no impact relative to the potential release of hazardous materials. Under the No Project Alternative, construction workers would not be exposed to potential risks from contaminated soil or groundwater or expose ecological receptors to residual contaminants in soil and/or groundwater. The No Project Alternative would also not interfere with the groundwater monitoring wells at the site or the groundwater network compared to the less-than-significant impact, with mitigation, of the Project. Operation at the East Campus would include routine hazardous materials use and maintenance activities; however, this would not increase over existing conditions, resulting in no impact. In addition, the No Project Alternative would not add traffic to the area and, therefore, would not impair emergency access and emergency plans.

However, while the Project proposes various on-site drainage features to convey stormwater runoff to the City system, the No Project Alternative would not include these features. As such, the potential for stormwater to infiltrate to groundwater, where it could affect flow characteristics, would remain. This could, in turn, interfere with the groundwater remediation system and contaminated groundwater could flow into the BMPs, from which treated stormwater would flow to the storm drain system, resulting in possible inadvertent, off-site contamination of stormwater. This is a greater impact than under the Project. Nonetheless, since this is an existing condition, the No Project Alternative would result in no impact. (NI)

Population and Housing

The No Project Alternative would result in no change in housing or employment levels over existing conditions. As such, the No Project Alternative would not result in a demand for new housing units within the City or proximate local jurisdictions. The No Project Alternative would avoid the direct and indirect population growth that would result from the Project, which is less than significant. The No Project Alternative would have no potential to contribute to cumulative impacts on population, housing, or employment growth. (NI)

Public Services

There would be no increase in employees on the site over existing conditions that could result in increased demand for police, fire protection, emergency services, and recreational facilities. In addition, as discussed above, the No Project Alternative would not increase the population and housing demand within the City. As such, the No Project Alternative would not increase the demand for schools or library services. The No Project Alternative would have no potential to contribute to cumulative impacts related to public services. (NI)

Utilities

The No Project Alternative would not change the existing use at the Project site; the East Campus would continue to serve approximately 3,600 employees and the West Campus would remain vacant. Therefore, the No Project Alternative would have similar water, sewer, storm drainage, energy, and operational solid waste demands as under existing conditions. The No Project Alternative would have no potential to contribute to cumulative impacts related to utilities. (NI)

Reduced Intensity Alternative

As described above, the Reduced Intensity Alternative would allow occupation of the Project site at a reduced scale due to the lower permitted trip cap. While the existing buildings at the East Campus would be used and the proposed Project site plan at the West Campus would be developed, the number of employees would be less than under the Project. Since the building program at the East Campus would remain the same as under existing conditions, and the West Campus site plan would be the same as under the Project, the Reduced Intensity Alternative would have the identical physical (footprint-based) impacts as the Project. These physical impacts are related to the following topics: Aesthetics, Wind, Cultural Resources, and Biological Resources. Since these impacts are identical to the Project, they are not discussed below.

Land Use

Conflicts with Adopted Land Use Plans and Policies. Similar to the Project, the Reduced Intensity Alternative would require a CDP amendment for the East Campus to change the existing employee cap to a vehicle trip cap and a CDP at the West Campus to establish a new height limit. The proposed new CDP and zoning (M-2-X for increased heights at the West Campus) would allow the Reduced Intensity Alternative to be consistent with the Zoning Ordinance, resulting in less-than-significant impacts. In addition, the Reduced Intensity Alternative would be consistent with the General Plan and Bay Trail Plan, which both promote the enhancement of bicycle and pedestrian linkages. As with the Project, the Reduced Intensity Alternative would enhance the existing Bay Trail by providing an improved connection at the intersection of Bayfront Expressway and Willow Road. In general, the Reduced Intensity Alternative would be consistent with the General Plan. (LTS)

Cumulative Impacts. Consistency with land use plans and policies is inherently a project-specific issue and each jurisdiction would decide on project consistency on the project level. As such, there would be

a less-than-significant cumulative impact as a result of cumulative development in the ABAG region under the Reduced Intensity Alternative, as with the Project. (LTS)

Transportation

As shown in Table 5-2, the Reduced Intensity Alternative Project increment would result in 1,965 trips (1,818 inbound and 147 outbound trips) for the AM peak hour, 2,068 trips (225 inbound and 1,843 outbound trips) for the PM peak hour, and 11,968 daily trips.

Table 5-2
East Campus and West Campus Reduced Project Alternative Trip Generation

	AM Peak Hour			PM Peak Hour			
Proposed Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
East Campus Increment (25% Reduction)	519	39	558	84	676	760	7,205
West Campus (25% Reduction)	799	60	859	73	587	660	4,763
Total Net New Increment Trips	**1,818**	**147**	**1,965**	**225**	**1,843**	**2,068**	**11,968**

Source: DKS Associates, 2011.

On a daily basis, 11,968 vehicle trips would be generated for the Reduced Intensity Alternative. With the trip generation detailed in Table 5-2 the same number of intersection, roadway segments, and Routes of Regional Significance impacts would occur when compared to the Cumulative 2025 East Campus and West Campus Condition.

A 75 percent reduction in the East Campus and West Campus project increment would result in the one fewer intersection potential impact and one fewer roadway segment impact. Additionally, an 80 percent reduction in the East Campus and West Campus project increment would result in one fewer impact to Routes of Regional Significance. As a result, there would be significant and unavoidable impacts on intersections, roadway segments, Routes of Regional Significance, and cumulative impacts with the Reduced Intensity Alternative, as with the Project. (SU)

Air Quality

Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. The proposed development under both the Project and the Reduced Intensity Alternative are consistent with and supportive of the Transportation Control Measures (TCMs) identified in the 2005 Ozone Strategy as critical to attaining the California Clean Air Act (CCAA) ozone standard. Therefore, impacts are considered less than significant. (LTS)

Violation of Any Air Quality Standard. The proposed development under both the Project and the Reduced Intensity Alternative, would create new area and mobile sources of air pollutants that would generate emissions of reactive organic gas (ROG), nitrous oxide (NO_X), and particulate matter (PM_{10}), in exceedance of the Bay Area Air Quality Management District's (BAAQMD's) significance

thresholds. Even a 25 percent reduction in criteria pollutants associated with the Reduced Intensity Alternative is insufficient to reduce the emissions of ROG, NOx, and PM_{10}, below the BAAQMD's significance thresholds. Therefore, this impact would remain significant and unavoidable. (SU)

Construction Criteria Air Pollutant Emissions. Construction activities associated with the proposed development at the West Campus, under both the Project and the Reduced Intensity Alternative, would generate emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ that would not exceed BAAQMD's significance thresholds. Since construction impacts would be identical under both scenarios, impacts are less than significant (LTS).

Localized Carbon Monoxide Impacts from Motor Vehicle Traffic. Localized carbon monoxide impacts under both the Project and the Reduced Intensity Alternative, would generate carbon monoxide emissions that would not exceed BAAQMD's significance thresholds, since emissions under the Project do not exceed the BAAQMD's significance thresholds. Therefore, impacts are less than significant (LTS).

Exposure to Toxic Air Contaminants. The exposure to TACs at the proposed development under both the Project and the Reduced Intensity Alternative, would result in less than significant impacts from exposure to TACs with mitigation. The emergency generator use, construction, and traffic are either the same under the Reduced Intensity Alternative, or less than the Project. Accordingly, impacts are less than significant. (LTS)

Exposure to Objectionable Odors. Exposure to objectionable odors at the proposed development at the East Campus and West Campus, under both the Project and the Reduced Intensity Alternative, would be less than significant. There is no change in land use under the Reduced Intensity Alternative, and therefore, no changes in potential for exposure to potential odors. (LTS)

Cumulative Impacts. Implementation of the Project or the Reduced Intensity Alternative, in combination with other cumulative development in the City, would not conflict with or obstruct implement of the applicable air quality plan resulting in a cumulatively significant impact. Additionally, the Project and the Reduced Intensity Alternative, in combination with other development within the City, would be consistent with the Ozone Attainment Plan and the Clean Air Plan. This would be a less than significant cumulative impact. (LTS)

However, similar to the Project, the Reduced Intensity Alternative, in combination with the Tier 1 and Tier 2 Projects within the City, would result in a cumulatively significant impact for ROG, NO_X, and PM_{10}. This is considered cumulatively significant according to BAAQMD's significance thresholds when a Project exceeds the BAAQMD's Project mass emission threshold for criteria air pollutants. Because no feasible mitigation has been identified for the Project or for the Reduced Intensity Alternative, the impact for ROG, NO_X, and PM_{10} emissions is therefore significant and unavoidable. (SU)

Climate Change

GHGs from the Project and the Reduced Intensity Alternative would generate emissions of GHG that are below the BAAQMD's significance thresholds. While the Reduced Intensity Alternative would reduce service population, it would also reduce GHG emissions from traffic. However, the reduction in service population would cause the efficiency metric for the project to exceed thresholds for the West Campus when the service population and traffic emissions are reduced by 25 percent, as shown in Table 5-3. Energy use emissions, water use emissions, and waste disposed emissions would also likely be reduced as a result of the Reduced Intensity Alternative. In order to make the Reduced Intensity Alternative less than significant the Emissions would need to decrease by 131 metric tons or 1.3 percent. Given the increases in energy use and solid waste generation associated with additional people, the 25 percent reduction in people at the West Campus will likely result in at least this 1.3 percent additional reduction. However to quantitatively illustrate this case, an analysis beyond that typically conducted for alternatives would be required. Therefore, emissions are likely to be less than significant for the Reduced Intensity Alternative when these additional source categories are factored in to the analysis. (LTS)

Noise

Exposure to Excessive Noise Levels. The addition of traffic with implementation of the Reduced Intensity Alternative would further increase traffic noise levels above the City's standards for residential uses, but to a lesser extent than the Project. Because the existing noise levels along the major arterials in the City already are above the City standards, these noise levels would continue to be above the City standards in the near-term and long-term future with the addition of Project-related traffic. As shown in Table 5-4, operation of the Reduced Intensity Alternative would result in a maximum noise level increase of 1 dBA, which is the same as the 1 dBA with the Project. Even though the permitted trip cap would be lower under the Reduced Intensity Alternative (for the East Campus, 11,250 daily trips compared to 15,000 under the Project, and for the West Campus, 4,763 daily trips compared to 6,350 under the Project), the traffic noise impacts would remain similar in all future year scenarios evaluated for the Reduced Intensity Alternative, resulting in significant and unavoidable impacts, similar to the Project.

In the short-term, operation of the East Campus would result in a 1 dBA increase on Marsh Road in the near-term. Similarly, under operation of both the East Campus and West Campus there would be a 1 dBA increase in the near-term and long-term traffic scenarios. However, using FTA guidance, a 1 dBA increase is considered significant when the noise level without a project is 75 dBA CNEL or higher. As with the Project, the Reduced Intensity Alternative would include a TDM program that sets forth a variety of measures designed to reduce the number of daily trips. However, the TDM program may not reduce trips enough to reduce the Reduced Intensity Alternative's contribution to traffic noise to a less-than-significant level. Although the Reduced Intensity Alternative would lower the permitted daily trip cap, which would in turn reduce traffic noise, the impacts would remain significant and unavoidable, similar to the Project. (SU)

Table 5-3
GHG Emissions for Project and Reduced Intensity Alternative

Category	Project			Reduced Intensity Alternative		
	East Campus Incremental	West Campus	Total Project Increment	East Campus Incremental	West Campus	Total Project Increment
Area Emissions[1,2]	0	0	0	0	0	0
Energy Use Emissions[1,2]	-10,638	2,043	-8,595	-10,638	2,043	-8,595
Water Use Emissions[1,2]	29	30	59	29	30	59
Waste Disposed Emissions[1,2]	369	357	726	369	357	726
Traffic Emissions[1,2]	13,817	9,740	23,557	8,064	7,305	15,370
Construction Amortized[4]	NA	57	57	NA	57	57
Total Emissions	**3,577**	**12,226**	**15,804**	**-2,175**	**9,791**	**7,616**
Service Population[3]	3,000	2,800	5,800	1,350	2,100	3,450
Emissions per Service Population with Amortized	**1.2**	**4.4**	**2.7**	**-1.6**	**4.66**	**2.2**

Notes:

a. All operational categories for which CalEEMod calculates emissions. Area source GHG emissions are less than 0.01 MT.

b. Emissions as described in previous tables. CO_2e includes CO_2, CH_4, and N_2O emissions, weighted by their respective global warming potentials.

c. Service population includes residents and workers associated with a project. Service population for each scenario consistent with traffic study.

d. One-time emissions were amortized over a 30 year period.

Table 5-4
Reduced Alternative Increment to Existing and Future Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a]	Traffic Noise Level Without Project	Traffic Noise Level With Reduced Alternative	Increase in Noise Level as a Result of Project	Allowable Increase[b]	Significant Impact?
Reduced Alternative Near Term Project I Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	**82**	**83**	**+1**	**0**	**Yes**
Willow Road - O'Brien Drive to Newbridge Street	78	78	0	0	No
Willow Road - Durham Street to Coleman Avenue	73	73	0	1	No
University Avenue - O'Brien Drive to Kavanaugh Drive	75	75	0	0	No
Reduced Alternative Near Term Project II Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No

Table 5-4
Reduced Alternative Increment to Existing and Future Noise Levels at Representative Locations in the Project Vicinity (CNEL)

Segment/Adjacent Land Use[a]	Traffic Noise Level Without Project	Traffic Noise Level With Reduced Alternative	Increase in Noise Level as a Result of Project	Allowable Increase[b]	Significant Impact?
Willow Road - O'Brien Drive to Newbridge Street	**79**	**80**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	73	73	0	1	No
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No
Reduced Alternative Long Term Project I Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	79	79	0	0	No
Willow Road - Durham Street to Coleman Avenue	73	73	0	1	Yes
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No
Reduced Alternative Long Term Project II Scenario[c]					
Bayfront Expressway - Chrysler Drive to Chilco Street	74	74	0	1	No
Marsh Road - Scott Drive to Bohannon Drive	83	83	0	0	No
Willow Road - O'Brien Drive to Newbridge Street	**79**	**80**	**+1**	**0**	**Yes**
Willow Road - Durham Street to Coleman Avenue	**73**	**74**	**+1**	**1**	**Yes**
University Avenue - O'Brien Drive to Kavanaugh Drive	76	76	0	0	No

Source: FHWA Highway Noise Prediction Model. See Appendix 3.08 for model output.

Notes:

a. Sensitive receptor and receptor distance from roadway centerline are:

1. Bayfront Expressway (Chrysler Drive to Chilco Street): West Campus boundary, 75 feet from centerline of Bayfront Expressway
2. Marsh Road (Scott Drive to Bohannon Drive): Residences 50 feet from centerline of Marsh Road
3. Willow Road (O'Brien Drive to Newbridge Street): Residences 75 feet from centerline of Willow Road
4. Willow Road (Durham Street to Coleman Avenue): Willow Oaks Elementary School playground, 75 feet from centerline of Willow Road
5. University Avenue (O'Brien Drive to Kavanaugh Drive): Residences 50 feet from centerline of University Avenue

b. Federal Transit Administration. 2006. Transit Noise and Vibration Impact Assessment. May.

c. Refer to Section 3.5, Traffic and Circulation, for a description of the traffic scenarios.

Significant impacts shown in **Bold.**

As with the Project, operation of the Reduced Intensity Alternative would consist of typical office operations. Noise sources associated with office uses include an increase in human activity; heating, ventilation, and air conditioning (HVAC) systems; parking lot and garage noise; truck pick-ups and deliveries; and emergency generator testing. The Reduced Intensity Alternative's changes to the operational noise levels at the Project site would be less than the Project and would be less than significant. However, operation of the West Campus would involve new emergency generator testing that would have the potential to exceed the Noise Ordinance noise level limit for residential land uses. Implementation of Mitigation Measures NO-1.1 and NO-1.2 would reduce this impact to a less-than-significant level. (LTS)

Temporary Increases in Ambient Noise Level. As with the Project, no construction activities would occur at the East Campus and therefore there would be no temporary noise increases associated with construction of the East Campus. As with the Project, construction of the West Campus would not result in significant impacts related to sleep disturbance or damage during pile driving. However, groundbourne vibration-related impacts to buildings within 225 feet of general construction activities and 900 feet of pile-driving activities could occur if such buildings include vibration-sensitive equipment. Due to the research and development nature of these uses, it is assumed that there is vibration-sensitive equipment within these distances, thus the Reduced Intensity Alternative's impact to vibration-sensitive equipment would be potentially significant. Implementation of Mitigation Measures NO-2.1 and NO-2.2 would require the notification of nearby businesses of potential impacts to vibration-sensitive equipment uses and best management practices. Even though implementation of these measures would reduce ground-borne vibration impacts from construction, vibration-sensitive equipment at the TE Connectivity site, the Menlo Science and Technology Park (AMB), and other commercial facilities (if identified), could still be exposed to excessive construction-generated vibration levels. Therefore, similar to the Project, the Reduced Intensity Alternative would result in significant and unavoidable impacts. (SU)

Substantial Permanent Increase in Noise Level. Potential permanent increases in noise level associated with the Reduced Intensity Alternative would include roadway noise, an increase in human activity, and HVAC systems. As discussed above, the Reduced Intensity Alternative would result in a significant increase in local traffic noise levels on Marsh Road and Willow Road, based on FTA's guidance. Operational noise sources at the East Campus would be the same as existing conditions, with the exception of the increase in human activity. Noise from the increase in human activity and use of new HVAC systems at the West Campus would not exceed the City's noise standards on-site or at the adjacent land uses. Therefore, this impact would be less than significant. However, utilizing the FTA's incremental increase guidance, implementation of the Reduced Intensity Alternative would result in a significant increase in noise level on Marsh Road and Willow Road. No feasible mitigation is available to reduce traffic-related noise exposure to a less-than-significant level. As with the Project, this impact would be significant and unavoidable. (SU)

Substantial Temporary Increase in Noise Level. No construction activities would occur at the East Campus and, therefore, there would be no temporary noise increases. As with the Project, vehicle trips during construction of the West Campus would not result in significant noise impacts. However,

operation of heavy construction equipment would generate a substantial increase in ambient noise and would potentially exceed the City's Noise Ordinance standards. The impact is considered potentially significant. Implementation of Mitigation Measure NO-4.1, as required for the Project, would reduce construction noise associated with the Reduced Intensity Alternative to a less-than-significant level. (PS/LTS)

Cumulative Impacts. Cumulative noise impacts would be similar under this alternative as compared to the Project. As with the Project, the Reduced Intensity Alternative, in combination with other development in the City, could result in a substantial increase in exposure of persons to noise in excess of the standards established in the General Plan or Municipal Code due to traffic. The Reduced Intensity Alternative's contribution to the exceedance of the noise thresholds from vehicular traffic would be cumulatively considerable, although to a lesser extent than the Project. Since there is no mitigation measure to reduce this impact, it would be significant and unavoidable. (SU)

Geology and Soils

Strong Seismic Groundshaking and Seismic-Related Ground Failure. No new structures are proposed on the East Campus, but this alternative would increase the number of people who could be exposed to strong groundshaking and related hazards by approximately 1,350 net new workers. The Reduced Intensity Alternative would expose fewer people to seismic hazards than the Project. In addition, the new development at the West Campus would expose approximately 2,100 net new workers to groundshaking. The risks to public safety from seismic hazards can be mitigated to the extent required by law with implementation of the proper design and construction methods, which would be within the responsibility of the City and the Project Sponsor to monitor and enforce through its building permit process. In addition, the City, along with other Bay Area jurisdictions, participates in a coordinated planning and emergency response program, and has its own Emergency Operation Plan to respond to natural disasters. Consequently, the Reduced Intensity Alternative, as with the Project, would not have a significant adverse impact with regard to exposure of people or structures to damage resulting from seismic groundshaking or liquefaction-related hazards. Therefore, impacts at the East Campus and West Campus are considered less than significant. (LTS)

Soil Hazards. The Geotechnical Feasibility Evaluation for the West Campus indicates that site soils are expected to have a moderate to high shrink-swell potential. Structural damage, warping, and cracking of roads, driveways, parking areas and sidewalks, and rupture of utility lines may occur if the potential expansive soils and the nature of the imported fill are not considered during design and construction of improvements. Adherence to the soil and foundation support parameters of the City Building Code, as required by City and State law, would ensure the maximum practicable protection available from soil failures under static or dynamic conditions for structures and their associated trenches and foundations. With implementation of the Reduced Intensity Alternative although fewer people would be exposed to sol related hazards than with the Project the Project Sponsor would be required to incorporate these recommendations into Project design at the West Campus. Therefore, as with the Project, hazards related to unstable geologic or soil units at the West Campus are considered less than significant. (LTS)

Soil Erosion. The West Campus is mostly flat and would not involve development on hillsides that would involve cut-and-fill; thus, there would be no topographic changes that could alter erosion potential. However, development of the West Campus under the Reduced Intensity Alternative would involve grading to construct building foundations and trenching for utility installations. Some minor modifications to allow additional roadway access points would also be implemented. These construction activities could temporarily expose soils to erosive effects from stormwater runoff. Similar to the Project, compliance with City requirements and the CBC, which are within the authority of the City to enforce and monitor, would ensure that erosion impacts resulting from Project construction would be less than significant. (LTS)

Cumulative Impacts. Soil and geologic conditions are site-specific and there is little, if any, cumulative relationship between the Project site and other areas in the City. As such, the potential for cumulative impacts to occur is geographically limited for many geology and soils impact analyses. The Reduced Intensity Alternative would have a less-than-significant potential to cause cumulatively substantial erosion or siltation. Construction and operational activities embodied in the Reduced Intensity Alternative would be subject to the same regulations as the Project. Consequently, cumulative impacts would be less than significant. (LTS)

Hydrology

Changes in Stormwater Runoff. Construction of the Reduced Intensity Alternative, as with the Project, would change the conditions at the West Campus. The net effect of the changes in impervious surfaces would result in a slight decrease in stormwater peak flow rates compared to existing conditions. However, because the on-site storm drain system has capacity limitations, ponding at the West Campus and at the adjacent TE Connectivity site would continue to occur. The drainage swale would continue to provide overflow storage because the Reduced Intensity Alternative proposes no changes to the swale. The flow reversals currently experienced in the Hamilton Avenue system would also occur, but not to a greater extent than existing conditions. As such, like the Project, the Reduced Intensity Alternative would not cause or exacerbate City drainage system capacities to be exceeded or cause or exacerbate off-site flooding in local neighborhoods. The impact is considered less than significant. (LTS)

100-Year Floodplain. New structures at the West Campus with implementation of both the Reduced Intensity Alternative and the Project would be placed in a Special Flood Hazard Area (SFHA), indicating development could be vulnerable to 100-year flood hazard risk. This alternative would involve placement of fill to elevate finished floor elevations above the 100-year flood hazard elevation. According to the Project Sponsor, the thickness of fill placed at the site would raise the site elevation such that finished floor elevations of habitable structures would provide protection for the 100-year tidally-induced flooding, consistent with requirements for development in the SFHA, plus 16 inches of sea level rise by 2050. However, implementation of Mitigation Measure HY-2.1, as required with the Project, would reduce the potentially significant flood risk impacts at the West Campus to less than significant. (PS/LTS)

Impeding or Redirecting Flood Flows. Like the Project, the placement of fill and structures with implementation of the Reduced Intensity Alternative would not remove floodplain storage or increase flows to the drainage features that convey both stormwater and receding flood waters for the 100-year event for on-site and off-site properties. As a result, the Reduced Intensity Alternative would not result in an increase in surface water elevations that could cause or exacerbate flood hazards on- or off-site. Therefore, impacts would be less than significant. (LTS)

Sea Level Rise. Sea level rise could result in higher flood elevations, alterations in the frequency of flood events, higher shallow groundwater tables, reduced storm drain system water surface elevation gradients, and overtopping or failure of levees. Different scenarios and models used to predict sea level rise result in different estimates of the magnitude of sea level rise. At the East Campus, the site is already developed with structures that could be vulnerable to sea level rise flooding, and the City's participation in the formulation of a sea level rise adaption strategy would ensure that impacts are less than significant. With the West Campus, the Reduced Intensity Alternative would expose people to this hazard through the development of new buildings. This would be a potentially significant impact, but could be mitigated through Mitigation Measures HY-4.1 and HY-4.2, as required for the Project. (PS/LTS)

Construction and Operational Stormwater Pollutants. Stormwater runoff from the Reduced Intensity Alternative at the West Campus would contain urban pollutants, similar to the Project. Compliance with applicable federal, State, and local regulations would ensure the Project would not violate water quality standards or permits, contribute additional sources of polluted runoff, or otherwise cause water quality degradation. With the use of Best Management Practices (BMPs) incorporated into the Project design and compliance with requirements of the SMCWPPP, which would be the responsibility of the City to enforce and monitor, operation of the West Campus would be in compliance with applicable permits. The reductions in stormwater pollutants that would be achieved through decreased stormwater runoff and use of BMPs would ensure that the Reduced Intensity Alternative does not contribute to additional sources of polluted runoff or otherwise degrade surface water quality. As a result, like the Project, Reduced Intensity Alternative operational water quality impacts would be less than significant. (LTS)

Effects on Groundwater Supplies and Recharge. Existing groundwater recharge potential within the Project area is minimal because portions of the site contain impervious surfaces, fill has been placed in other locations in conjunction with site remediation, and compacted gravel overlies other areas. Development of the Project site with implementation of the Reduced Intensity Alternative would result in a decrease in the amount of impervious surface area compared to existing conditions. The net effect of these changes in surface conditions is that post-construction groundwater recharge potential would be similar to existing conditions, and indirect impacts on the local groundwater table would not be substantial. Therefore, impacts would be less than significant with this alternative, similar to the Project. (LTS)

Cumulative Impacts. The Reduced Intensity Alternative would result in the same hydrology impacts as the Project. Cumulative impacts under the Project, including storm drain impacts, flooding and sea level rise, water quality, and groundwater supplies and recharge would result in less than cumulatively

considerable impacts. As such, the Reduced Intensity Alternative would result in the same less than cumulatively considerable impacts as the Project. (LTS)

Hazards and Hazardous Materials

Asbestos, Lead, or Other Hazardous Materials in Building Components. The Reduced Intensity Alternative, like the Project, would only include demolition or excavation at the West Campus. Construction activities would disturb hazardous materials in existing building components, but compliance with existing regulations would prevent adverse health or safety effects. Proper handling and disposal of contaminated building materials would reduce unforeseen risks to the environment and prevent potential future adverse health, safety, or environmental effects. As a result, impacts related to hazardous materials in building components with implementation of the Reduced Intensity Alternative would be less than significant, similar to the Project. (LTS)

Soil and Groundwater Contamination. The Reduced Intensity Alternative would have the same development program as the Project. The West Campus is included on the Cortese list. To minimize the potential introduction of contaminated fill onto the West Campus, all possible sources of import fill would have adequate documentation so it can be verified that the fill source is appropriate for the West Campus. For locations where import fill is not used, on-site soil disturbance has the potential to result in impacts due to hazardous materials releases in a variety of ways: soil disturbance could generate dust containing residual soil contaminants, which could pose an inhalation hazard to workers if contaminants adhere to the dust; improperly stockpiled soils could introduce contaminants into stormwater; excavation and removal of contaminated soils, particularly if soils are used elsewhere on-site or transported for offsite disposal or reuse could spread contaminants. In addition, Naturally Occurring Asbestos may be present in fill materials. Besides the general soil movement associated with utility installations, utility trenches also have the potential to create a horizontal conduit for chemical contaminants contained in soil vapors or shallow groundwater to migrate along permeable soils that would be placed as trench backfill.

The Reduced Intensity Alternative, like the Project, proposes various on-site drainage features to convey stormwater runoff to the City system. Although fill would be placed at the West Campus, which would increase the amount of separation between the BMP and groundwater and residual contaminants in soil, there is still the potential for stormwater to infiltrate to groundwater, where it could affect flow characteristics. This could, in turn, interfere with the groundwater remediation system. In addition, although the West Campus has been comprehensively evaluated, there is a potential for construction activities associated with the Reduced Intensity Alternative to encounter previously unidentified hazards, such as an abandoned underground storage tank located before permitting requirements were imposed, or other subsurface hazards, including soil. All of these activities proposed with the Reduced Intensity Alternative, similar to the Project, have the potential to result in a release of hazardous materials that could pose a human or environmental risk. However, implementation of Mitigation Measures HM-2.1 through HM-2.9 would reduce the potentially significant soil and groundwater contamination impacts at the West Campus to less than significant. (PS/LTS)

Effects on Ecological Systems. Studies have concluded that the conditions at the West Campus pose very little threat to biota from areas contaminated with hazardous substances due to lack of complete exposure pathways. The saltwater evaporation ponds located north of the West Campus and the wetland-mitigation area located east of the West Campus are separated from the site by paved roads/highways (Bayfront Expressway and Willow Road). However, because residual contaminants remain in soil, on-site soil movement during construction could provide a new potential pathway through which wildlife species could be exposed to contaminants in soil or fill material. Soil disturbance could be the result of general construction activities in which previously unidentified contaminants have been discovered, or it could be the result of implementation of Mitigation Measure HM-2.1. Compliance with the required procedures, as described for the Project in Section 3.13, Hazards and Hazardous Materials, would ensure that soil movement at the West Campus would not present a significant risk to the ecological environment. Therefore, with implementation of Mitigation Measure HM-2.1, potential Reduced Intensity Alternative construction ecosystem impacts related to handling of soil with residual contaminants and groundwater would be reduced to less-than-significant levels, similar to the Project. (LTS)

Inference with Groundwater Monitoring Systems. The earthwork that would be required to develop the West Campus with the Reduced Intensity Alternative has the potential to damage or destroy groundwater monitoring wells. If a well were damaged (e.g., cracked) at the well head or below the surface as a result of site preparation, this could reduce or eliminate the well as a data point. In addition, if structures, landscaping, hardscaping, parking lots, or utility trenches are not properly designed and sited, these could preclude access to the monitoring wells for sampling. As with the Project, site development plans would be coordinated with TE Connectivity and Department of Toxics Substance Control (DTSC) to allow continued monitoring, additional sampling, and/or remediation activities that may be required to obtain DTSC approvals for the West Campus. If there are groundwater wells that would obstruct construction activities, they will be decommissioned, relocated, and/or reinstalled. Such activities would require DTSC approval. This would ensure continued operation of the groundwater treatment and monitoring system in accordance with the LUC, and the impact would be less than significant, similar to the Project. (LTS)

Maintenance Activities. Following occupancy of the Reduced Intensity Alternative, soil excavation may be required to maintain or replace utilities, repair foundations, or make other subsurface repairs. There is a potential for future maintenance or repair activities involving disturbance of subsurface soils on the West Campus to encounter previously unidentified hazards, such as contaminated soil or other subsurface features that could pose a hazard. This would be a potentially significant impact because it could expose maintenance workers to previously unidentified contaminated soil or other hazards. However, Mitigation Measure HM-5.1, as required for the Project, would reduce the potentially significant impact at the West Campus to less than significant. (PS/LTS)

Routine Hazardous Materials Use. As with the Project, the Reduced Intensity Alternative would be required to comply with mandatory hazardous materials regulations and SWPPP requirements; compliance would ensure that potential releases from the transport and use or disposal of hazardous materials during Reduced Intensity Alternative construction activities would be reduced to a less-than-

significant level. No mitigation is required. Operation of the Reduced Intensity Alternative at both the East Campus and West Campus would involve the use of household and commercial hazardous materials, such as cleaning agents, and paints. However, these materials would not be used, stored, or transported in large enough quantities to cause a substantial impact, either during construction or operation of the Reduced Intensity Alternative. Furthermore, the use, storage, and transportation of hazardous materials are subject to applicable federal, State, and local regulations, the intent of which is to minimize the risk of upset. Therefore, the risk of accidental explosion or release of hazardous materials that could create a health hazard with the implementation of the Reduced Intensity Alternative is low, and impacts would be less than significant, as with the Project. (LTS)

Hazardous Materials Risks from Off-Site Uses. Compliance with existing federal, State, and local laws and regulations that are administered and enforced by the Certified Unified Program Agency (CUPA) (San Mateo County Environmental Health Division), and Menlo Park Fire Department (MPFD) standards (the local agency that implements applicable hazardous materials-related sections of the California Fire Code and California Building Code), along with the City permitting requirements, would reduce the potential for off-site uses to pose a substantial hazard to the Reduced Intensity Alternative through routine or upset conditions. This alternative would result in the same less-than-significant impacts as the Project. (LTS)

Impairment of Emergency Access or Emergency Plans. As discussed in Section 3.5, Transportation, the Project would increase traffic in the vicinity of the Project site. The Reduced Intensity Alternative would also increase traffic, but to a lesser extent than the Project due to the 25 percent reduction in daily trips. However, due to the close proximity of the existing fire Station 77 (approximately 0.5 miles), the existing response times would remain relatively consistent. Emergency access to the East Campus would remain the same as existing conditions and access to the West Campus would be the same as proposed under the Project. As such, implementation of the Reduced Intensity Alternative, similar to the Project, would not impede emergency access routes and would continue to maintain the existing City grid system. Therefore, a less-than-significant impact would occur. (LTS)

Cumulative Impacts. All cumulative impacts of the Project would be less than cumulatively considerable with implementation of the mitigation measures for the Project. Since the same site plan is proposed at the West Campus, the Reduced Intensity Alternative would have the same cumulative impacts. Development of the West Campus and other cumulative development could expose people or the environment to residual contaminants in soil and/or groundwater if measures are not implemented to control unintentional or inadvertent releases. Development of the Reduced Intensity Alternative and other cumulative development could also expose people to asbestos, lead, PCBs, or other hazardous materials in existing buildings that may be demolished, renovated, or rehabilitated if measures are not implemented to control unintentional or inadvertent releases. However, implementation of the mitigation measures proposed for the Project, and compliance with current regulatory standards, would reduce the cumulative impacts to less than significant. (LTS)

Population and Housing

Population Increases. The Reduced Intensity Alternative would not include development of new housing units and would thus not directly increase the residential population within the region. However, as with the Project, there would be an indirect population increase associated with new visitorship and employment during construction and operation this alternative. Approximately 1,350 net new workers would be employed at the East Campus and 2,100 new net workers would be employed at the West Campus. As such, the Reduced Intensity Alternative would increase the daytime population at the Project site. The increase in employment would result in a demand for new housing units and an indirect increase in the residential population. However, the percentage of regional housing demand resulting from the Reduced Intensity Alternative would be relatively small in comparison with projected housing growth in the region. In addition, this alternative represents only a portion of the net population increase expected for the Project, which would have a less-than-significant impact. Therefore, the impact of the Reduced Intensity Alternative would be less than the Project and remains less than significant. (LTS)

Cumulative Impacts. This alternative, in combination with other projected growth in the City, would increase population, employment, and housing in the City. The contribution of the Reduced Intensity Alternative to any cumulative increase in employment would not result in direct adverse impact, resulting in a less than cumulatively considerable impact, as with the Project. (LTS)

Public Services

Police Impacts. Like the Project, the Reduced Intensity Alternative would require an increased level of police services due to increased employment and onsite activity. With more on-site activity, there could be more incidents requiring police response. However, the increased level of police services would not be large enough to trigger the need for construction of new or expanded facilities that could adversely affect the physical environment or affect human health and safety. This alternative's impacts regarding police services would be less than the Project, but would remain less than significant. (LTS)

Fire Impacts. Similar to the Project, the Reduced Intensity Alternative would require an increased level of fire services due to increased employment and on-site activities over existing conditions. With more on-site activity there could be more incidents requiring fire department response. As with the Project, this alternative would require additional staff to serve the increased activity at the East Campus and West Campus. However, the increased level of fire services would not be large enough to trigger the need for construction of new or expanded facilities that could adversely affect the physical environment or affect health and safety. This alternative's impacts on fire services would be less than the Project, but would remain less than significant. (LTS)

School Impacts. This alternative would not involve the construction of new residential units in the City and, therefore, would not directly generate students. Nonetheless, this alternative would indirectly generate student demand from the induced housing caused by increased employment at the Project site. However, as with the Project, impacts from the indirectly generated students would be mitigated by the payment of the school impact fees established by SB 50 by the Project Sponsor and any subsequent

residential projects as a result of this alternative. This alternative's impacts regarding schools would be less than the Project, but would remain less than significant. (LTS)

Recreational Impacts. Like the Project, this alternative would result in an increased demand and utilization of nearby parks and recreational services due to increased employment. However, the Reduced Intensity Alternative would include open spaces and fitness facilities at the campuses, which could offset the potential deterioration of City parks due to the increase in employees at the East Campus and West Campus. Although the residential population in the City would increase as a result of the Project, there are no capacity issues and the existing facilities would be able to accommodate the increase in residents. In addition, the Project would be subject to the City's property taxes that finance the maintenance of City parks. The Project would not trigger the need for the construction or expansion of parks or other recreational facilities. This alternative's impacts regarding recreation would be less than the Project, but would remain less than significant. (LTS)

Library Impacts. The Reduced Intensity Alternative would add employees to the Project site who could use the City's libraries. However, it is expected that the existing libraries in the City would be able to accommodate an increase in employment at the Project site and the associated increase in residents. This alternative's impacts regarding libraries would be less than the Project, but would remain less than significant. (LTS)

Cumulative Impacts. As discussed in Section 3.15, Public Services, cumulative impacts with respect to police, fire protection, schools, recreational facilities, and libraries would be less than significant. Because this alternative would involve fewer employees compared to the Project, cumulative impacts would also be less than significant. (LTS)

Utilities

Water Demand. Implementation of the Reduced Intensity Alternative would result in approximately 2,350 fewer employees than the Project. As such, the water demand with implementation of the Reduce Intensity Alternative would be less than the approximately 161,848 gpd of water demand at full buildout of the Project. Under the Project, the Menlo Park Municipal Water District (MPMWD) would have an adequate supply to meet its projected demands in normal and single dry years. As such, since the Reduced Intensity Alternative would demand less water than the Project, implementation of this alternative would have a less-than-significant impact on water supplies in the MPMWD's service area and expansion of existing entitlement would not be necessary. (LTS)

Impacts to Water Treatment Facilities. As described above, implementation of the Reduced Intensity Alternative would not require expansion of the existing water treatment facilities serving the MPMWD. Further, the MPMWD has sufficient capacity under normal year conditions to accommodate the water demands of the Project within its Individual Supply Guarantee (ISG). As such, since the Reduced Intensity Alternative would include fewer employees at the Project site than the Project, this alternative would not require the MPMWD to acquire additional water supplies. The San Francisco Public Utilities Commission (SFPUC) has sufficient capacity in its water treatment facilities to deliver treated water to its customers. Therefore, implementation of the Reduced Intensity Alternative would not

require the expansion of existing water treatment facilities or the construction of new facilities, similar to the Project. This alternative would have a less-than-significant impact related to water treatment facilities. (LTS)

Wastewater Generation. The technical study prepared by West Yost Associates for the Project determined that under existing conditions, the 12-inch diameter pipeline is operating at capacity and would not accommodate additional flows from the Project. Although the Reduced Intensity Alternative would include fewer employees at the Project site, wastewater generation would still increase over existing conditions, just to a lesser extent than the Project. Nonetheless, since the existing pipeline is already at capacity, implementation of the West Campus would still require a new wastewater line to connect to the West Bay Sanitary District's (WBSD) main sewer system. Due to the limitations of the WBSD sanitary sewer pipeline and HHPS, the increase in employees at the Project site would result in a potentially significant impact with regard to wastewater conveyance infrastructure. Mitigation Measure UT-3.1, as required for the Project, would ensure that necessary capacity improvements are implemented so that to the WBSD sanitary sewer system has sufficient capacity to accommodate additional wastewater generated by the Reduced Intensity Alternative. This mitigation measure would reduce potentially significant impacts associated with this alternative to a less-than-significant level. (PS/LTS)

Solid Waste Generation. At full buildout and occupancy, the Project would generate approximately 2,630 tons of solid waste per year, or approximately 7.2 tons per day. Since the Reduced Intensity Alternative would include approximately 2,350 fewer employees than the Project, solid waste generation would be less under this alternative. The solid waste facilities that would serve the Project have sufficient remaining capacity to accommodate the Project. Therefore, the solid waste facilities that would serve the Project site would be sufficient to accommodate the Reduced Intensity Alternative. Therefore, this alternative would not contribute to the need to expand existing or construct new solid waste disposal facilities. Since the Reduced Intensity Alternative would involve less development than the Project, this alternative would also result in less-than-significant impacts related to solid waste generation. (LTS)

Stormwater Generation. With implementation of the Reduced Intensity Alternative, the increased employee density at the East Campus and the development of the West Campus would not result in adverse impacts to the City's storm drain system. Further, implementation of this alternative would adhere to provisions included in the Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit and the City's grading and drainage policies, which regulate the quantity of stormwater runoff from new development, specifically prohibiting a net increase in the rate of runoff from new development. No new facilities would be required. Therefore, as with the Project, implementation of the Reduced Intensity Alternative would have a less-than-significant impact on the City's storm drain system. (LTS)

Energy Demand. The Reduced Intensity Alternative would use slightly less energy than the Project due to the decrease in the number of employees at the Project site. Under the Project, implementation of the East Campus and West Campus individually would result in less-than-significant impacts on existing electricity and natural gas supply and associated infrastructure. According to the Menlo Park

Facebook Campus Energy Demand memorandum, implementation of the Project would result in an overall 67 percent reduction in per capita energy consumption over existing conditions. Since the Reduced Intensity Alternative would demand fewer gas and electric services, this alternative would result in an even greater reduction. Because the Reduced Intensity Alternative would be served by Pacific Gas and Electric (PG&E) and would result in substantial per capita energy reductions, impacts related to electricity and natural gas supply would be less than significant, similar to the Project. (LTS)

Cumulative Impacts. As discussed in Section 3.16, Utilities, the City's water, stormwater drainage, and solid waste facilities have sufficient capacity to serve the cumulative development of the City. The City and its service providers would have adequate supplies to meet customer demand until 2035, including the demand of the Project combined with existing and planned future uses. Since the Reduced Intensity Alternative would use less water and energy and generate less wastewater, stormwater, and solid waste than the Project, which would not be cumulatively considerable. (LTS)

Table 5-5
Comparison of Impacts among Project Alternatives

Environmental Issue	Project	No Project Alternative	Reduced Intensity Alternative
Land Use			
Conflicts with Adopted Land Use Plans and Policies	LTS	LTS	LTS
Cumulative Impacts	LTS	LTS	LTS
Visual Quality			
Alteration of Scenic Views	LTS	NI	N/A
Degradation of Existing Visual Character or Quality	LTS	NI	N/A
New Sources of Light and Glare	PS/LTS	NI	N/A
New Sources of Shadows	LTS	NI	N/A
Cumulative Impacts	LTS	NI	N/A
Wind			
Wind Impacts	LTS	NI	N/A
Cumulative Wind Impacts	LTS	NI	N/A
Transportation			
Impacts to Intersections	SU	NI	SU
Impacts on Roadway Segments	SU	NI	SU
Impacts to Routes of Regional Significance	SU	NI	SU
Impacts to Local Bicycle and Pedestrian Facilities	LTS	NI	LTS
Transit Service, Pedestrian Facilities, and Bicycle Facilities	LTS	NI	LTS
Cumulative Impacts	SU	NI	SU
Air Quality			
Conflict with or Obstruct Implementation of the Applicable Air Quality Plan.	LTS	NI	LTS
Violation of Any Air Quality Standard	SU	NI	SU
Construction Criteria Air Pollutant Emissions	LTS	NI	LTS
Localized Carbon Monoxide Impacts from Motor Vehicle Traffic	LTS	NI	LTS
Exposure to Toxic Air Contaminants	LTS	NI	LTS

Table 5-5
Comparison of Impacts among Project Alternatives

Environmental Issue	Project	No Project Alternative	Reduced Intensity Alternative
Exposure to Objectionable Odors	LTS	NI	LTS
Cumulative Impacts	SU	NI	SU
Climate Change			
Greenhouse Gas Emissions	LTS	NI	LTS
Noise			
Exposure to Excessive Noise Level	SU	NI	SU
Temporary Increases in Ambient Noise Level	SU	NI	SU
Substantial Permanent Increase in Noise Level	SU	NI	SU
Substantial Temporary Increase in Noise Level	PS/LTS	NI	PS/LTS
Cumulative Impacts	SU	NI	SU
Cultural Resources			
Impacts to Historic Resources	LTS	NI	N/A
Impacts to Archaeological Resources	PS/LTS	NI	N/A
Impacts to Paleontological Resources	PS/LTS	NI	N/A
Disturbance of Human Remains	PS/LTS	NI	N/A
Cumulative Impacts	LTS	NI	N/A
Biological Resources			
Impacts on Special-Status Species at the Project Site	PS/LTS	NI	N/A
Indirect Impacts on Special-Status Species Inhabiting the Adjacent Water Marshes	PS/LTS	NI	N/A
Loss of Riparian and Other Habitats	LTS	NI	N/A
Impacts to Wildlife Corridors or Nursery Sites	PS/LTS	NI	N/A
Conflicts with Local Policies or Ordinances	LTS	NI	N/A
Cumulative Impacts	LTS	NI	N/A
Geology and Soils			
Strong Seismic Groundshaking and Seismic-Related Ground Failure	LTS	NI	LTS
Soil Hazards	LTS	NI	LTS
Soil Erosion	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS
Hydrology and Water Quality			
Changes in Stormwater Runoff	LTS	NI	LTS
100-Year Floodplain	PS/LTS	NI	PS/LTS
Impeding or Redirecting Flood Flows	LTS	NI	LTS
Sea Level Rise	PS/LTS	NI	PS/LTS
Construction and Operational Stormwater Pollutants	LTS	NI	LTS
Effects on Groundwater Supplies and Recharge	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS

Table 5-5
Comparison of Impacts among Project Alternatives

Environmental Issue	Project	No Project Alternative	Reduced Intensity Alternative
Hazards and Hazardous Materials			
Asbestos, Lead, or Other Hazardous Materials in Building Components	LTS	NI	LTS
Soil and Groundwater Contamination	PS/LTS	NI	PS/LTS
Effects on Ecological Systems	LTS	NI	LTS
Inference with Groundwater Monitoring Systems	LTS	NI	LTS
Maintenance Activities	PS/LTS	NI	PS/LTS
Routine Hazardous Materials Use	LTS	NI	LTS
Hazardous Materials Risks from Off-Site Uses	LTS	NI	LTS
Impairment of Emergency Access and Emergency Plans	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS
Population and Housing			
Population Increase	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS
Public Services			
Police Impacts	LTS	NI	LTS
Fire Impacts	LTS	NI	LTS
School Impacts	LTS	NI	LTS
Recreational Impacts	LTS	NI	LTS
Library Impacts	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS
Utilities and Service Systems			
Water Demand	LTS	NI	LTS
Impacts to Water Treatment Facilities	LTS	NI	LTS
Wastewater Generation	PS/LTS	NI	PS/LTS
Solid Waste Generation	LTS	NI	LTS
Stormwater Generation	LTS	NI	LTS
Energy Demand	LTS	NI	LTS
Cumulative Impacts	LTS	NI	LTS

NI = No Impact LTS = Less-than-Significant PS = Potentially Significant SU = Significant Unavoidable

Source: Atkins, 2011.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Sections 21002 and 21081 of CEQA requires lead agencies to adopt feasible mitigation measures or feasible environmentally superior alternatives in order to substantially lessen or avoid otherwise significant adverse environmental effects, unless specific social or other conditions make such mitigation measures or alternatives infeasible. CEQA also requires that an environmentally superior

alternative be identified among the alternatives analyzed. In general, the environmentally superior alternative is the project that avoids or substantially lessens some or all of the significant and unavoidable impacts of the proposed project (CEQA Guidelines Section 15126.6).

On the basis of comparing the extent to which the alternatives reduce or avoid the significant impacts of the Project, the No Project Alternative would be the environmentally superior alternative. Since no development would occur at the Project site, there would be no construction or operational impacts. However, legally the No Project cannot be selected as the environmentally superior alternative.

As previously discussed, the Reduced Intensity Alternative involving a 25 percent reduction in daily trips is the only other alternative that has been deemed feasible. This alternative would result in a reduction of the trip cap in order to limit the amount of daily trips to and from the Project site. This, in turn, would likely result in fewer employees. However, since the same site plan is proposed at the West Campus, the same construction and footprint impacts discussed for the Project would occur for the Reduced Intensity Alternative. Only the impacts related to the daily trip cap and the number employees would be reduced with this alternative. Nonetheless, the reduction would not be enough to reduce any of the significant and unavoidable impacts identified in the Project analysis.

While the Reduced Intensity Alternative would not eliminate significant and unavoidable impacts, it would reduce the severity of some identified impacts. As such, the Reduced Intensity Alternative is considered the Environmentally Superior Alternative.

Section 6
List of Preparers

6.1 LEAD AGENCY

City of Menlo Park, Community Development Department – Lead Agency

- Justin Murphy – Development Services Manager
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- Leigh Prince, Esq. – Counsel to the City of Menlo Park
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