

## **B. TRANSPORTATION AND CIRCULATION**

This section describes the existing transportation and circulation system, including pedestrian and transit facilities at the Project site and vicinity, and provides an analysis of the potential impacts of the Project (involving the legalization of existing enrollment and operational characteristics of Bentley School). The focus of the impact analysis is the effect of student enrollment, school operations and staffing, and the school's transportation program on roadway congestion, roadway hazards, transit use, and pedestrian/bicycle access and safety.

In response to increasing concern from the residents around the school regarding congestion and hazards associated with egress and ingress to the Bentley School driveway along Hiller Drive, the school has implemented a transportation program. The elements of this transportation program (which are included as part of the proposed Project) are summarized below:

- Implement a new pick-up/drop-off facility on Hiller Drive in the southbound direction, with cars queuing adjacent to the Firestorm Memorial Garden;
- Implement staggered pick-up and drop-off times;
- Designate a traffic flag person and coordinators (trained in traffic control) to manage traffic on- and off-site, and enforce procedures and regulations for pick-up and drop-off activities (with penalties for rule-breaking);
- Encourage transit usage by sponsoring AC Transit Services in the morning and in the afternoon (Routes 604 and 689), and providing free bus passes to students. The school also funds the administrative costs of a private school bus (Michael's Transportation Service); student families pay service fees;
- Encourage a carpool program coordinated by school staff;
- Paint new striping in the lower parking lot on Tunnel Road;
- Implement special parking and shuttle procedures for after-school events; and
- Implement a new emergency evacuation program to increase parent/guardian and student awareness of emergency situations.

This transportation impact assessment has been conducted in a manner consistent with the requirements and methods of the City of Oakland and applicable provisions of the California Environmental Quality Act (CEQA). The transportation analysis describes the operational characteristics of the existing study area circulation system; it then evaluates the impacts of the Project, and the Project's potential contribution to future (2030) traffic congestion caused by planned projects in the area.

CEQA requires the analysis of a No Project condition ("baseline" condition, 200-student enrollment) and a Plus Project condition ("Project" condition, 360-student enrollment) to determine whether a project would result in significant environmental effects. Since existing conditions (352-student enrollment) are very similar to the Plus Project conditions, the No Project condition refers to a hypothetical situation that is consistent with the enrollment and operational limits permitted by the school's 1969 Major Conditional Use Permit (CUP). The No Project, Existing, and Plus Project conditions are summarized below. Refer to Chapter III, Project Description, for a more detailed description of the Plus Project condition.

- **No Project Conditions (Baseline Conditions):** Refers to the enrollment and operational characteristics that would exist if the School complied with the conditions of its approved 1969 Major CUP. The student enrollment under baseline conditions is 200 students. This scenario assumes that none of the transportation program improvements listed above and none of the other operational changes would be implemented.
- **Existing Conditions:** Refers to the enrollment and operational characteristics that exist under current conditions (i.e., the date of preparation of this EIR). The student enrollment under existing conditions is 352 students. The enrollment and operational characteristics under existing conditions closely approximate the enrollment and operational characteristics that would be permitted under the proposed Project – including implementation of the transportation program elements listed above. Empirical traffic data collected for the purposes of this transportation analysis are based on existing conditions. The student enrollment difference between existing and Project conditions is eight students. Therefore, existing conditions reflect conditions under the Plus Project scenario summarized below.
- **Plus Project Conditions (Project Conditions):** Refers to the enrollment and operational characteristics that would be permitted as part of the proposed Major CUP. The Major CUP would permit 360 students (a net increase of 160 students over baseline conditions) to be enrolled at Bentley School, in addition to a number of other operational characteristics that are similar to, or deviate only slightly from, existing conditions. The Plus Project conditions assume implementation of all the transportation program elements listed above.

The last section of this analysis includes a discussion of Project effects that would not be associated with physical environmental changes, and feasible measures that are recommended to improve the traffic operations of Bentley School, including ways to improve vehicle and pedestrian circulation in and around the school.

An assessment of the Project's effects on on- and off-site parking, though not considered an environment impact under CEQA, is also included.

## 1. Setting

This section describes the existing transportation system in the vicinity of the Project site, including regional and local roadway networks, bicycle facilities, pedestrian facilities, and transit services. Figure IV.B-1 shows the project site in relation to the local and regional roadway network.

**a. Existing Roadway Network.** The following discussion describes the existing regional and local roadway network around the Project site.

**(1) Regional Access.** A brief description of the regional roadway network serving the Project site is provided below:

- **State Route 24 (SR 24)** is an eight-lane freeway that connects the East Bay with central and east Contra Costa County. SR 24 extends from I-980 to I-680 through the Caldecott Tunnel.
- **State Route 13 (SR 13)** is a north-south four-lane freeway that traverses the City of Oakland, connecting SR 24 to the City of Berkeley and I-580 to the City of Hayward. SR 13 in Oakland is also known as the Warren Freeway.

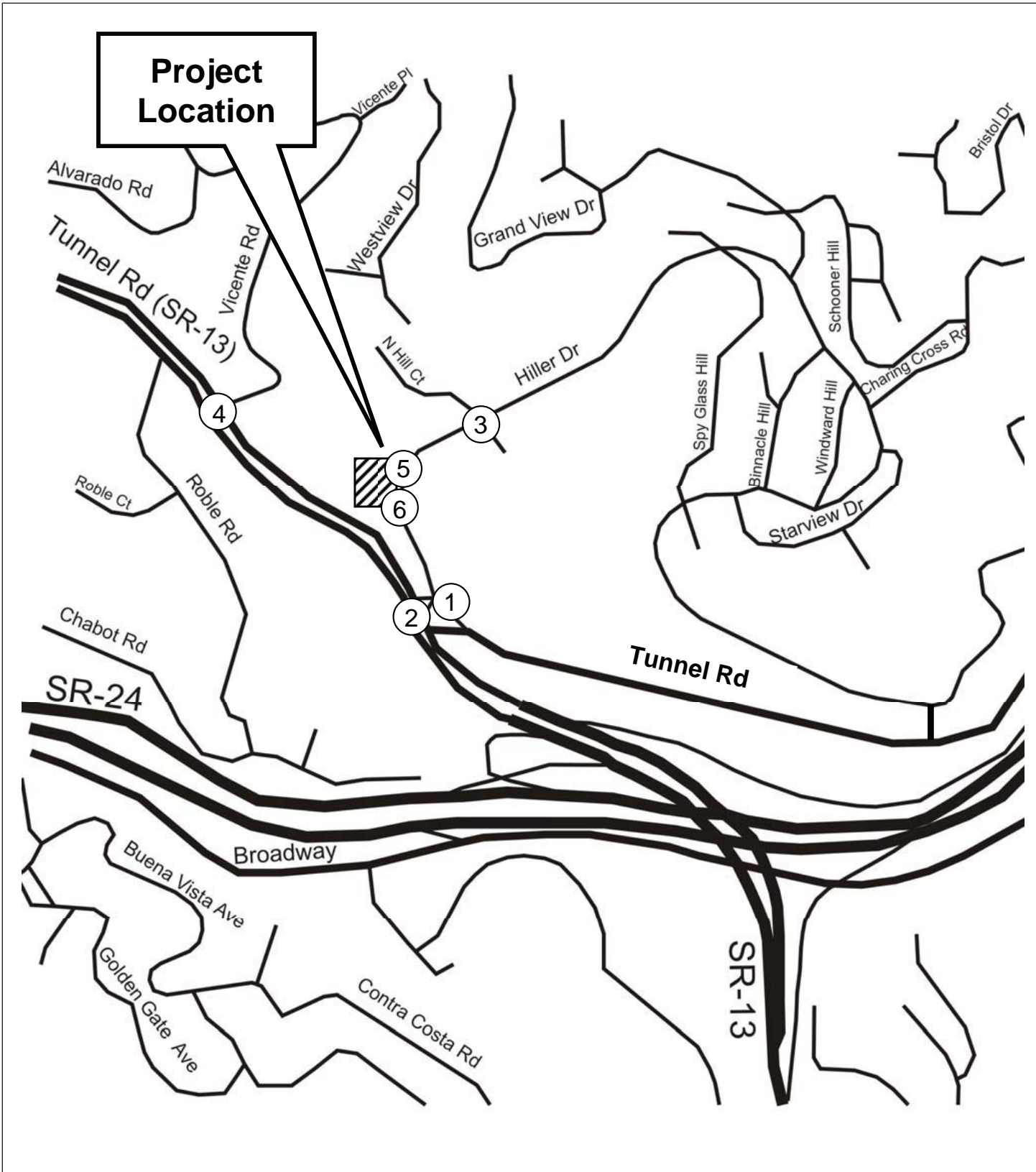


FIGURE IV.B-1

LSA



NOT TO SCALE

 PROJECT SITE

 STUDY INTERSECTION

Bentley School Major Conditional Use Permit EIR  
Study Intersections

SOURCE: DOWLING ASSOCIATES, INC.

I:\BES0702 bentley school\figures\Fig\_IVB1.ai (2/5/08)

(2) **Local Access.** A brief description of the local and arterial streets serving the Project site is provided below:

- **Hiller Drive** is a two-lane local street that loops around the Hiller Highlands neighborhood, with a speed limit of 25 miles per hour (MPH). This is one of the mainline connectors for the local residences in this area. Sidewalk and on-street parking is provided on both sides of the street north of Bentley School. South of the school, on-street parking is provided on the west side of the street, except during periods within which school drop-off and pick-up activities occur: Monday through Friday, 5:00 a.m. to 8:30 a.m., and 2:30 p.m. to 3:45 p.m. Near the school entrance, the northbound lane of Hiller Drive is relatively wide (approximately 18 feet). In the southbound lane, the curb is painted red approximately 35 feet north of the school to prevent parking, creating a short storage area for right-turning vehicles entering the school.
- **Tunnel Road** is a two-lane arterial that connects SR 24 to the Berkeley Hills and flatlands. It is part of SR 13, which is a continuation of the Warren Freeway that terminates at SR 24. The speed limit is generally 35 MPH, although north of the Hiller Drive intersection, the speed limit is reduced to 25 MPH. The shoulder adjacent to the north-bound lane in the vicinity of the Project site is narrow, and no sidewalk is present. On-street parking is available adjacent to the southbound lane where the roadbed is much wider. In the Project site vicinity, this side of the street has been designated as a bike route, and a sidewalk is also present. The sidewalk is currently noncompliant due to an obstruction, and a delineate sidewalk has been established by the State and City in the roadway shoulder. South of the Hiller Drive signalized intersection, Tunnel Road continues as a connector to provide access to SR 24, as well as to the Oakland Hills. It has one travel lane in each direction, narrow shoulders, and no sidewalk.
- **N. Hill Court/S. Hill Court** is a two-lane local connector that serves some of the residences north of Bentley School and the Kaiser Elementary School. On-street parking and sidewalks are provided on both sides of the street. No speed limit is posted on this short local road.
- **Vicente Road** is a minor local street that intersects Tunnel Road northwest of the Project site. Vicente Road provides access to the Hiller Highlands. It is un-striped, and has a speed limit of 10 MPH.

In the immediate vicinity of the school, the closest marked crosswalks are located on the north and west legs of the intersection of N. Hill Court and Hiller Drive.

(3) **School Access.** Pick-up and drop-off of students by car occurs primarily along Hiller Drive, in the vicinity of the Firestorm Memorial Garden. Figure III-3 illustrates traffic circulation at the school. Vehicles enter the school's circular driveway along Hiller Drive and then make a right-hand turn into a coned-off area along Hiller Drive adjacent to the Firestorm Memorial Garden, where cars are loaded and unloaded. The pick-up/drop-off area along Hiller Drive and the transit stop along Tunnel Road are staffed by school personnel and volunteers. In order to regulate the flow of traffic, and to reduce disruption to the Firestorm Memorial Garden, the school staffs six positions in the morning and three positions in the afternoon with faculty and parent volunteers. In the morning, faculty members direct student drop-off from the following positions: the "flag person"<sup>1</sup> directs cars from the street into the circle; the "circle person" manages bus and cars through the circle; the "path person" directs students along the internal school pathway; the "bottom person" directs students who

<sup>1</sup> Bentley School has a Memorandum of Understanding with the Oakland Police Department, which allows the flag person to legally direct traffic once that person has been trained. Existing flag people are permitted to train new flag people.

are discharged by AC Transit buses along Tunnel Road; the “line person” manages the line of cars in the drop-off zone; and the “top person” facilitates the unloading of cars. During the afternoon pick-up period, three faculty volunteers work the top-of-the-line position, which facilitates the loading of cars and manages the line, the flag, and the circle positions. Staffing is also provided for special events, with one staff person managing traffic at each parking lot (and directing drivers to off-site parking).

The northbound lane of Hiller Drive is relatively wide, which typically provides adequate width for through traffic to by-pass the vehicles waiting in the queue to make a left-hand turn into the school entrance. Section 21754 of the California Vehicle Code permits drivers to overtake and pass to the right of another vehicle when the vehicle overtaken is making, or about to make, a left turn. AC Transit Bus #689 (which serves Berkeley) discharges passengers along Tunnel Road and loads at a bus stop on Hiller Drive. Bus #604 (which serves Oakland) discharges passengers directly in the school parking lot near Hiller Drive and loads at the bus stop along Tunnel Road. A pedestrian walkway connects the Tunnel Road bus stop and lower parking lot to the rest of the school campus. The bus operated by Michael’s Transportation Service loads and unloads on Hiller Drive. A detailed discussion of school circulation patterns during the morning and afternoon, and special events is included in the impacts subsection.

**b. Study Intersections.** Traffic conditions were assessed at six critical intersections in the study area. The existing intersections listed below were selected for detailed analysis in this EIR because they are most likely to be potentially affected by Project traffic. These intersections were selected in consultation with City of Oakland’s Transportation Services Division, and represent locations along major routes to and from the Project site. The locations of the study intersections are shown in Figure IV.B-1. The intersection lane configurations and control systems are shown in Figure IV.B-2.

1. Tunnel Road / Hiller Drive (Signal);
2. Tunnel Road / SR 13 (Warren Freeway) (Signal);
3. Hiller Drive / N. Hill Court (South Hill Court) (Three-Way Stop-Control);
4. Tunnel Road / Vicente Road (One-Way Stop-Control);
5. Hiller Drive / School Entrance (Yield on Northbound Left Turn); and
6. Hiller Drive / School Exit East (One-Way Stop-Control).

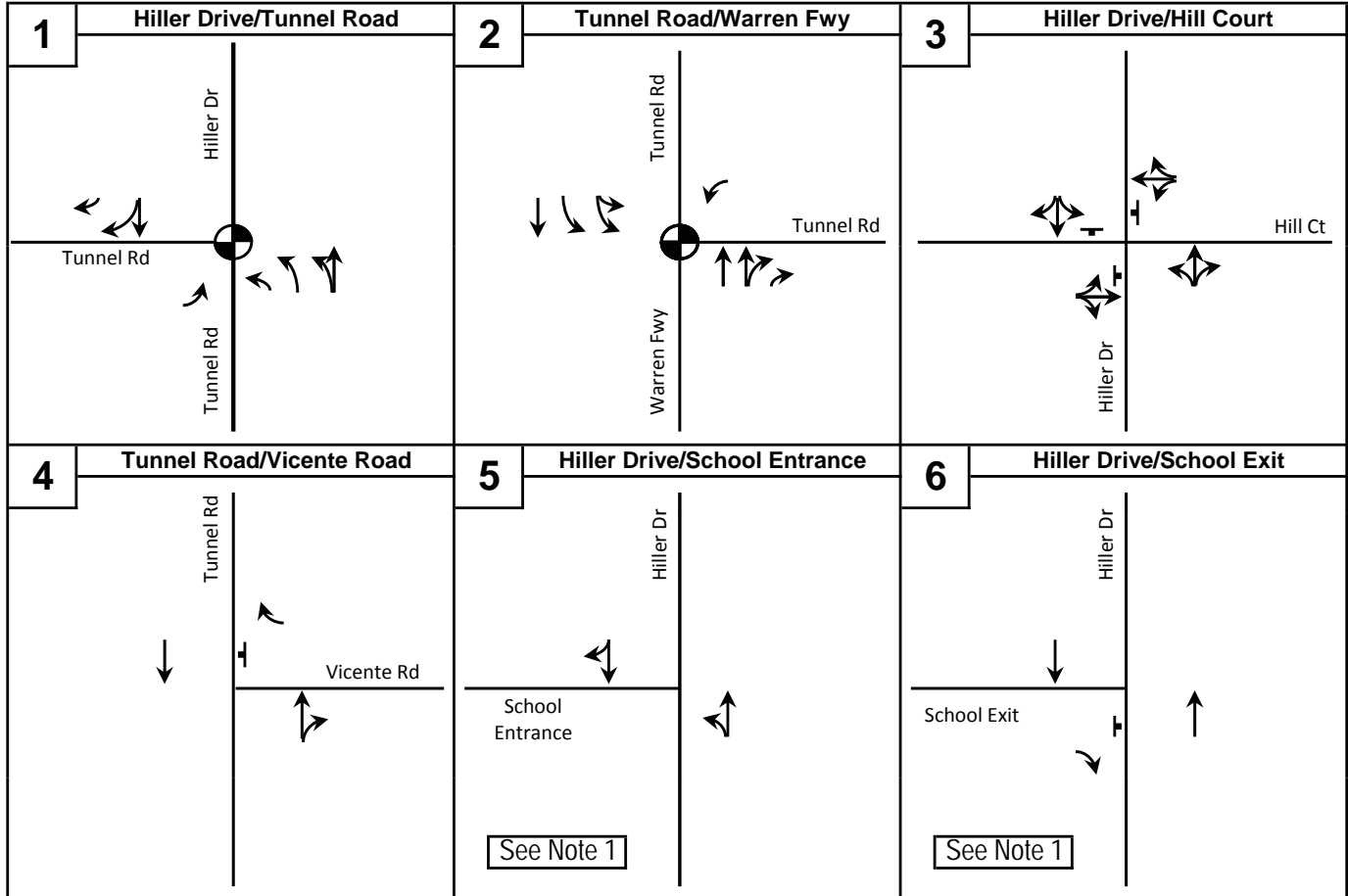
**c. Existing Conditions (352 students) Traffic Volumes.** Weekday traffic counts for the morning peak hours (7:00-9:00 a.m.), after-school peak hour (3:00-4:00 p.m.), and afternoon peak hours (4:00-6:00 p.m.) were collected on Tuesday, January 8, 2008, and on Wednesday, October 24, 2007. Detailed traffic counts are presented in Appendix C-1. The combination of cumulative and Project-generated traffic is expected to be the highest during these periods. As mentioned earlier, the difference in student enrollment between Existing Conditions and Plus Project conditions is eight students. Detailed LOS computations were completed for Baseline (No Project, or 200 students) and Plus Project (360 students) conditions, in order to identify the full extent of the Project’s effects on traffic congestion.

**d. Level of Service Methodology.** The level of service (LOS) at study area intersections was analyzed for the AM peak, after-school peak, and PM peak hours for all study intersections using methodologies described in the Highway Capacity Manual.<sup>2</sup> The intersection operations analysis was




---

<sup>2</sup> Transportation Research Board, 2000. Highway Capacity Manual.

### AM Peak Hour and After School Peak Hour



**KEY**

-  = Signalized intersection
-  = Intersection approach lane
-  = Stop Sign

Note 1: Hiller Drive provides adequate roadway width for a de facto left turn lane, and a right turn lane for traffic entering the school.

conducted using the Synchro software package, as required by the City. The signal timings were provided by the California Department of Transportation (Caltrans). The LOS grading system for signalized and unsignalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, and lost travel time. Delay is a complex measure and is dependent upon a number of variables, including the number of vehicles in the traffic stream.

Levels of service are designated “A” through “F,” from best to worst, which cover the entire range of traffic operations that might occur on a roadway. LOS A generally represents free-flow traffic conditions with little or no delay, and LOS F indicates congested conditions where long queues and delays occur. Typically, LOS A to C are considered satisfactory service levels, with LOS D and LOS E indicating service volumes that are near capacity, and that the intersection is operating at or near capacity. The City of Oakland generally considers LOS D to be acceptable, with exceptions for Downtown and Central Business District intersections, where LOS E is acceptable.<sup>3</sup>

**(1) Signalized Intersections Analysis.** The analysis of signalized intersections was conducted using the operational methodology outlined in the *Highway Capacity Manual*.<sup>4</sup> This procedure calculates an average stopped delay per vehicle at a signalized intersection, and assigns a level of service designation based upon the delay. The delay is dependent on the quality of signal progression, signal cycle length, and the “green” ratio for each approach or lane group. Table IV.B-1 shows level of service criteria for signalized intersections.

**Table IV.B-1: Intersection Level of Service Definition for Signalized Intersections**

Level of Service	Description of Traffic Conditions	Average Delay Per Vehicle (Seconds)
<b>Signalized Intersections</b>		
A	Free flowing. Most vehicles do not have to stop.	≤10.0
B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤20.0
C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>20.0 and ≤35.0
D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>35.0 and ≤55.0
E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>55.0 and ≤80.0
F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into “up-stream” intersections.	>80.0

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

**(2) Unsignalized Intersections Analysis.** Stop sign-controlled intersections were analyzed utilizing the methodology outlined in the *Highway Capacity Manual*.<sup>5</sup> This methodology determines

<sup>3</sup> City of Oakland, General Plan Land Use and Transportation Element, Policy T3.3 (Allowing Congestion Downtown).

<sup>4</sup> Transportation Research Board, 2000. Chapters 10 and 16.

<sup>5</sup> Transportation Research Board, 2000. Chapters 10 and 17.

the level of service by calculating an average total delay per vehicle for each controlled movement and for the intersection as a whole. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at an intersection due to the control device. An LOS designation is assigned based upon the average control delay of all movements. Table IV.B-2 describes the relationship between total delay and level of service for stop-controlled intersections.

**Table IV.B-2: Intersection Level of Service Definition for Unsignalized Intersections**

Level of Service	Description of Traffic Conditions	Average Delay Per Vehicle (Seconds)
<b>Unsignalized Intersections</b>		
A	Little or no delays	≤10.0
B	Short traffic delays	>10.0 and ≤15.0
C	Average traffic delays	>15.0 and ≤25.0
D	Long traffic delays	>25.0 and ≤35.0
E	Very long traffic delays	>35.0 and ≤50.0
F	Extreme delays potentially affecting other traffic movements in the intersection	>50.0

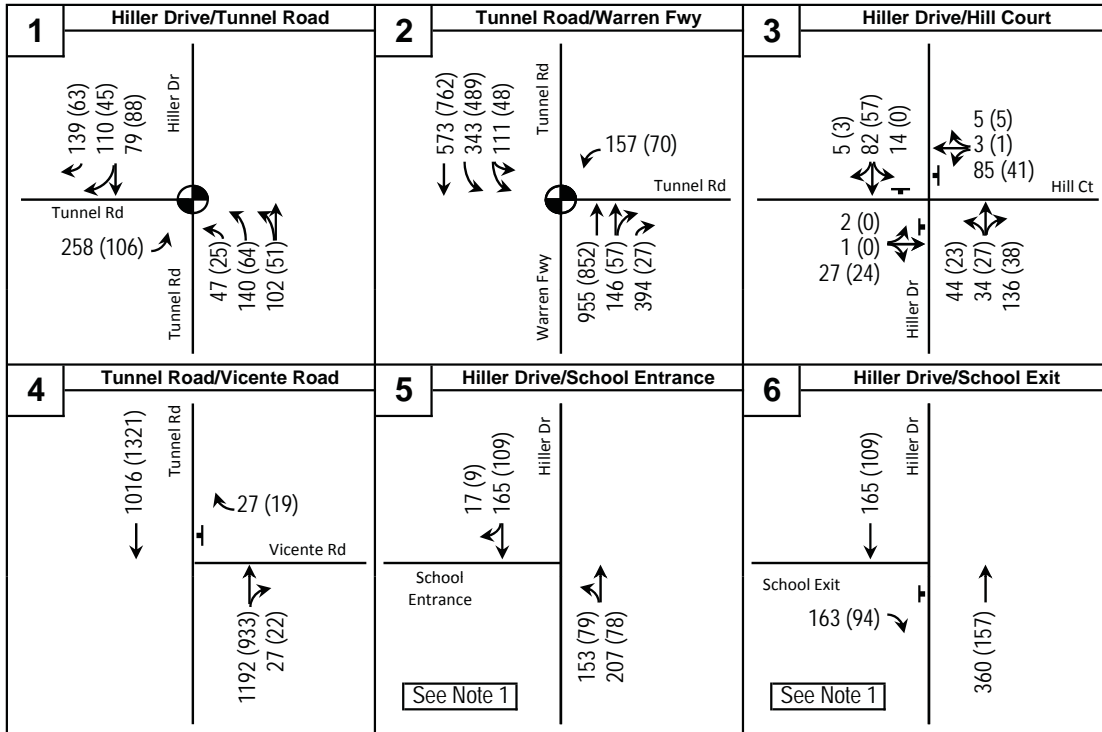
Source: Transportation Research Board, 2000. Highway Capacity Manual.

**e. Baseline Conditions (200 Students) Intersection Levels of Service.** The intersection LOS for the six study intersections (without the addition of Project-related trips) is shown in Table IV.B-3, and the volumes are illustrated in Figure IV.B-3. As discussed at the beginning of this section, the baseline (No Project) scenario assumes an enrollment level of 200 student, which is the enrollment permitted by the school’s 1969 Major CUP. In addition, the transportation program improvement elements, such as the new pick-up and drop-off area along the Firestorm Memorial Garden, extended school operation hours, and AC Transit/Michael’s Transportation Service sponsorship are assumed to not be in place as part of the No Project Scenario. The LOS analysis is based on intersection capacities and extrapolation back from observations of existing traffic operations, and would be a reasonable representation of the typical delays at the school entrance and exit. However, the delay could be higher if vehicles idle for unexpectedly long periods of time in the school access loop and drop-off areas. As shown in Table IV.B-3, in the No Project scenario, all of the study intersections would operate at LOS C or better during the peak hours, except for the minor stop control at Vicente Road, which would operate at LOS E during the AM peak period and LOS D during the PM peak period.<sup>6</sup> The detailed LOS calculation sheets from the traffic software model (Synchro) are provided in Appendix C-2.

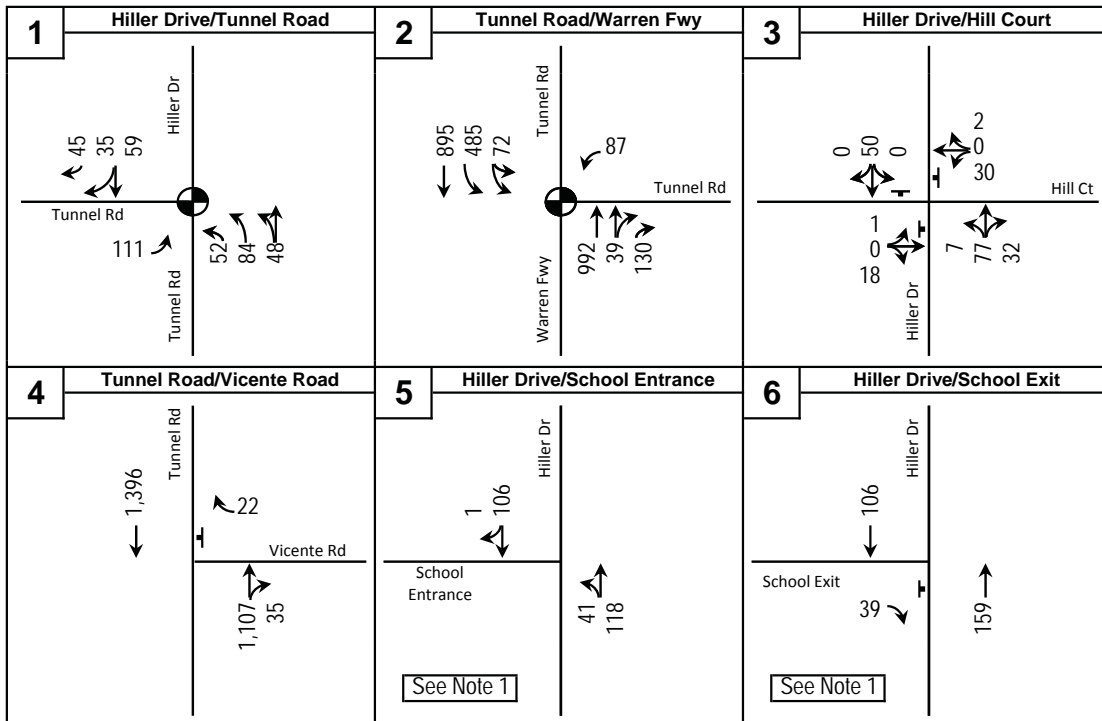
**f. Bicycle and Pedestrian Facilities in Vicinity of Project Site.** A Class III bicycle route is currently designated on the southbound lane of Tunnel Road (north of the Project area) up to the

<sup>6</sup> North of the Hiller Drive signalized intersection, Tunnel Road (SR 13) narrows down to a single lane as it continues northbound toward the City of Berkeley. The narrow roadway has limited capacity, resulting in relative low speeds during the AM peak commute hour. The proposed Project contributes negligible amounts of traffic to overall levels of congestion on this section of the roadway.

**AM Peak Hour and After School Peak Hour**



**PM Peak Hour**



LSA

**KEY**

- 5 (5) = AM (After School) peak hour traffic volume
- ⊙ = Signalized intersection
- ↔ = Intersection approach lane
- ⊥ = Stop Sign

Note 1: Hiller Drive provides adequate roadway width for a de facto left turn lane, and a right turn lane for traffic entering the school.

FIGURE IV.B-3

Bentley School Major Conditional Use Permit EIR  
Existing No Project Traffic Volumes,  
Lanes, and Traffic Controls

**Table IV.B-3: Baseline (200 Students) Intersection Levels of Service Summary**

No.	Intersection	Traffic Control	Peak Hour	Baseline	
				LOS <sup>a</sup>	Delay <sup>b</sup>
1	Tunnel Road / Hiller Dr.	Signal	AM	C	27.7
			After School	B	19.4
			PM	C	22.5
2	Tunnel Road / Warren Fwy	Signal	AM	B	18.4
			After School	B	14.4
			PM	B	15.4
3	Hiller Drive / N. Hill Court	Three-Way Stop Control <sup>c</sup>	AM	C	19.7
			After School	B	10.6
			PM	B	10.4
4	Tunnel Road / Vicente Road	Minor Stop Control <sup>d</sup>	AM	E	40.3
			After School	C	21.2
			PM	D	33.7
5	Hiller Drive / School Entrance	Yield on Northbound Left <sup>e</sup>	AM	A	9.2
			After School	A	8.2
			PM	A	7.7
6	Hiller Drive / School Exit	Minor Stop Control	AM	B	12.1
			After School	A	9.6
			PM	A	9.3

Notes:

<sup>a</sup> LOS = Level of Service

<sup>b</sup> Average control delay in seconds per vehicle.

<sup>c</sup> This is an unconventional intersection, and HCM 2000 does not provide methodologies to compute LOS. Therefore, it is assumed as having minor stop controls for the Hill Court approaches, which yields more conservative analysis results.

<sup>d</sup> The worst approach control delays and LOS are reported for side street stop-controlled intersections, traffic volumes do not satisfy Caltrans peak hour volume warrant.

<sup>e</sup> The LOS analysis is based on intersection capacities and would be a reasonable representation of the typical delays at the school entrance and exit. However, the delay could be higher due to vehicles idling for unexpectedly long times within the school access loop and drop off area.

Source: Dowling Associates, 2007.

Hiller Drive intersection. A Class III bicycle route typically consists of signage indicating that the roadway is shared with bicycles and motor vehicles, but does not include a designated bike lane. On the west side of the Warren Freeway, there is a Class I bike path between Broadway and Broadway Path. A sidewalk is currently present on Hiller Drive north of Bentley School, on Hill Court, and on the southbound side of Tunnel Road north of the Hiller Drive intersection. The bicycle facility definitions in the City of Oakland Bicycle Master Plan are listed below:

Class I: Off-Street Pathways provide for bicycle travel on a paved right-of-way that is completely separate from the street. They are typically shared with pedestrians and often called mixed-use-paths.

Class II: On-Street Striped Lanes are striped lanes on the streets, designated with specific signage and stencils, for the use of bicyclists.

Class III: On-Street Un-striped Routes designate preferred streets for bicycle travel using lanes shared with motor vehicles.

A bike rack with space for approximately 12 bikes is located on-site. As described in the setting discussion, sidewalks are present at certain locations in the vicinity of the school. In general, north of the school, sidewalks are present on Hiller Drive and Hill Court. South of the school, there are sidewalks along Hiller Drive in the vicinity of the pick-up/drop-off. On the west side of Tunnel Road, there is a sidewalk present from the Hiller Drive intersection north towards Berkeley. The sidewalk on Tunnel Road adjacent to the school is currently noncompliant due to an obstruction, and a delineate sidewalk has been established by the State and City in the roadway shoulder. There are no provisions for pedestrian crossings at the intersection of Hiller Drive and Tunnel Road.

**Planned Bicycle and Pedestrian Facility Improvements.** The following bicycle and pedestrian improvements are recommended in the vicinity of the Project site in the City of Oakland Bicycle Master Plan (December 2007):

- Class II bike lane on Tunnel Road both north and south of the Hiller Drive intersection.
- Class I bike path on SR 13 south of the Hiller Drive intersection, to connect to the existing facility at Broadway.

The City of Oakland Pedestrian Master Plan (November 2002) does not indicate pedestrian access improvement plans in the Project area. Therefore, for the purposes of this analysis, it is assumed that pedestrian facilities would remain as they are at present conditions.

**g. Public Transit.** Currently, there are three bus lines that provide transport services to the school. Michael's Transportation Service provides a private school bus for students who live in Alameda County and Contra Costa County. In the mornings, the bus service makes its first stop at Buchanan Street and Pierce Street in Albany at 7:00 a.m., and stops in North Berkeley, Rockridge, Orinda, and Bentley School's Lafayette Campus before arriving at the Hiller Campus at 8:15 a.m. The afternoon schedule is the morning schedule in reverse, with the first stop at the Hiller Campus at 3:45 p.m. and the last stop at Buchanan Street and Pierce Street at 5:10 p.m. AC Transit (Alameda-Contra Costa Transit District) Route 604 provides service from the south Berkeley area. There is one drop-off in the morning arriving at 8:06 a.m., and two pick-up services in the afternoon leaving at 3:46 p.m. and 4:19 p.m. AC Transit Route 689 provides service from the Montclair and upper Rockridge districts. There is one drop-off in the morning arriving at 8:10 a.m., and one pick-up in the afternoon leaving at 4:00 p.m. Existing AC Transit service to the school is subject to the school maintaining minimum ridership levels. Approximately 79 students arrive at the school in the morning via all forms of public transit that serve the school; approximately 28 students leave the school in the afternoon via transit.

**h. Parking Facilities.** Two on-site parking areas are available at the school, providing a total of 43 parking stalls, all of which are used by full-time staff. The parking lot along Hiller Drive contains 23 spaces; the lower parking lot along Tunnel Road contains 20 spaces. All on-site parking spaces are designated for full time faculty and staff. There are also on-street parking spaces along Hiller Drive north of Bentley School, on Hill Court. Along the Firestorm Memorial Garden curbs, on-street parking is illegal during certain times (i.e. no parking is permitted during peak hours of school drop-off and pick-up activities).

As part of the Project, it has been assumed that the 20-space parking area in the lower part of the project site near Tunnel Road would be legalized. However, this analysis also evaluates the effects on neighborhood parking supply and demand that could occur if the parking area were not legalized.

## 2. Regulatory Setting

The California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all State highways (including SR 13/Tunnel Road). Caltrans jurisdictional interest extends to improvements to roadways at the interchange ramps serving area freeways. Federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

## 3. Plans and Policies

The Oakland General Plan comprises numerous elements, and those containing policies relevant to transportation facilities and programs are primarily contained in the Land Use and Transportation Element (LUTE). The transportation-related goals and policies contained in the various General Plan Elements are often competing. In reviewing a project for conformity with the General Plan, the City is required to “balance” the competing goals and policies. Case law suggests that a project “need not be in perfect conformity with each and every policy” and that “no project could completely satisfy every policy stated in the General Plan, and that state law does not impose such a requirement.” (Sequoyah Hills Homeowners Association vs. City of Oakland, 1993)

**a. General Plan Land Use and Transportation Element (LUTE).** The City of Oakland, through various policy documents, states a strong preference for encouraging the use of alternative transportation modes. The following policies are included in LUTE:

- LUTE Policy Framework: Encouraging Alternative Means of Transportation: “A key challenge for Oakland is to encourage commuters to carpool or use alternative modes of transportation, including bicycling or walking. The Policy Framework proposes that congestion be lessened by promoting alternative means of transportation, such as transit, biking, and walking, providing facilities that support alternative modes, and implementing street improvements. The City will continue to work closely with local and regional transit providers to increase accessibility to transit and improve intermodal transportation connections and facilities. Additionally, policies support the introduction of light rail and trolley buses along appropriate arterials in heavily traveled corridors, and expanded use of ferries in the bay and estuary.”
- Policy T3.5: Including Bikeways and Pedestrian Walks. The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realized streets, wherever possible.
- Policy T4.1: Incorporating Design Features for Alternative Travel. The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.

**b. City of Oakland Pedestrian Master Plan.** In November 2002, the Pedestrian Master Plan (PMP) was adopted by the City Council and incorporated into the adopted General Plan. The PMP identifies policies and implementation measures that promote a walkable City.

The PMP includes the following relevant policies and actions:

- PMP Policy 1.2: Use traffic signals and their associated features to improve pedestrian safety at dangerous intersections.
- General Plan Policy T3.5: The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realigned streets, wherever possible.
- PMP Policy 2.1: Create and maintain a pedestrian route network that provides direct connections between activity centers.

- Action 2.1.1: Improve existing connections across/under freeways to activity centers using lighting, acoustics, and other design features.
- Action 2.1.4: Avoid the use of pedestrian overpasses and underpasses for pedestrian crossings on surface streets.
- PMP Policy 2.3: Implement pedestrian improvements along major AC Transit lines and at BART stations to strengthen connections to transit.
  - Action 2.3.1: Develop and implement street designs (like bus bulbouts) that improve pedestrian/bus connections.
  - Action 2.3.3: Prioritize the implementation of street furniture (including bus shelters) at the most heavily used transit stops.
  - Action 2.3.4: Improve pedestrian wayfinding by providing local area maps and directional signage at major AC Transit stops and BART stations.
- PMP Policy 3.2: Promote land uses and site designs that make walking convenient and enjoyable.
  - Action 3.2.4: Require contractors to provide safe, convenient, and accessible pedestrian rights-of-way along construction sites that require sidewalk closure.
  - Action 3.2.8: Discourage motor vehicle parking facilities that create blank walls, unscreened edges along sidewalks, and/or gaps between sidewalks and building entrances.

**c. City of Oakland Bicycle Master Plan.** The Oakland City Council adopted the 2007 Oakland Bicycle Master Plan (BMP) on December 4, 2007. The adopted BMP includes the following policies that are applicable to the proposed Project.

- Policy 1: Create, enhance and maintain the recommended bicycle network.
- Policy 4: Include provisions for safe and direct bicycle access to special development areas and key corridors.
- Policy 5: Promote secure and conveniently located bicycle parking at destinations throughout Oakland.
- Policy 8: Ensure that the needs of bicyclist are considered in the design of new development and redevelopment projects.

The 2007 BMP also contains requirements that new development provide both short-term bicycle parking (i.e., bicycle racks) and long-term bicycle parking (i.e., lockers or indoor storage).

**d. AC Transit Short-Range Transit Plan.** AC Transit has established goals related to transit service. These goals are documented in the 2004 Short Range Transit Plan – Fiscal Year (FY) 2003 to FY 2012. Some of the major goals of AC Transit include:

- Plan and advocate for the funding and implementation of future projects.
- Work with City and local agencies to make transit usage as safe, secure, reliable, and quick as possible and to promote transit usage in the planning process.
- Promote “Transit First” development practices and increased funding for transit through transit mitigation funding for new developments.

AC Transit established a Strategic Vision in 2002 to provide fast, frequent, and reliable service on a wide variety of routes, with attractive vehicles and an easy-to-use, affordable fare structure. Key elements of the AC Transit Strategic Vision include: increased frequency of buses to reduce wait time; greater frequency of service during midday, evening and late-night travel times; an easy-to-use, integrated fare system; flexible routes; adequate around-the-clock service; a redesigned network that matches travel patterns and helps meet demand in the high-density urban core; gradual transition to

“Bus Rapid Transit” in the highest ridership corridors; and bus stop improvements including real-time display of arrival times.

#### 4. Planned Transportation Facility Improvement

No future transit improvements are assumed for the evaluation of Project impacts. The Federal Highway Administration and the California Department of Transportation (Caltrans) are currently working on the proposed Caldecott Improvement Project, which proposes to alleviate traffic congestion along SR 24 by constructing a fourth bore of the Caldecott Tunnel. Construction of the fourth bore is expected to begin in 2009 and end in 2014. The new tunnel is expected to improve mobility for motorists and emergency crews along SR 24, reduce delays and improve travel times, eliminate the need for daily tunnel lane reversals and merges, and enhance safety for the traveling public and Caltrans maintenance workers. The Caldecott Improvement Project is included in the Countywide traffic model used in this transportation analysis. However, construction of the Caldecott Improvement Project is not expected to contribute significant traffic volumes to roadways around Bentley School. According to the Final Environmental Assessment and Environmental Impact Report prepared for the Caldecott project, access to the project construction zone would primarily be via SR 24, Fish Ranch Road, and Old Tunnel Road.<sup>7</sup> Therefore, Caldecott project construction traffic is not expected to substantially affect the operation of intersections in the vicinity of Bentley School.

#### 5. Cumulative Conditions

**a. Cumulative (Year 2030) Baseline Traffic Conditions.** This section evaluates traffic operations and potential operational deficiencies at the study intersections in the Cumulative (Year 2030) Baseline Condition (200 student enrollment)).

**b. Future Year Projections.** Cumulative Conditions traffic volumes were forecasted using the most recent version of the Alameda Countywide Travel Demand Model, which was prepared by Dowling Associates, Inc. for the Alameda County Congestion Management Agency. The travel demand model was used to identify regional traffic volume growth rates on Warren Freeway and Tunnel Road. Traffic volumes on the roads are projected to grow by approximately 1.7 percent per year, or 42 percent over the next 25 years. The local roadways in the vicinity of the Project site were not shown in the Alameda Countywide model. In development of the future traffic forecasts for the minor local roadways in the vicinity of the Project site, including Hiller Drive, Hill Court, and Vicente Road, Dowling Associates compared expected development in the neighborhood around the school to existing development (using available land use data). Based on the evaluation of these land use data, Dowling Associates concluded that there will be little to no growth in households in this mostly built-out residential area, although the total household population is projected to grow slightly over time. Therefore, existing traffic volumes on Hiller Drive, Hill Court, and Vicente Road were increased by 5 percent as a conservative estimate of traffic growth on these streets over the next 25 years. The fourth bore of the Caldecott Tunnel was assumed in the travel demand model under cumulative conditions, and there are no other planned roadway improvements assumed in the immediate vicinity of the Project area. According to the Final Environmental Assessment and Environmental Impact Report prepared for the Caldecott project, access to the project construction zone would primarily be via SR 24, Fish Ranch Road, and Old Tunnel Road.<sup>8</sup> Therefore, as noted

<sup>7</sup> U.S. Department of Transportation, Federal Highway Administration, and California Department of Transportation, 2007. *Final Environmental Assessment/Environmental Impact Report*. August.

<sup>8</sup> Ibid.

above, Caldecott project construction traffic is not expected to substantially affect the operation of intersections in the vicinity of Bentley School.

**c. Cumulative Baseline Intersection Level of Service.** The study intersections were analyzed using the latest version of the Synchro software package, based on the methodologies outlined in the 2000 Highway Capacity Manual. Cumulative intersection LOS calculations, which assume Existing Conditions intersection geometries and control, are presented in Figure IV-B.4. The Cumulative Conditions AM and PM peak hour intersection service levels for the six study intersections are shown in Table IV.B-4. As described above, the LOS analysis is based on intersection capacities. However, the calculated delays at the school entrance and exit would potentially be higher due to the stationary time of the vehicles within the school driveway. As shown in Table IV.B-4, all of the study intersections would operate at LOS C or better during the peak hours analyzed in the traffic analysis, except for the minor stop control at Vicente Road, which would operate at LOS F. The detailed LOS calculation sheets from Synchro are provided in Appendix C-3.

## 6. Impacts

This section evaluates transportation-related impacts of the proposed Project. Study intersections are evaluated under existing conditions and the cumulative Year 2030 conditions. In addition, the effects of the Project on public transit services, access and safety, parking supply and demand, and pedestrian and bike facilities are also addressed. Impacts associated with emergency access and evacuation are addressed in Section IV.E, Hazards. This section begins with a detailed explanation of the significance criteria used to determine whether an effect would be significant. The traffic impacts are assessed at the intersections in the study area using these criteria.

**a. Thresholds of Significance.** The thresholds of significance used by the City of Oakland to determine if a project would have a significant impact on transportation and circulation systems are discussed below.

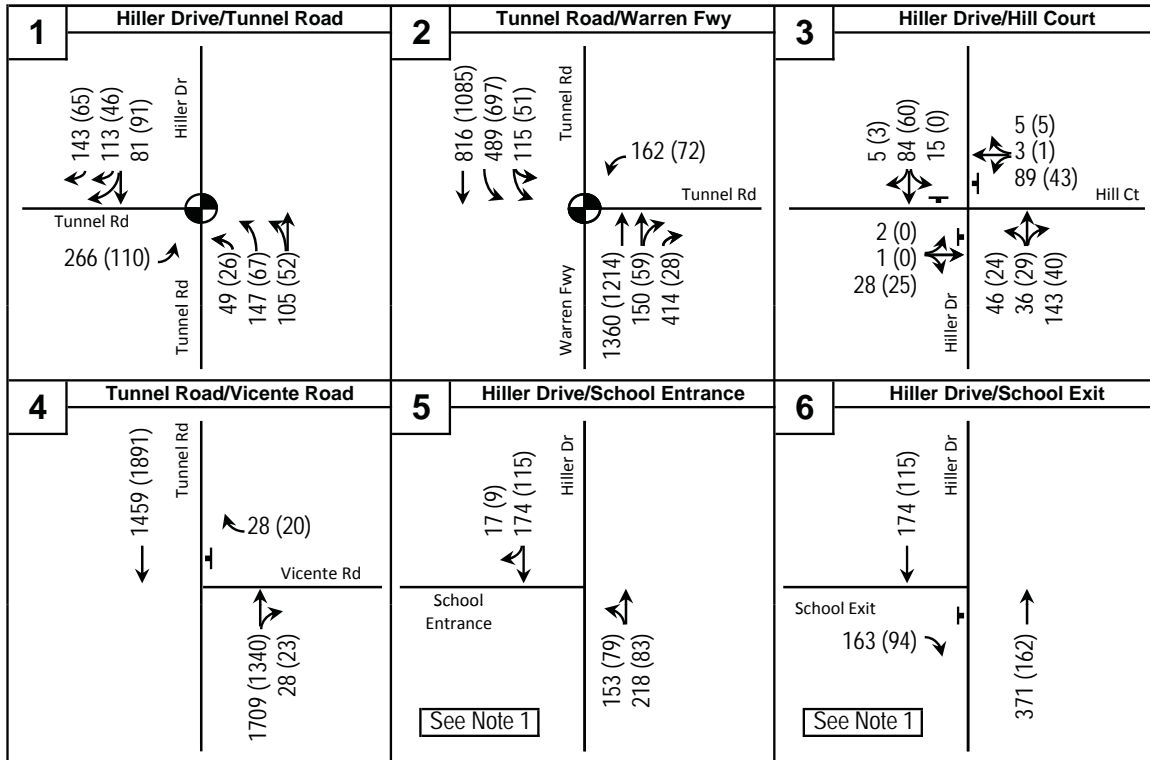
**(1) Project Impacts (compare Baseline (200 Students) to Baseline Plus Project (360 Students)).** The Project would have a significant impact on the environment if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would substantially impact access or traffic load and capacity of the street system, as defined below:

1. At a study, signalized intersection which is located **outside the Downtown**<sup>9</sup> area, the Project would cause the level of service (LOS) to degrade to worse than LOS D (i.e., E);

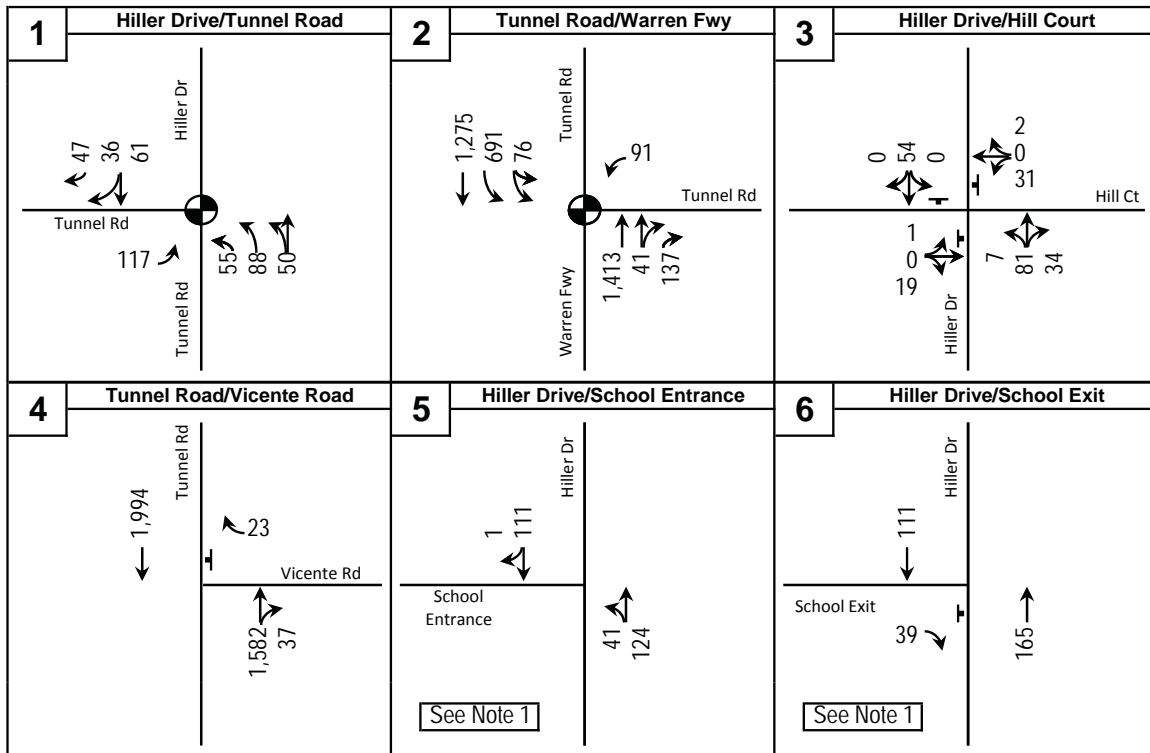
---

<sup>9</sup> Downtown is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south and I-980/Brush Street to the west.

### AM Peak Hour and After School Peak Hour



### PM Peak Hour



LSA

**KEY**

5 (5) = AM (After School) peak hour traffic volume

⊙ = Signalized intersection

↔ = Intersection approach lane

⊥ = Stop Sign

Note 1: Hiller Drive provides adequate roadway width for a de facto left turn lane, and a right turn lane for traffic entering the school.

FIGURE IV.B-4

Bentley School Major Conditional Use Permit EIR  
Cumulative No Project Traffic Volumes,  
Lanes, and Traffic Controls

**Table IV.B-4: Cumulative Baseline Conditions (200 Students) Intersection Levels of Service Summary**

No.	Intersection	Traffic Control	Peak Hour	Cumulative No Project	
				LOS <sup>a</sup>	Delay <sup>b</sup>
1	Tunnel Road / Hiller Dr.	Signal	AM	C	27.9
			After School	C	21.1
			PM	C	23.7
2	Tunnel Road / Warren Fwy	Signal	AM	C	32.6
			After School	B	19.7
			PM	C	29.5
3	Hiller Drive / N. Hill Court	All-Way Stop Control <sup>c</sup>	AM	C	21.1
			After School	B	10.8
			PM	B	10.5
4	Tunnel Road / Vicente Road	Minor Stop Control <sup>d</sup>	AM	F	493.5
			After School	F	71.6
			PM	F	304.0
5	Hiller Drive / School Entrance	Yield on Northbound Left <sup>e</sup>	AM	A	9.3
			After School	A	8.2
			PM	A	7.7
6	Hiller Drive / School Exit	Minor Stop Control	AM	B	12.3
			After School	A	9.6
			PM	A	9.4

Notes:

<sup>a</sup> LOS = Level of Service

<sup>b</sup> Average control delay in seconds per vehicle.

<sup>c</sup> This is an unconventional intersection, and HCM 2000 does not provide methodologies to compute LOS. Therefore, it is assumed as minor stop controls for the Hill Court approaches, which yields more conservative analysis results.

<sup>d</sup> The worst approach control delays and LOS are reported for side street stop-controlled intersections, traffic volumes do not satisfy Caltrans peak hour volume warrant.

<sup>e</sup> The LOS analysis is based on intersection capacities and would be a reasonable representation of the typical delays at the school entrance and exit. However, the delay could be higher due to vehicles idling for unexpectedly long times within the school access loop and drop off area.

Source: Dowling Associates, 2007

2. At a study, signalized intersection **outside the Downtown** area where the level of service is LOS E, the Project would cause the total intersection average vehicle delay to increase by four (4) or more seconds, or degrade to worse than LOS E (i.e., F);
3. At a study, signalized intersection for **all areas** where the level of service is LOS E, the Project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more, or degrade to worse than LOS E (i.e., F);
4. At a study, signalized intersection for all areas where the level of service is LOS F, the Project would cause (a) the total intersection average vehicle delay to increase by two (2) or more seconds, or (b) an increase in average delay for any of the critical movements of four (4) seconds or more; or (c) the volume-to-capacity (“V/C”) ratio exceeds three (3) percent (but only if the delay values cannot be measured accurately);
5. At a study, unsignalized intersection the Project would add ten (10) or more vehicles and after project completion satisfy the Caltrans peak hour volume warrant;
6. For a Congestion Management Program (CMP) required analysis ( i.e., projects that generate 100 or more p.m. peak hour trips), cause a roadway segment on the Metropolitan Transportation

System to operate at LOS F or increase the V/C ratio by more than three (3) percent for a roadway segment that would operate at LOS F without the Project;

7. 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;
8. Substantially increase traffic hazards to motor vehicles, bicycles, or pedestrians due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
9. Result in less than two emergency access routes for streets exceeding 600 feet in length unless otherwise determined to be acceptable by the Fire Chief, or his/her designee, in specific instances due to climatic, geographic, topographic, or other conditions; or
10. Fundamentally conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle routes, pedestrian safety).

Criterion #8 is not applicable to this analysis because the Project would not include features (such as tall or high-glare buildings) that would change air traffic patterns. Therefore, this criterion would be associated with a finding of no impact.

**(2) Cumulative Impacts.** A project's contribution to cumulative impacts is considered "considerable" (i.e., significant) when the project causes at least one of the intersection-related thresholds listed above in threshold #1 through #7 to be exceeded in 2030.

**b. Project Trip Generation.** The trip generation for the Project is based on observations of vehicle trips entering and exiting Bentley School. Trip counts collected at the Project site were used to identify the number of vehicle trips generated by each student. These actual trip generation rates are higher than average Institute of Transportation Engineers (ITE) trip generation rates for school uses, which are commonly used in environmental impact analyses.

Table IV.B-5 provides a summary of the existing counts of vehicles entering and exiting the school's loop driveway on Hiller Drive, during the peak hour periods that were evaluated as part of the transportation analysis. The number of parents/guardians that park on Hiller Drive and walk their children to school (without driving through the loop and onto the queuing area adjacent to the Firestorm Memorial Garden), and the number of school staff members that park on the street were estimated based on field observations and parking survey information. These sources were used to estimate how many of the vehicle trips generated by enrolled students use the loop driveway off Hiller Drive. Table IV.B-6 provides a summary of the current number of student bus users. This information was used to determine the number of additional auto trips that would be generated if the comprehensive transportation program currently implemented at the school was not in place (i.e., the No Project scenario).

**Table IV.B-5: Existing (352 Students) School Traffic Counts Summary**

		Traffic Counts at Hiller Drive Loop Access	Estimated Vehicles Parked on Hiller Drive	Total	Trip Rate at School Driveway	Total Trip Rate
AM Peak Hour	In	220	34	254	0.63	0.72
	Out	208	34	242	0.59	0.69
	Total	428	68	496	1.22	1.41
After School Hour	In	126	45	171	0.36	0.49
	Out	138	45	183	0.39	0.52
	Total	264	90	354	0.75	1.01
PM Peak Hour	In	74	0	74	0.21	0.21
	Out	68	0	68	0.19	0.19
	Total	142	0	142	0.40	0.40

Notes:

Based on 2007/2008 traffic counts; enrollment of 352 students.

School staff members who park on the lower campus lot were not included.

The number of parents and staff who parked on Hiller Drive and walked to school is estimated based on a parking survey and field observations.

This is a total count including turn-overs of the drop-off activities.

**Table IV.B-6: Existing (352 students) Student Bus Riders**

	AM Peak Hour	After School Peak Hour	PM Peak Hour
	Total	Total	Total
Bus Riders	79	28	0
Bus Rider Rate/Student	0.22	0.08	0

Note: Based on information provided by the school in 2007, and an enrollment of 352 students. Includes buses operated by AC Transit and Michael's Transportation Service.

The resulting trip generation summary for the No Project (200 students) scenario is shown in Table IV.B-7, and the summary for the with-Project (360 students) scenario is summarized in Table IV.B-8.

**c. Project Trip Distribution and Assignment.** Project trip distribution and assignment was determined using the existing intersection turning counts at the school driveway, and at the Tunnel Road and Hiller Drive intersection. Traffic associated with Bentley School represents a high proportion of the total vehicle traffic on Hiller Drive. Therefore, the turning counts (which are based on existing traffic patterns) provide a realistic traffic distribution pattern for the Project. When vehicles exit the school loop driveway, they are only permitted to make a right turn onto Hiller Drive (i.e. the left-turn movement is prohibited), resulting in a different trip distribution for inbound and outbound vehicle trips. The distributional proportions of school-related trips are presented in Figure IV.B-5 and Figure IV.B-6 for inbound and outbound trips, respectively. In summary, approximately 10 percent of the traffic is from Hiller Drive north of the school (Hiller Highlands area), 38 percent of the traffic comes from Tunnel Road north of the school (Berkeley), 28 percent comes from SR 13 (Oakland), and 24 percent comes from SR 24 east of the school (Contra Costa County and Oakland).

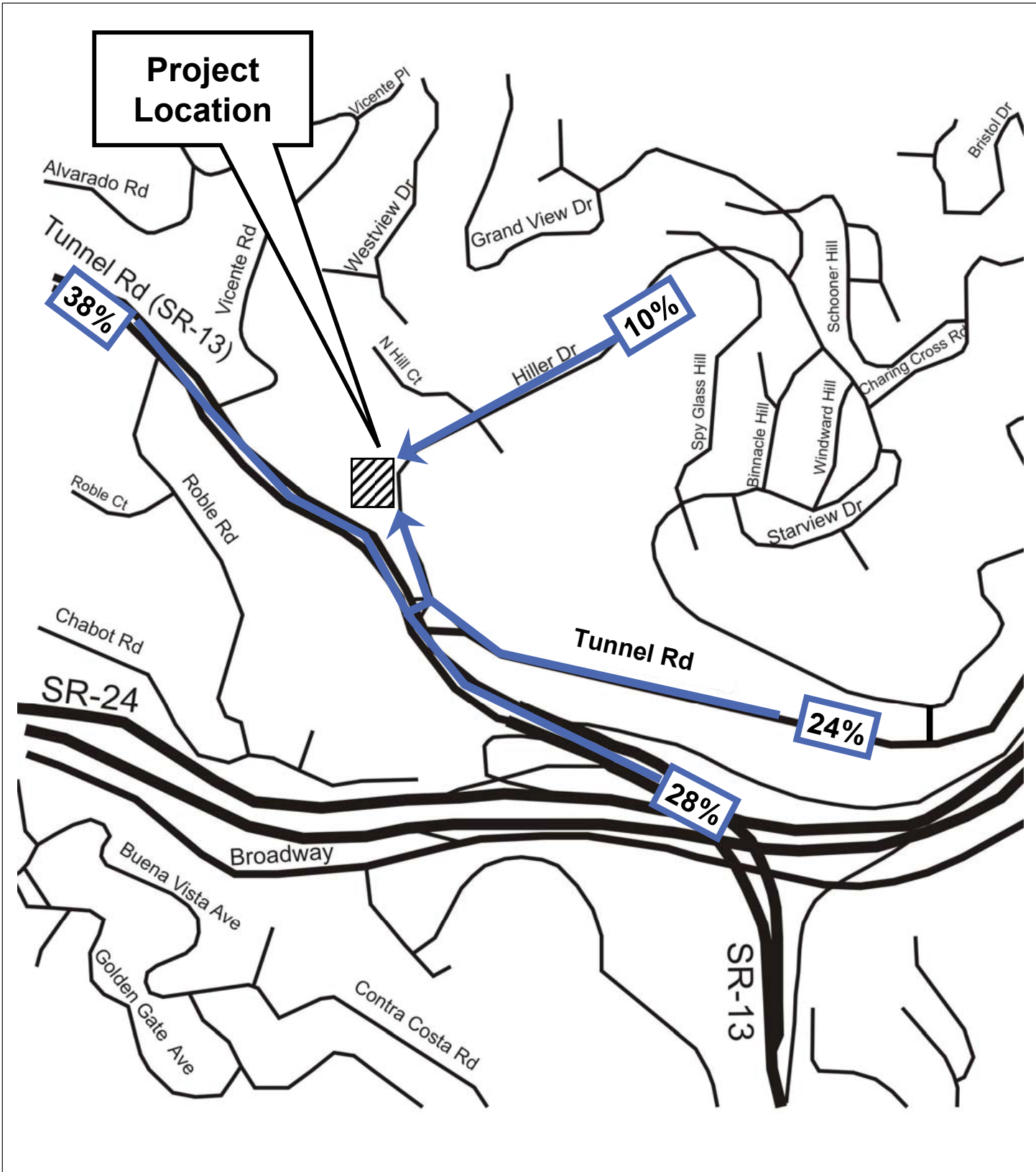


FIGURE IV.B-5

LSA



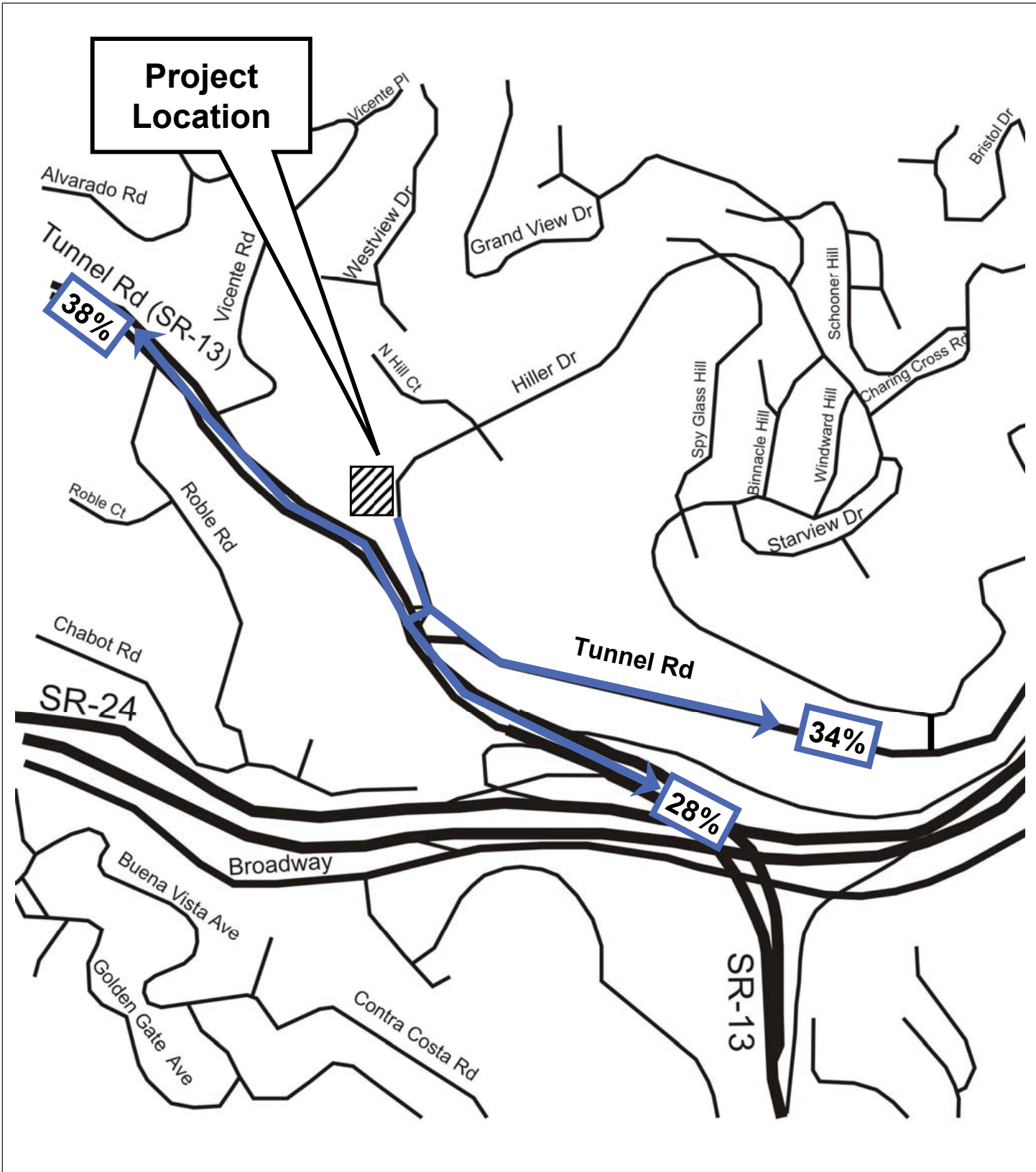
 PROJECT SITE

Bentley School Major Conditional Use Permit EIR  
Inbound Project Trip Distribution

NOT TO SCALE

SOURCE: DOWLING ASSOCIATES, INC.

I:\BES0702 bentley school\figures\Fig\_IVB5.ai (2/5/08)



LSA

FIGURE IV.B-6



 PROJECT SITE

*Bentley School Major Conditional Use Permit EIR  
Outbound Project Trip Distribution*

NOT TO SCALE

SOURCE: DOWLING ASSOCIATES, INC.  
I:\BES0702 bentley school\figures\Fig\_IVB6.ai (2/5/08)

**Table IV.B-7: Trip Generation Summary for Baseline Condition (200 Students)**

200 Students	AM Peak Hour			After School Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Project Trips at School Driveway	125	118	243	72	78	150	42	39	81
Additional Auto Trips Without Transit Subsidy <sup>1</sup>	45	45	90	16	16	32	0	0	0
Subtotal (School Driveway Trips)	170	163	333	88	94	182	42	39	81
School Trips that Park on Hiller Drive	19	19	39	26	26	51	0	0	0
<b>Total Trip Generation</b>	<b>189</b>	<b>182</b>	<b>372</b>	<b>114</b>	<b>120</b>	<b>233</b>	<b>42</b>	<b>39</b>	<b>81</b>

Note: School staff members who park on the lower campus lot are not included.

<sup>1</sup>Additional vehicle trips that would be expected to occur if the school did not subsidize transit service.

**Table IV.B-8: Trip Generation Summary for Baseline Plus Project Condition (360 Students)**

360 Students	AM Peak Hour			After School Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Current Enrollment 352 students	220	208	428	126	138	264	74	68	142
Additional 8 students 8 students	5	5	10	3	3	6	2	2	4
Subtotal (School Driveway Trips)	225	213	438	129	141	270	76	70	146
School Trips that Park on Hiller Drive	34	34	69	45	45	90	0	0	0
<b>Total Trip Generation</b>	<b>259</b>	<b>247</b>	<b>506</b>	<b>174</b>	<b>186</b>	<b>360</b>	<b>76</b>	<b>70</b>	<b>146</b>

Note 1: School staff members who park on the lower campus lot are not included.

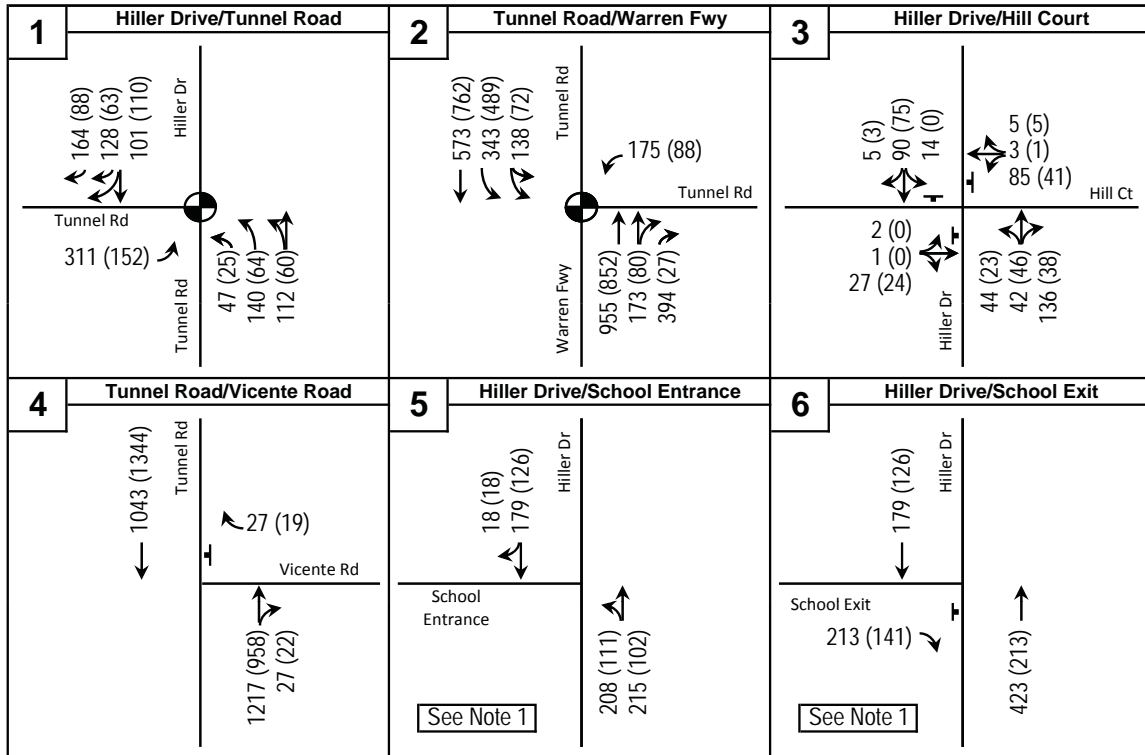
Note 2: The net increase in student enrollment between the existing and Project scenarios is eight students, which would account for ten trips during the AM peak hour, six trips during the school peak hour, and four trips during the PM peak hour.

**d. Baseline Plus Project Conditions (360 Students).** As mentioned previously, a hypothetical Baseline condition was developed to identify traffic volumes and patterns that would occur if student enrollment were capped at 200 students. Baseline Plus Project Conditions represent approximately current conditions as of the 2007/2008 school year. Existing enrollment is 352 students; under the Project, maximum enrollment would be limited to 360 students. The trips generated by the additional eight students were added to existing conditions to create the Plus Project scenario, which was used to evaluate the impacts of the proposed Project. Figure IV.B-7 presents turning movement volumes for the Baseline Plus Project Condition at the study intersections.

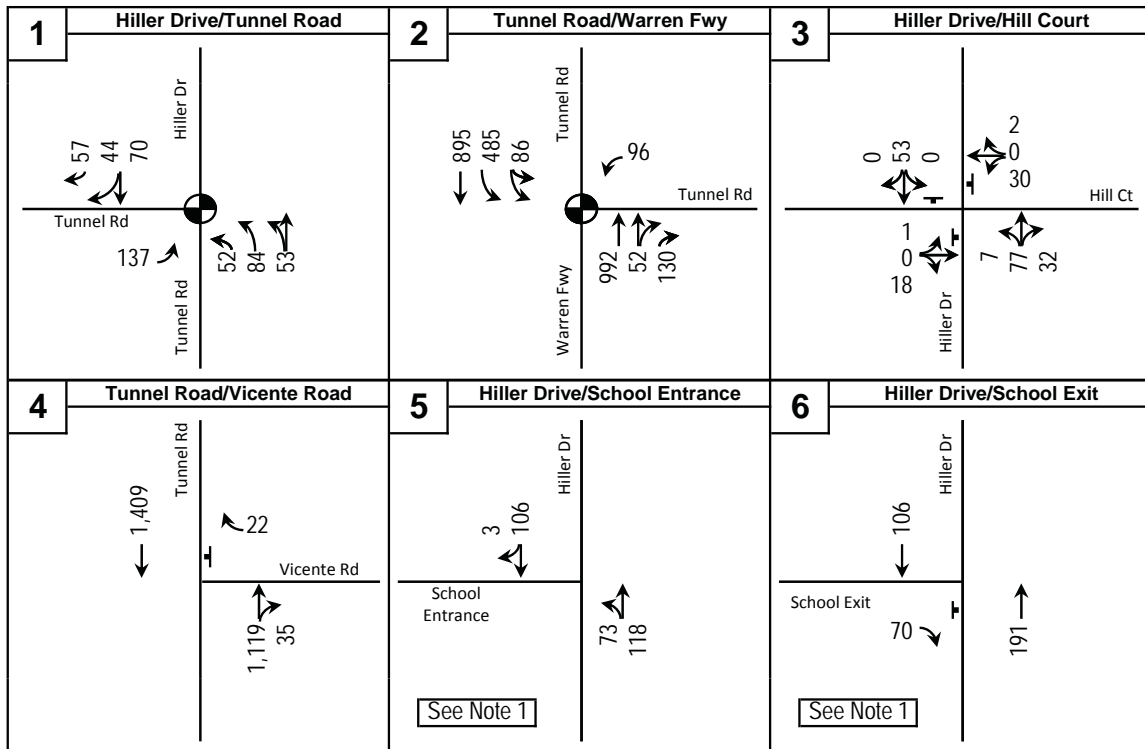
**e. Baseline Plus Project Condition (360 Students) Intersection Level of Service.** The Baseline Plus Project Condition AM and PM peak hour intersection service levels for the six study intersections are shown in Table IV.B-9.

Table IV.B-9 shows that the addition of Project trips to the study intersections would not substantially degrade LOS compared to the No Project or Baseline scenario. All study intersections would continue to operate at acceptable LOS D or better, except for the minor stop control at Vicente Road (intersection with Tunnel Road), which would operate at LOS E during the AM peak hour, under both the No Project (Baseline) and Plus Project scenarios. As listed above, the significance criterion for unsignalized intersections is dependent on the Caltrans peak hour volume warrant, rather than intersection LOS, and is discussed in more detail below.

### AM Peak Hour and After School Peak Hour



### PM Peak Hour



LSA

**KEY**

5 (5) = AM (After School) peak hour traffic volume

⊙ = Signalized intersection

↔ = Intersection approach lane

⊢ = Stop Sign

Note 1: Hiller Drive provides adequate roadway width for a de facto left turn lane, and a right turn lane for traffic entering the school.

FIGURE IV.B-7

Bentley School Major Conditional Use Permit EIR  
Existing Plus Project Traffic Volumes,  
Lanes, and Traffic Controls

**Table IV.B-9: Baseline Plus Project (360 Students) Intersection Levels of Service Summary**

No.	Intersection	Traffic Control	Peak Hour	Baseline		Baseline Plus Project	
				LOS <sup>a</sup>	Delay <sup>b</sup>	LOS	Delay
1	Tunnel Road / Hiller Dr.	Signal	AM	C	27.7	C	28.4
			After School	B	19.4	B	19.3 <sup>f</sup>
			PM	C	22.5	C	22.6
2	Tunnel Road / Warren Fwy	Signal	AM	B	18.4	B	19.9
			After School	B	14.4	B	14.9
			PM	B	15.4	B	15.7
3	Hiller Drive / N. Hill Court	Three-Way Stop Control <sup>c</sup>	AM	C	19.7	C	20.6
			After School	B	10.6	B	11.1
			PM	B	10.4	B	10.4
4	Tunnel Road / Vicente Road	Minor Stop Control <sup>d</sup>	AM	E	40.3	E	42.9
			After School	C	21.2	C	22.3
			PM	D	33.7	D	34.9
5	Hiller Drive / School Entrance	Yield on Northbound Left <sup>e</sup>	AM	A	9.2	A	9.9
			After School	A	8.2	A	8.5
			PM	A	7.7	A	7.8
6	Hiller Drive / School Exit	Minor Stop Control	AM	B	12.1	B	14.2
			After School	A	9.6	B	10.2
			PM	A	9.3	A	9.6

<sup>a</sup> LOS = Level of Service

<sup>b</sup> Average control delay in seconds per vehicle.

<sup>c</sup> This is an unconventional intersection, and HCM 2000 does not provide methodologies to compute LOS. Therefore, it is assumed as minor stop controls for the Hill Court approaches, which yields more conservative analysis results.

<sup>d</sup> The worst approach control delays and LOS are reported for side street stop-controlled intersections. Traffic volumes do not satisfy Caltrans peak hour volume warrant.

<sup>e</sup> The LOS analysis is based on intersection capacities and would be a reasonable representation of the typical delays at the school entrance and exit. However, the delay could be higher due to vehicles idling for unexpectedly long times within the school access loop and drop off area.

<sup>f</sup> The computed delay for the intersection of Tunnel Road/Hiller Drive shows a slightly reduced delay for the Plus Project conditions when compared to No Project conditions. This is due to the difference in traffic volume, which in turn resulted in a different actuated green time allocation for each signal phase.

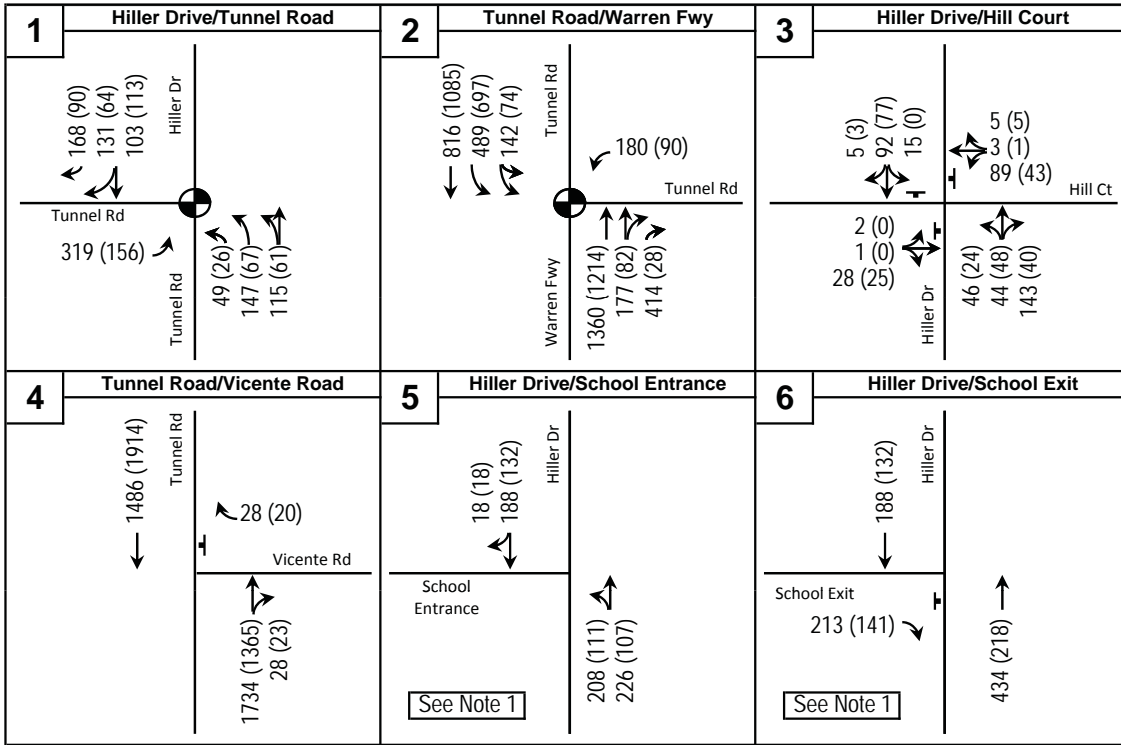
Note: LOS computations shown in this Table do not account for the transfer of middle school students. Impacts associated with the student transfer are addressed in more detail below.

Source: Dowling Associates, 2008.

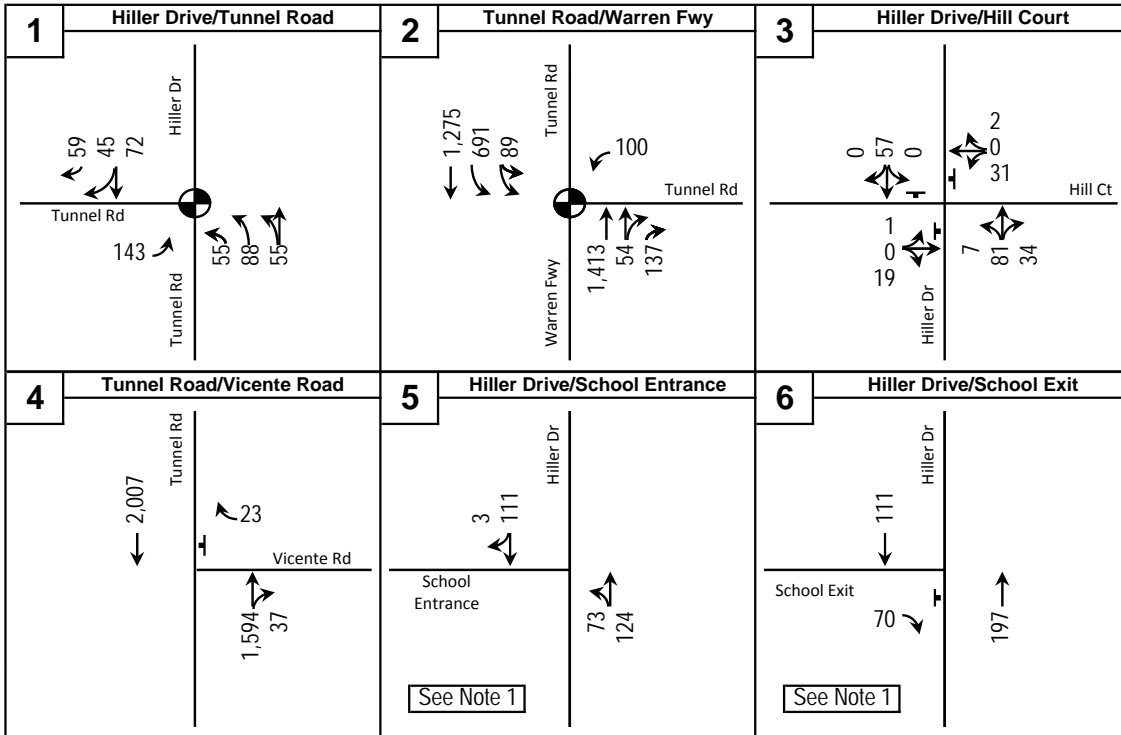
**f. Cumulative Plus Project Condition (360 Students) Traffic Volumes.** The traffic associated with the proposed Project was added to the Cumulative Baseline Condition traffic volumes to derive the Cumulative Plus Project Condition traffic volumes. Figure IV.B-8 presents turning movement volumes for the Cumulative Plus Project Condition at the study intersections. The roadway lane configurations and intersection controls assumed for Cumulative Plus Project Condition are the same as those for the Baseline Plus Project Condition.

**g. Cumulative Plus Project (360 Students) Condition Intersection Level of Service.** The Cumulative Plus Project Condition peak hours intersection level of service results are shown in Table IV.B-10. As shown in the Table, the addition of Project (360 students) trips would be expected to worsen the traffic operations at the Tunnel Road and Warren Freeway intersection from LOS C to LOS D in the AM peak hour and from LOS B to LOS C in the after school peak hour. These operation levels would continue to be acceptable (LOS D or better), according to City of Oakland standards. The minor stop control at Vicente Road (intersection with Tunnel Road) would operate at LOS F during AM, PM and after school peak hours, under both the Cumulative Baseline and Cumulative

### AM Peak Hour and After School Peak Hour



### PM Peak Hour



LSA

**KEY**

5 (5) = AM (After School) peak hour traffic volume

⊙ = Signalized intersection

↔ = Intersection approach lane

⊥ = Stop Sign

Note 1: Hiller Drive provides adequate roadway width for a de facto left turn lane, and a right turn lane for traffic entering the school.

FIGURE IV.B-8

Bentley School Major Conditional Use Permit EIR  
Cumulative Plus Project Traffic Volumes,  
Lanes, and Traffic Controls

**Table IV.B-10: Cumulative Plus Project (360 Students) Intersection Levels of Service Summary**

No.	Intersection	Traffic Control	Peak Hour	Cumulative Baseline		Cumulative Plus Project	
				LOS <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>a</sup>	Delay <sup>b</sup>
1	Tunnel Road / Hiller Dr.	Signal	AM	C	27.9	C	28.6
			After School	C	21.1	C	21.1
			PM	C	23.7	C	23.9
2	Tunnel Road / Warren Fwy	Signal	AM	C	32.6	D	38.7
			After School	B	19.7	C	20.6
			PM	C	29.5	C	31.6
3	Hiller Drive / N. Hill Court	Three-Way Stop Control <sup>c</sup>	AM	C	21.1	C	22.1
			After School	B	10.8	B	11.3
			PM	B	10.5	B	10.5
4	Tunnel Road / Vicente Road	Minor Stop Control <sup>d</sup>	AM	F	493.5	F	537.3
			After School	F	71.6	F	79.5
			PM	F	304.0	F	320.1
5	Hiller Drive / School Entrance	Yield on Northbound Left <sup>e</sup>	AM	A	9.3	A	10.0
			After School	A	8.2	A	8.5
			PM	A	7.7	A	7.8
6	Hiller Drive / School Exit	Minor Stop Control	AM	B	12.3	B	14.5
			After School	A	9.6	B	10.2
			PM	A	9.4	A	9.6

<sup>a</sup> LOS = Level of Service

<sup>b</sup> Average control delay in seconds per vehicle.

<sup>c</sup> This is an unconventional intersection, and HCM 2000 does not provide methodologies to compute LOS. Therefore, it is assumed as minor stop controls for the Hill Court approaches, which yields more conservative analysis results.

<sup>d</sup> The worst approach control delays and LOS are reported for side street stop-controlled intersections, traffic volumes do not satisfy the Caltrans peak hour volume warrant, and thus impacts are less than significant.

<sup>e</sup> The LOS analysis is based on intersection capacities and would be a reasonable representation of the typical delays at the school entrance and exit. However, the delay could be higher due to vehicles idling for unexpectedly long times within the school access loop and drop off area.

Note: LOS computations shown in this Table do not account for the transfer of middle school students. Impacts associated with the student transfer are addressed in more detail below.

Source: Dowling Associates, 2008

Plus Project scenarios. As listed above, the significance criterion for unsignalized intersections is dependent on the Caltrans peak hour volume warrant, rather than intersection LOS, and is discussed in more detail below.

**h. Cumulative Plus Project Condition (360 Students) Intersection Impacts and Mitigation Measures.** As shown in Table IV.B-10, the Project would result in less-than-significant impacts to the signalized study intersections, and therefore, no mitigation would be required. Although the Project would add more than 10 trips to the unsignalized intersection of Tunnel Road and Vicente Road, the Caltrans peak hour volume warrant would not be met, even with the addition of Project trips.

The potential need for traffic signals at the unsignalized intersections was evaluated as part of this analysis. As stated in the 2003 edition of the Manual on Uniform Traffic Control Devices (MUTCD), "An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of the need for a traffic control signal shall include an

analysis of the applicable factors contained in the following traffic signal warrants and other factors related to existing operations and safety at the study location:

Warrant 1: Eight-Hour Vehicular Volume  
Warrant 2: Four-Hour Vehicular Volume  
Warrant 3: Peak Hour  
Warrant 4: Pedestrian Volume  
Warrant 5: School Crossing  
Warrant 6: Coordinated Signal System  
Warrant 7: Crash Experience  
Warrant 8: Roadway Network

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.”

This traffic impact analysis did not evaluate all of the warrants for traffic signals, but instead focused on the peak hour warrant (Warrant 3), which is most applicable to the traffic issues associated with the Project. The peak hour warrant is being used in this impact analysis study as an “indicator” of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed the peak hour warrant are considered for the purposes of this impact analysis to be likely to meet one or more of the other signal warrants (such as the 4-hour or 8-hour warrants). This peak hour analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Traffic signals tend to reduce the potential for right-angle type collisions but also tend to increase the potential for less severe rear-end collisions. The signal warrant volumes represent the threshold point at which the potential for more rear-end collisions is offset by the potential for fewer more severe right-angle collisions. When the signal warrant volumes are exceeded, an intersection should be considered for signalization; however, the decision to install a traffic signal should not be based solely upon the warrants. Delay, congestion, approach condition, driver confusion, future land use, or other evidence of the need for right-of-way assignment beyond that provided by stop signs must be demonstrated.

At the intersection of Tunnel Road and Vicente Road, the minor approach of Vicente Road carries 28 vehicles per hour, 20 vehicles per hour, and 23 vehicles per hour during the AM, after school, and PM peak hours, respectively. These volumes are well below the threshold of meeting the signal warrant, which is 100 vehicles per hour. Therefore, the Project would result in less-than-significant impacts to the unsignalized intersection, and no mitigation would be required.

**i. Pedestrian and Bicycle Facility Impacts.** As described in the setting section, there are no continuous sidewalks or designated bike routes on Hiller Drive from the school to Tunnel Road (there is a small segment of sidewalk from the school to the Firestorm Memorial Garden). The Project would not provide additional pedestrian or bicycle facilities in the Project vicinity. Families that live outside of the Oakland Hills areas are not likely to walk or bike to school because Tunnel Road (the main non-freeway access to the school) is subject to high traffic volumes and does not provide a comfortable bike and pedestrian environment. North of the school, sidewalks are present on local streets, providing pedestrian access to students living in the Oakland Hills. The sidewalk along the Firestorm Memorial Garden is used to access on-street parking and the garden itself, in addition to student drop-off and pick-up activities during peak hours. In addition, a pedestrian pathway links the

lower parking area (near the Tunnel Road bus stop) to the rest of the campus. Also, in 2008 the School constructed a protected walkway on the south side of the Hiller Drive parking lot that connects the existing on-site drop-off area to the public sidewalk. Therefore, adequate pedestrian facilities exist to allow students to safely enter and exit the school and to walk to bus stops or the Hiller Highlands neighborhood. Because students do not enter the roadway to access the pick-up and drop-off zone, the school's existing pick-up/drop-off area is considered safe and does not increase risks for pedestrians. The new traffic that would be generated by the Project would not create new pedestrian or bike hazards. The traffic generated by the Project, combined with the school's traffic management plan, would not introduce new significant roadway hazards that would endanger pedestrians or cyclists. Therefore, the project would result in less-than-significant impacts to pedestrian and bike facilities, and no mitigation would be required.

**j. Metropolitan Transportation System (MTS) Impacts.** According to the Alameda County Congestion Management Agency and the 2005 Congestion Management Program (CMP) report, SR 24, SR 13 and Tunnel Road are designated as MTS routes in the Project site vicinity. The Project (360 students) would generate less than 100 PM peak hour trips compared to the No Project (200 students) condition. Therefore, LOS analysis of roadways under the jurisdiction of the Alameda Congestion Management Agency is not required based on the CMP criteria. Therefore the Project would result in less-than-significant impacts on the MTS system.

**k. Emergency Access Routes Impacts.** The Project would not result in any physical changes to emergency access routes. Therefore, associated impacts would be less than significant. Refer to Section IV.E, Hazards, for a discussion of potential impacts of the Project on established emergency evacuation routes.

**l. Design Standards Impacts.** The Project would not result in any changes to current roadway geometry or change other design features such that they would not comply with Caltrans design standards. Caltrans design standards do not apply to the placement of traffic cones, similar to those used to direct pick-up and drop-off activities. Vehicles passing to the right of left-turning vehicles on Hiller Drive are addressed under "School Access" in the setting section. Passing on the right on Hiller Drive is a legal operation, and is not a violation of design standards. Therefore, impacts associated with design standards would be less than significant.

**m. Transfer of Middle School Students Impacts.** This analysis takes into account the trips that would be generated by the planned transfer of Middle School students from Bentley School's Hiller Campus to the Lafayette Campus, and the backfilling of the vacant capacity at the Hiller Campus with Lower School Students. After the planned move, the Hiller Campus would enroll only students in Kindergarten through 5<sup>th</sup> Grade (and maximum enrollment would remain at 360 students). This change in student grade distribution could increase the number of vehicle trips that would be associated with the proposed Project. Based on information provided by the school, currently there are approximately 120 students enrolled in grades 6 to 8 on the Hiller Campus. If enrollment is limited to only Kindergarten through 5<sup>th</sup> Grade students, per-student trip generation rates could increase because:

- Carpooling within households could be reduced because older and younger siblings would attend different campuses.

- The number of transit riders could be reduced if younger students are less likely than older students to use transit.

In the 2008 Hiller Campus student body, there are 72 pairs of siblings of two or more; 37 of those siblings are students in Grades 6 or higher. Based on the assumption that these 37 students would be replaced with younger students, an additional 37 inbound vehicle trips would be generated in the AM peak hour by the proposed Project. Approximately 13 percent of bus riders are students in Kindergarten through 5<sup>th</sup> Grade; approximately 43 percent of bus riders are students in Grades 6 through 8.

The lower bus-riding rate of Lower School students would result in approximately 37 additional vehicle trips for the 120 additional Lower School students.

Based on these assumptions, the total number of new vehicle trips that would be introduced as a result of the transfer of the Middle School to the Lafayette Campus would be approximately 74 inbound and 74 outbound trips. The number of siblings and bus riders could change from year to year; however, these estimates (based on 2008 data) represent reasonable estimates of trip increases that could occur with a transfer of older students off of the Hiller Campus.

The intersection of Tunnel Road and Warren Freeway during the AM peak hour is the intersection that would be most affected by Project-related trips, and represents the worst-case scenario for Project-related traffic congestion. The level of service at this intersection would degrade from LOS C to LOS D with 38.7 seconds of delay (comparing Cumulative Baseline to Cumulative Plus Project conditions). With an additional 74 inbound (and 74 outbound) trips associated with the transfer of Middle School students (and backfilling with Lower School students), the average delay at this intersection would increase to approximately 47.3 seconds, but would remain at LOS D, under Cumulative Plus Project conditions, assuming the transfer of Middle School students. Therefore, the congestion-related impact of the Project at this location, as well as other study intersections, would be less than significant.

However, traffic queues at the Tunnel Road and Hiller Drive intersection would be longer than those associated with the existing grade distribution, and the southbound approach to this intersection could extend to the school entrance. At the school entrance, the traffic queue would also be potentially longer than that associated with the existing grade distribution; however, the difference would not be substantial under normal operating conditions.

The transfer of students would also increase the number of vehicles approaching the intersection of Vicente Road and Tunnel Road. However, the Caltrans peak hour volume warrant is not met even with these additional trips. The minor approach of Vicente Road carries 28 vehicles per hour, 20 vehicles per hour, and 23 vehicles per hour during AM, after school, and PM peak hours, respectively. These volumes are below the threshold of meeting the signal warrant, which is 100 vehicles per hour. Therefore, the Project (assuming the transfer of Middle School students) would result in less-than-significant impacts to the unsignalized intersection, and no mitigation would be required.

Parking demands associated with the transfer of Middle School students could also be higher, as there would likely be an increase in the number of guardians who would park and walk their students to

class. However, the existing parking supply on Hiller Drive (including Hiller Drive north of Hill Court) would be adequate to accommodate any increased demand as described in the following subsection (under non-CEQA issues).

AC transit ridership would likely be reduced as a result of the transfer of Middle School students (because younger students are less likely to use public transit). The following measure would not be required to reduce significant environmental impacts, but would ensure the continuation of transit service to the School. This recommended measure will be considered by decisionmakers during the course of Project review.

Recommended Measure TRANS-1: Since AC Transit requires a minimum level of ridership to sustain its service to Bentley School, the School should work with AC Transit (and continue to support transit ridership) to ensure that existing bus service is continued. If AC Transit service is discontinued, then the school should provide private shuttle service to replace the AC Transit service.

**n. Conflicts with Transportation Plans and Policies.** In general, the Project is consistent with applicable transportation plans and policies. The school encourages alternative modes of transportation by providing free AC Transit bus passes and by subsidizing the cost of private school buses. These strategies in support of alternative transportation are consistent with the General Plan Land Use and Transportation Element. The Project does not contain elements that would be in conflict with City of Oakland Pedestrian Master Plan, or the City of Oakland Bicycle Master Plan. The school promotes transit usage by sponsoring AC Transit Services in the morning and in the afternoon for student pick-up and drop-off, which would support the AC Transit Short-Range Transit Plan. Therefore, associated plan-related impacts are less than significant.

## **7. Planning Related Non-CEQA Transportation System Circulation Analysis and Recommendations**

This section provides a planning-related evaluation of transportation and circulation-related impacts that are not considered physical environmental effects pursuant to CEQA (including impacts related to transit, parking, site circulation, emergency evacuation plans, queuing, and other traffic operations), and recommendations to address these impacts. This discussion is stimulated by comments submitted by the public on transportation and circulation issues at the school and several visits to the site to observe traffic operations at the school.

**a. Transit.** The school has sought to increase transit usage as part of an effort to reduce vehicular trips to the school. The school, in coordination with AC Transit, has added Route 689 and Route 604 to provide morning bus service to the school and to pick up students in the after school hour. The school has also provided free AC bus passes to students. The addition of AC Transit services has likely increased the number of students that ride the bus, as described earlier in the section discussing trip generation. This increase in bus riders benefits traffic circulation on Hiller Drive because it reduces vehicle trips. Based on the current student bus ridership rate, under the No Project scenario (with 200 students), it is anticipated that there would be an additional 45 inbound vehicle trips in the morning peak hour, and 16 in the after school peak hour. Based on information provided by AC Transit, these two bus routes currently have adequate capacity to serve student bus riders (including those generated by current enrollment at Bentley School), and bus travel time is not substantially adversely affected.

**b. Parking.** The California Court of Appeal has held that parking is not part of the permanent physical environment, that parking conditions change over time as people change their travel patterns, and that unmet parking demand created by a project need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects.<sup>10</sup> Parking supply/demand varies by time of day, day of week, and seasonally. Decreased availability of parking spaces results in changes to people's mode and pattern of travel. However, the City of Oakland, in its review of the proposed Project, wants to ensure that the Project's measures to lessen parking demand (by encouraging the use of non-auto travel modes) would result in minimal adverse effects to the neighborhood surrounding Bentley School, and that any secondary effects (such as impacts to air quality, due to drivers searching for parking spaces) would be minimized. As such, although not required by CEQA, parking conditions are evaluated in this document.

Parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as they look for a parking space. However, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles or travel by foot), may also induce drivers to shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service, in particular, would be in keeping with the City's "Transit First" policy.

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply is typically a temporary condition, often offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed Project are considered less than significant.

This EIR evaluates if the Project's estimated parking demand (both Project-generated and Project-displaced) would be met by the Project's proposed parking supply or by the existing parking supply within a reasonable walking distance of the Project site. Project-displaced parking would result from the Project's removal of standard on-street parking, City or Agency owned/controlled parking and/or legally required off-street parking (parking that is not open to the public which is legally required).

The Hiller Campus of Bentley School is a K-8 institution; therefore, parking demand not associated with student pick-up and drop-off, or special events, would primarily derive from school staff members. Currently, the school employs a total of 62 employees. According to the school, about 10 school employees work part-time, and their working schedules vary widely.

Assuming that half of the part-time staff works a completely different (i.e., non-overlapping) shift than the other half of the part-time staff, and that all staff members would drive to the school independently, faculty and staff at the school generate a demand for 57 parking spaces (maximum) at any given time. The school has two on-site parking lots. The upper lot has 23 parking spaces, and is accessed via Hiller Drive. The lower lot provides 20 parking spaces and is accessed via Tunnel Road. There are several parking spaces available at the Head Master's House; however, these spaces are not being used for general school staff, and were therefore excluded from this parking evaluation. The school provides approximately 12 bike parking spaces.

---

<sup>10</sup> San Franciscans Upholding the Downtown Plan v. the City and County of San Francisco (2002) 102 Cal.App.4th 656.

All of the 43 on-site parking stalls have been assigned to full-time staff members. The remaining 14 (25 percent) of the school staff members would use on-street parking, primarily on Hiller Drive north of the school, and south of the school along the Firestorm Memorial Garden (except during the school’s unloading/loading hours, when long-term parking adjacent to the Firestorm Memorial Garden is prohibited). There are currently no on-site parking spaces designated for school visitors and guests. The number of school visitors is not anticipated to be substantial, particularly during the peak hours when the highest levels of traffic congestion occur. During active school session hours, visitors are permitted to park adjacent to the Firestorm Memorial Garden and elsewhere on Hiller Drive. Adequate parking supply exists in the vicinity of the Project site to accommodate school visitors throughout the day.

Some of the students’ parents/guardians also utilize on-street parking to drop-off and pick-up students. These on-street parking spaces are not solely used by persons associated with Bentley School. Local residents, as well as staff and parents/guardians from Kaiser Elementary School, also use these on-street spaces. Table IV.B-11 summarizes the on-street parking inventory and maximum occupancy during the peak hours of school activity. There are additional on-street parking spaces available further north of the school on Hill Court, and on Hiller Drive north of Hill Court. Field observations indicate that, typically, there are a very small number of vehicles parked on Hiller Drive north of Hill Court. As shown in Table IV.B-11, the west side of Hiller Drive north of the Bentley School is typically fully occupied (during peak periods) with Bentley School-related traffic. There is a small number of Bentley School parents/guardians that park on the east side of Hiller Drive, or north of the school beyond Hill Court. During off-peak hours (i.e. 8:30 a.m. to 2:30 p.m.), on-street parking demand is substantially reduced, and there is a surplus of unused on-street parking spots (meaning that School staff without parking lot spaces can park their vehicles on the street during the school day without utilizing all on-street spaces).

**Table IV.B-11: Existing On-Street Parking Inventory**

<b>Location</b>	<b>Total Spaces Available</b>	<b>Typical Max. Occupancy During AM Peak (7:30 a.m. – 8:30 a.m.)</b>	<b>Typical Max. Occupancy During After School Peak (2:30 p.m. – 3:30 p.m.)</b>
Hiller Dr. North of School: West Side	15	15 (15)	15 (15)
Hiller Dr. North of School: East Side	15	6 (5)	9 (6)
Hiller Dr. South of School: West Side (Time Restricted)	15+	N/A Restricted	N/A Restricted

Notes:

Parking occupancy: x(x): total vehicles including those associated with local residents and Kaiser School (estimated Bentley School only vehicles, including parents and staff).

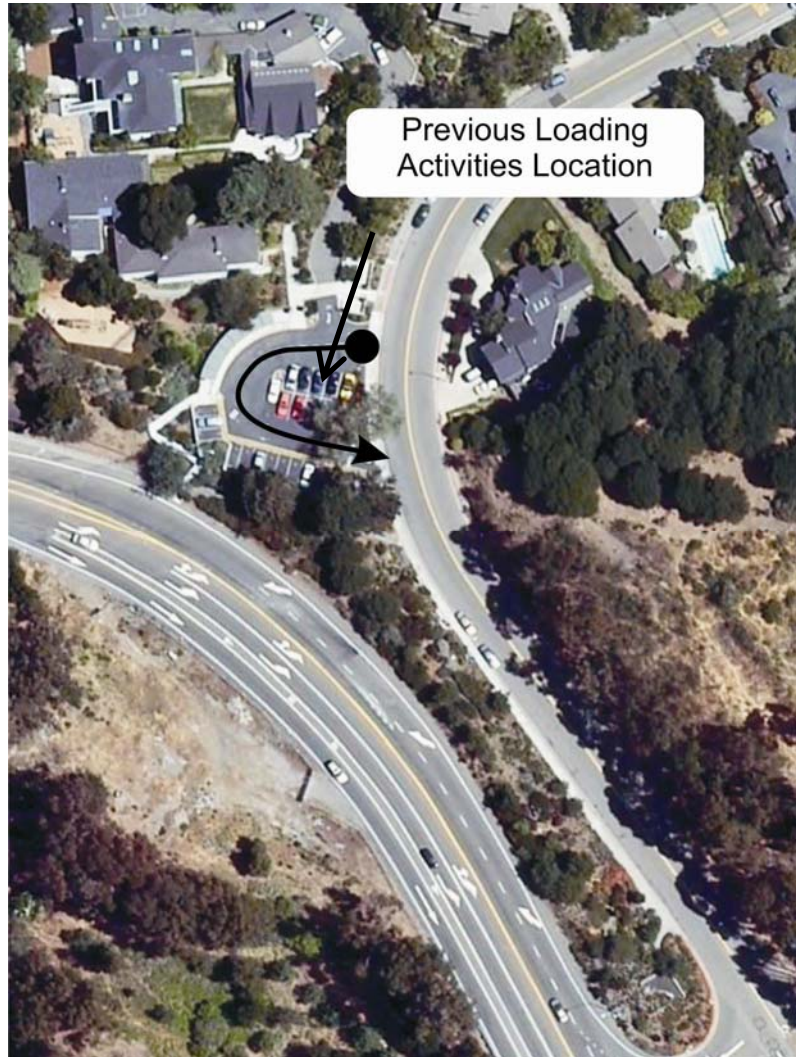
A maximum of seven vehicles were observed parking along Hiller Drive south of the school, outside of the Restricted No Parking hours at approximately 9:00 a.m.

Currently, legalization of the lower parking lot (accessed from Tunnel Road) is subject to approval by the City of Berkeley. If the City of Berkeley rejects the school’s application for legalizing the lower parking lot, demand for on-street parking along Hiller Drive and potentially along Hill Court would increase. However, this increase in demand for on-street parking spaces would not result in physical environmental impacts.

c. **Site Circulation, Accessibility, and Local Traffic Queues.** This section includes a discussion of issues associated with vehicle and pedestrian circulation around the school.

**(1) No Transportation Demand Management:**

In 2004 and 2005, prior to implementation of the Transportation Program, student pick-up and drop-off activities occurred within the school access loop driveway on Hiller Drive, as shown in Photo 1. Based on previous field observations, the flagmen would allow approximately six vehicles to enter the loop at one time to unload or load students. School administrators and parents/guardians assisted the unloading/loading activities. This student loading procedure was found to be relatively inefficient, resulting in long queues for the northbound left turn movement entering the school from Hiller Drive. In the morning peak hour, maximum queues were approximately 16 vehicles; in the afternoon peak hour, approximately 19 vehicles were observed in the queue. The northbound travel lane provided adequate width for vehicles to queue while waiting to make a left turn into the school. Typically, cars lined up close to the center divider line, allowing northbound vehicles to pass on the right hand side.



*Photo 1: Student Loading Location in 2004*

**(2) With Transportation Demand Management:**

As part of the comprehensive transportation program implemented by the school from 2005 to 2007, student pick-up and drop-off activities were moved to the curb-side along the Firestorm Memorial Garden, immediately south of the school (as shown in Photo 2). The school access loop effectively elongates the queuing area, which extends south along Hiller Drive to the Firestorm Memorial Garden. Based on field observations conducted in late 2007 and early 2008, the new designated loading area greatly enhances the circulation and congestion aspects of student drop-off and pick-up activities. The maximum queue observed on the northbound left turn movement (from Hiller Drive into the school driveway) was four vehicles in the morning peak hour, and two vehicles in the after school peak hour. There are virtually no queues on the southbound right turn entering the school. With the transportation program, longer queues than observed could occur, but these would be of short duration. The new loading zone on Hiller Drive adjacent to the Firestorm Memorial Garden provides expanded capacity for unloading and loading activities, allowing a maximum of up to 11 vehicles per drop-off or pick-up; the driveway loop itself has capacity for an additional six to seven vehicles. The northbound travel lane on Hiller Drive provides adequate width for northbound through vehicles to safely pass on the right hand side of the left-turning vehicles, as left-turning vehicles queue up close to the center divider line.

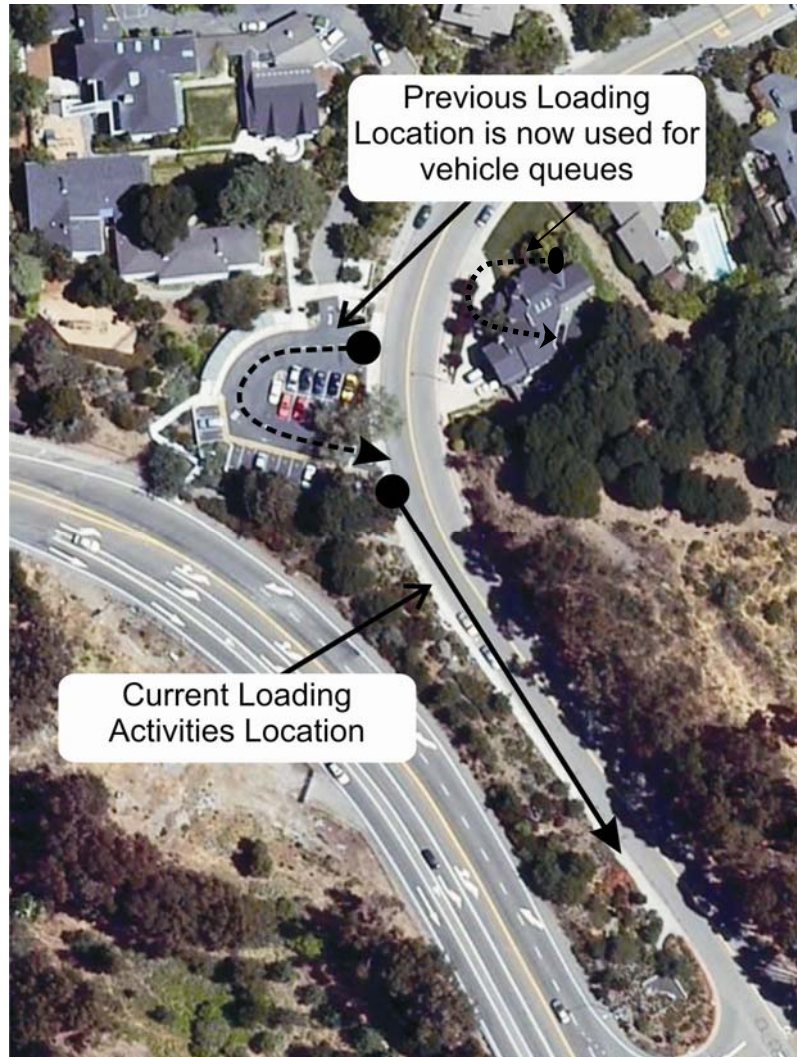


Photo 2: Current Student Loading Location

During special school events, parents are required (per the school's Traffic and Parking Handbook) to park their vehicles at an off-campus location (once on-site lots are filled); the school sends out advance instructions prior to each event, and staff are stationed at each parking lot to manage traffic.

**(3) Observed Traffic Queues at Hiller Drive and Tunnel Road Intersection (Project).**

Based on recent field observations, the general queue for the southbound approach to the Tunnel Road/Hiller Drive intersection is about 10 cars in the morning peak hour. A majority of the vehicles

clear the queue within one cycle of the signal light, while occasionally, about two cars must wait for the next cycle to clear the intersection.

During the beginning 10 to 15 minutes of the after-school peak hour (approximately 3:00-3:15 p.m.), the maximum queue observed on the southbound approach of the Tunnel Road/Hiller Drive intersection extends to the vicinity of the school loop exit point, and consists of approximately 20 vehicles. Similar to the morning peak hour, a majority of the vehicles clears the queue within one cycle of the signal light, with a very small portion of the vehicles required to wait for a second signal cycle to clear the intersection. After 3:15 p.m., the southbound approach queues are typically minimal, and dissipate quickly with all vehicles clearing the light within one cycle length.

The Bentley School has a staggered student dismissal schedule. For Monday through Thursday, dismissal times are as follows:

- Grade 1: 2:40 p.m.
- Grade 2-3: 3:00 p.m.
- Grade 4-5: 3:15 p.m.
- Grade 6-8: 3:30 p.m.

Times shown above are actual dismissal bell ring times; students typically take an additional 5 to 10 minutes to arrive at the pick-up area and depart. Field observations show that the peak time for pick-up activities typically occurs from 3:15 p.m. to 3:45 p.m. (which does not coincide with the peak queue behind the intersection of Tunnel Road and Hiller Drive, from 3:00 to 3:15 p.m.). Therefore, trips generated by Kaiser Elementary School (located one block away on Hill Court) are anticipated to be a major contributor to peak queue length between 3:00 p.m. and 3:15 p.m.

As described above, during normal operations, the student pick-up and drop-off area along the Firestorm Memorial Garden curb functions efficiently, resulting in minimal queues in both the northbound and southbound directions on Hiller Drive. However, during Project site visits, Dowling Associates observed two incidents that interrupted normal traffic operations, and resulted in severe congestion on Hiller Drive. These observed incidents are likely to recur if not addressed. None of these observed incidents rise to the level of a significant impact. Associated recommendations are presented for consideration by decisionmakers to reduce already less-than-significant impacts.

- On January 8, 2008, at 8:16 a.m., the garbage pick-up time coincided with the busiest part of the morning peak period. The school's garbage dumpsters are located at the corner of the loop access exit. The unloading of the garbage dumpsters takes place on Hiller Drive (primarily on the southbound direction travel lane). This activity temporarily blocked southbound traffic, and immobilized school traffic circulation for approximately 3 minutes, resulting in an unusually long queue for vehicles making a left-hand turn into the school driveway from Hiller Drive. The queue extended nearly to the signalized intersection of Hiller Drive and Tunnel Road. The southbound queue was approximately six vehicles at its maximum. After the garbage truck completed its collection and left the school, it took approximately another 8 minutes for the northbound queues to dissipate and return to normal operations.

Recommended Measure TRANS-2: School staff has indicated that the typical garbage pick-up time is arranged to occur outside of the busiest student drop-off hour. However, the school should

work with the appropriate waste management agency to ensure that garbage pick-up at the school does not occur between 8:00 a.m. and 8:45 a.m.

- On December 4, 2007, at 3:35 p.m., Dowling Associates observed that a vehicle parked on the curb side drop-off area adjacent to Firestorm Memorial Garden was left with no driver for approximately 2 minutes (even though parents/guardians are prohibited from leaving their vehicles in the queue). This parked vehicle halted the flow of traffic through the driveway loop, resulting in a long queue in the northbound direction on Hiller Drive for approximately 4 minutes. The longest queue for northbound traffic extended to the signalized intersection of Hiller Drive and Tunnel Road. Southbound traffic continued to operate normally.

Recommended Measure TRANS-3: Currently, during the after school pick-up period, the school stations one traffic assistant at the Firestorm Memorial Garden, and two traffic assistants (including one flag person) at the parking area within the driveway loop. The school should station at least one more traffic assistant near the exit point of the driveway loop during the after-school pick-up period. Together, these three staff members (excluding the flag person) should ensure that all drivers remain in their vehicles, and that the queue moves efficiently. In the morning peak hour, the school typically assigns nine people (including one flag person) to assist in the drop-off activities along the Firestorm Memorial Garden and driveway loop. Field observations confirm that this level of staffing is adequate to ensure that the queue continues to move. This number of staff members should continue to be assigned to ensure continued efficient flow during the morning peak hour.

**d. Vehicle Collisions.** Dowling Associates collected City of Oakland collision data (from March 2004 to March 2007) for the Tunnel Road and Hiller Drive intersection, which is the key signalized intersection in the vicinity of the Project site. For the 3-year period, five collisions were recorded, one of which took place during the afternoon peak hour at 4:00 p.m. The other incidents occurred during non peak hours. Primary factors included unsafe speed (one case), improper turning (two cases), “traffic signal and signs” (which could include running a red light or stop sign, or improperly yielding) (one case), and “other factor” (one case). Based on these data, it appears that the Tunnel Road and Hiller Drive intersection operates relatively safely, with few collisions. In addition, because these incidents occurred outside of the typical peak school pick-up and drop-off hours, it is likely that school traffic did not contribute to these incidents. No collisions have been recorded at the intersection of Hiller Drive and the school driveway over the past 3 years.

**e. Potential Hazards.** Potential roadway hazards in the vicinity of the school driveway on Hiller Drive are summarized below, with recommendations for improvement. None of the identified potential hazards rise to the level of a significant impact. Rather, recommended measures to address potential hazards are presented for consideration by the decisionmakers to reduce already less-than-significant impacts.

- **Jaywalking:** There are “School” warning signs on Hiller Drive to alert drivers as they approach Bentley School. However, there is no pedestrian crossing striped in front of the school on Hiller Drive. Observations indicate that parents/guardians park on the east side of the street (immediately north of the school), and jaywalk across Hiller Drive to the school. This jaywalking creates a hazardous condition for both drivers and pedestrians, particularly for southbound downhill traffic with limited sight distance where Hiller Drive bends.

Recommended Measure TRANS-4: The school should continue to educate parents/guardians and students, and to better enforce the no jaywalking policy. The school should ensure that parents/guardians park only on the west side of Hiller Drive, or on Hiller Drive north of Hill Court, where there is a crosswalk for pedestrians to safely cross the street. Parents/guardians who do not comply with the proposed regulation should be penalized as set forth in the school's Traffic and Parking Handbook.

- **Traffic Cones:** Cones that demarcate the loading/unloading zone on Hiller Drive are frequently run over or pushed by vehicles, and may affect the main traffic stream of Hiller Drive in the southbound direction.

Recommended Measure TRANS-5: The school should coordinate with City of Oakland staff to purchase, install and maintain delineators (which are attached to the pavement and thus less prone to be displaced by motor vehicles), instead of orange traffic cones. The delineators would be more stable than cones and would also enhance visibility.

- **U-Turns on Hiller Drive:** Parents/guardians make U-turns on Hiller Drive just north of the school, in order to temporarily park on the west side of Hiller Drive, and pick-up or drop-off students. U-turns on Hiller Drive in the vicinity of the school results in a traffic safety hazard for both northbound and southbound traffic, particularly because the U-turn typically requires two back-and-forth maneuvers.

Recommended Measure TRANS-6: The school should continue to educate parents/guardians regarding potential hazards of U-turn movements on Hiller Drive. Parents/guardians who do not comply with the proposed regulation should be penalized as set forth in the school's Traffic and Parking Handbook. A feasible U-turn location is the cul-de-sac on N. Hill Court.

- **Prohibited Left Turns at Driveway Exit:** Even though drivers exiting the school are prohibited from making left turns at the school exit on Hiller Drive, drivers occasionally make a left turn onto Hiller Drive, particularly during the after-school peak hour. Left turning movements are problematic in that they may increase the risk of collisions as well as cause delay for drivers entering and exiting the school driveway.

Recommended Measure TRANS-7: The school should continue to educate parents/guardians about the driveway exit left turn prohibition, and better enforce the prohibition. Parents/guardians who do not comply with the proposed regulation should be penalized as set forth in the school's Traffic and Parking Handbook.

- **School Driveway Exit:** At the exit of the school driveway, right-turning vehicles do not always yield to southbound through traffic. As the vehicles exit the driveway and pull into the curb side drop-off area along the Firestorm Memorial Garden, they make a tight right turn, and attempt to avoid a conflict with southbound through traffic. However, some of the southbound vehicles veer over the center double yellow divider (to avoid hitting cars turning right onto Hiller Drive), creating an unsafe condition.

Recommended Measure TRANS-8: The school should continue to educate parents/guardians, and reiterate that there is only one through traffic lane and that exit vehicles are required to yield to the southbound through traffic. Parents/guardians who do not comply with the proposed regulation should be penalized as set forth in the school's Traffic and Parking Handbook.

**f. Effectiveness of Transit.** As discussed earlier in this section, transit services to and from the school are provided by buses that operate on two AC transit routes and Michael's Transportation Service. In general, the school has been proactive in encouraging transit use through: provision of free AC Transit passes, funding the administrative costs of Michael's Transportation Service, and notifying parents/guardians of transit options via memoranda and the Traffic and Parking Handbook. Under a maximum enrollment of 360 students (assuming that both Lower and Middle School students are enrolled), it is expected that 79 students would ride buses to school in the morning and 28 would take buses home after school. The school should continue to maintain a high level of transit ridership. The potential effects on transit usage of the proposed transfer of Middle School students are discussed earlier under the "Transfer of Middle School Students Impacts" subsection.

Recommended Measure TRANS-9: The school should continue to provide free AC Transit bus passes to students, and continue to sponsor the operation of Michael's Transportation Service. In addition, in order to further reduce vehicle trips in and out of the school during the peak hours, the school should consider sponsoring additional shuttle services for students in areas under-served by transit.

**g. School Traffic and Parking Handbook.** The school has developed a comprehensive Traffic and Parking Handbook for the Hiller Campus. The handbook was developed in September 2005, with a supplemental memorandum added prior to the 2007-2008 school year. The memo contains procedures for the new curb-side pick-up/drop-off area along the Firestorm Memorial Garden. The handbook provides clear and understandable directions to parents/guardians regarding the protocol and rules governing transportation and access to the school. However, the handbook by itself is likely not effective in ensuring full compliance with the school's transportation rules.

Recommended Measure TRANS-10: School staff should establish mandatory meetings with parents/guardians to review transportation instructions and penalties for violators. These meetings should be conducted once per semester.

**h. Peak Traffic.** The school could also reduce peak periods of congestion by staggering school drop-off times in the morning and by modifying the afternoon pick-up times so that all pick-ups are avoided from 3:00 p.m. to 3:15 p.m., when traffic associated with Kaiser Elementary School is at its peak.

Recommended Measure TRANS-11: The school should establish staggered drop-off times in the morning, with durations of staggering similar to the afternoon pick-up schedule. The afternoon staggered pick-up times should be coordinated with Kaiser Elementary School so that no pick ups are scheduled between 2:55 p.m. and 3:20 p.m., to avoid contributing to peak Kaiser Elementary School traffic. Consultation shall also occur with AC Transit.

**i. Long-term Monitoring.** The school has established policies in the Traffic and Parking Handbook and the Emergency Management Plan that are intended to reduce traffic congestion and to allow emergency vehicles to access the site and the neighborhood around the Project site. However, there is a need for ongoing monitoring to ensure that the established policies and the Recommended Measures listed above (if adopted) are being fully implemented, and are effective in: 1) reducing congestion to an acceptable level; and 2) ensuring that emergency vehicles are able to access the school and surrounding neighborhood in the event of an emergency.

Recommended Measure TRANS-12: The school should hire, in consultation with the City of Oakland, two independent and qualified rule enforcers to ensure that the school maintains an adequate number of staff/volunteers to assist with pick-up and drop-off activities, and to ensure that guardians and the school comply with the traffic and parking rules outlined in the Traffic and Parking Handbook, Emergency Management Plan, and Recommended Measures outlined in the Bentley School Major Conditional Use Permit Final EIR. The independent rule enforcers should submit a written monitoring report to the Community and Economic Development Agency Planning Division and Public Works Agency Traffic Engineering Division once a month outlining: 1) vehicle queue lengths in the morning and afternoon (numbers should be reported every 10 minutes); 2) identification of excessive queues (northbound queues on Hiller Drive extending to the signalized intersection of Hiller Drive and Tunnel Road and/or blockage of southbound traffic on Hiller Drive north of the school driveway); 3) changes in traffic management that have been implemented to reduce or eliminate excessive queues/potential for blockage of emergency vehicles; 4) incidents of illegal behavior, and follow-up actions regarding individuals with numerous violations, per the Traffic and Parking Handbook; and 5) penalties imposed on drivers that violate rules. Initially, reports should be submitted once a month during the entire current school year following planning approval and the applicant should petition the Director of Planning to reduce the frequency of monitoring and reporting if compliance is achieved.

Recommended Measure TRANS-13: The Oakland Fire Marshall's Office should make regular, unannounced visits to the school (the frequency, timing, and types of visits should be at the Fire Marshall's discretion based on need for visits and compliance by the school) to verify that adequate emergency vehicle access is being maintained during peak pick-up and drop-off periods. The Fire Marshall should consult with the independent rule enforcer(s) to identify modifications to the circulation rules, if emergency access problems are identified. The school should fund these Fire Marshall services.

Recommended Measure TRANS-14: The school should designate a Board of Trustees member to be responsible for overseeing the school's commitment to reducing traffic congestion and preserving emergency access. The appointed member should receive regular updates from the rule enforcer(s) regarding the effectiveness of implemented traffic measures, work with the rule enforcer(s) and school staff to correct problems, provide regular updates on traffic/emergency access issues to the Board, ensure the Traffic and Parking Handbook is up-to-date and effective, and ensure that adequate funding is allocated to maintain and enhance all transportation programs.

