



Transportation
Consultants

November 10, 2014

Mr. Steve Noack
PlaceWorks
1625 Shattuck Avenue, Suite 300
Berkeley, CA 94709

**Re: TJKM Peer Review of Lafayette Residential Development
Transportation Impact Study Dated September 23, 2014**

Dear Mr. Noack:

This letter summarizes TJKM’s review of the September 23, 2014 Memorandum from Dan Hennessey and Ellen Poling of Fehr and Peers to Chad Kiltz of the Lennar Corporation regarding a proposed mixed use project to be located at the northwest corner of Mount Diablo Boulevard and Dolores Drive in Lafayette. TJKM also reviewed a set of project documents dated October 10, 2014 and a second set dated October 24, 2014. The project consists of 66 apartment units, a 4,500 square foot restaurant, and 1,400 square feet of retail uses. The current proposal consists of full access on Dolores Street leading to an underground garage and right in/right out access on Mount Diablo Boulevard, also leading to the same underground garage. Earlier proposals of the project evaluated various combinations of access on the two frontages, including separate designs with exclusive unlimited access on each of the two frontage streets.

TJKM’s comments on various sections of the report are as follows:

Data Collection and Existing Conditions

In earlier versions of the Fehr and Peers report, there was concern raised about the accuracy of the existing conditions intersection counts, in part because the counts may have been made on a day in which schools did not operate with standard hours. Fehr and Peers original counts were made on Wednesday, March 12, 2014; a second set of counts was made on Thursday, May 22, 2014. The second counts showed seven percent higher a.m. peak counts while the p.m. counts were four percent lower. Accordingly, the original counts and calculations were utilized as it was felt that these differences were within typical ranges of count variation.

TJKM was asked to make a third set of counts, which were made on Thursday, June 5 before the school year ended. TJKM evaluated the intersection delay and resulting level of service and compared it with the original counts, which were also utilized in the September 23 report currently being reviewed. The results of this analysis are shown in Table 1:

Table 1: Comparison of Existing Level of Service Results

Intersection	Peak Hour	Fehr & Peers TIA		TJKM Analysis	
		Delay (sec)	LOS	Delay (sec)	LOS
Mount Diablo Boulevard / Risa Road / Village Center	AM	8.8	A	10.0	B
	PM	10.5	B	8.8	A
Mount Diablo Boulevard / Dolores Drive / Mountain View Drive	AM	21.2	C	22.5	C
	PM	26.4	C	24.0	C
Mount Diablo Boulevard / Happy Valley Road	AM	16.9	B	31.3	C
	PM	25.7	C	35.2	D

Date of Counts: Fehr and Peers March 12, 2014; TJKM June 5, 2014

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Since the counts were made on different days, it can be expected that the results would differ somewhat. It can be seen that two of the three intersections had very similar results even though made at different times. At Mount Diablo Boulevard and Risa Road/Village Center, TJKM noted slightly increased delay in the morning and slightly reduced delay in the evening. At Mount Diablo Boulevard and Dolores Drive/Mountain View Drive the results were similar – TJKM found slightly higher delay in the morning and slightly lower delay in the evening, with no change in level of service.

At Mount Diablo Boulevard at Happy Valley Road, TJKM’s level of service results were noticeably poorer than those included in the Fehr and Peers study, even though the traffic volumes during the two study periods were similar. It appears that the Fehr and Peers calculations did not consider the existing side street split phasing traffic signal operations.

Revised Future Traffic Signal Timing

The Metropolitan Transportation Commission retained TJKM to provide improved signal timing along Mt. Diablo Boulevard. TJKM has worked with the City staff and updated traffic signal timing has been recommended for each signalized intersection along Mt. Diablo Boulevard. The new signal timing has been approved by the City and will be installed in the near future. The new signal timing is expected to improve traffic conditions along Mt. Diablo Boulevard but may result in increased delays and queuing along the side streets. At the City’s request, TJKM analyzed the level of service and intersection queuing using the new signal timing. The results are shown in Table 2 below.

Table 2: Intersection Level of Service (LOS) and Delay With Updated Signal Timing

Intersection	Scenario	Existing	Existing + Project	Cumulative	Cumulative + Project
Mt. Diablo Blvd/Dolores Drive	Delay	19.1(23.6)	21.9(24.5)	21.3(30.3)	22.2(33.0)
	LOS	B(C)	C(C)	C(C)	C(C)
Mt. Diablo Blvd/Happy Valley Road	Delay	30.2(35.7)	30.3(35.9)	38.2(61.4)	38.7(66.2)
	LOS	C(D)	C(D)	D(E)	D(E)

Note: Reported Delay and LOS are AM peak hour (PM peak hour).

As compared with the results shown in the Table 1 above, it can be seen that with the new signal timing in place, the level of service results at the two key intersections will be similar to those resulting from the original assumptions.

Project Trip Generation, Distribution and Assignment

Trip generation is treated conservatively in that several existing businesses are located on the site of the project and currently generate daily and peak hour trips. These trips are not accounted for in the traffic study; in many studies such existing trips are subtracted from the new site trips prior to the assessment of project impacts. Thus, some of the project impacts identified in the study, such as queuing and intersection delay, may be slightly overstated.

TJKM agrees with the trip distribution and assignment shown in the Fehr and Peers report.

Site Plan and Circulation

Truck Loading Dock The project proposes to utilize Dolores for maneuvering into and out of the truck dock. More information should be provided. TJKM suggests that Auto Turn or a similar program be utilized to demonstrate how truck maneuvering would take place. Also, the traffic study should indicate the approximate number of trucks per day or week that would be using the dock and the size of the trucks that would be utilized. There is the potential for a truck to overhang the sidewalk and interfere with visibility and sight distance of and from autos using the garage entrance. The photo illustrates the “tightness” of Dolores in this area.



Mount Diablo Boulevard Access This is an important issue of the new project because Mount Diablo Boulevard is a busy arterial and because of the numerous driveways along the roadway near the proposed project. In the current project, the Mount Diablo Boulevard access point is proposed to be restricted to right turns in and right turns out.



TJKM evaluated an option of also allowing eastbound left turns into the site, but found the disadvantages of such a maneuver (difficulty of regulating left turns in the context of the other traffic movements in the area) outweighed the potential advantages (slightly reduced p.m. traffic on Dolores Drive).

However, it appears the proposed triangular island in the driveway area that is intended to prevent left turn movements into and out of the

development is likely to be ineffective. Mount Diablo Boulevard is very wide at that location and is equipped with a two-way left turn lane, which would facilitate improper left turns into the garage entrance. TJKM suggests that the raised median be extended along a portion of the site frontage to reduce the potential for improper entrances to the garage by eastbound motorists. As shown in the photo, the current striping in the area would not be conducive to restricting improper maneuvers.

If a four-foot raised median were constructed along the south edge of the two-way left-turn lane extending some 80 feet westerly, left turns into the building supply driveway and the office building to the west would still be physically possible, but wrong-way eastbound left turns into the new site would be restricted. The sketch shown in Figure 1 illustrates one possibility. NO LEFT TURN signs and markings would be installed facing eastbound traffic. In the sketch, there is a break in the proposed median to continue to allow left turn movements into and out of the Diamond K



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MT. DIABLO BLVD
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FIGURE 1

business. If this opening were not provided, left turns in and out of the new development would be physically impossible. However, the median would also eliminate the possibility of left turns in and out of the main driveway of the Diamond K development on the south side of Mount Diablo Boulevard. All movements into and out of Diamond K would still be possible, but would require U-turns at the ends of the median coupled with the allowed right in – right out movements. The City could consider constructing such a median closure but it would be advisable to investigate the current volume of left turns in and out of Diamond K by customers, employees, and delivery vehicles. A review of the accident history associated with left turners using the driveway should also be made. It is beyond the scope of this peer review to conduct such a study, but the City may wish to undertake such a study as a separate issue.

Without the median closure, the garage exit would need to have conspicuous RIGHT TURN ONLY signs to alert outbound motorists of the restriction.

If the proposed median were constructed (with or without the Diamond K closure), an additional issue would be created. At the west end of the proposed Lennar project there is an existing driveway serving a retail complex fronting on the north side of Mount Diablo Boulevard with a multi-family development in the rear. Currently, access to this driveway is unrestricted; left turns in and out of the driveway are facilitated by the two-way left-turn lane on Mount Diablo Boulevard. (This driveway is directly across the street from the driveway that serves City offices.) The proposed median would not preclude left turns out of the driveway but would eliminate the acceleration area for the left turns. If the median were installed, the City may wish to consider No Left Turn restrictions by motorists accessing eastbound Mount Diablo Boulevard. All other movements into and out of the driveway would not be affected by the proposed median. Also, movements in and out of the City offices on the south side of the street would not be affected.

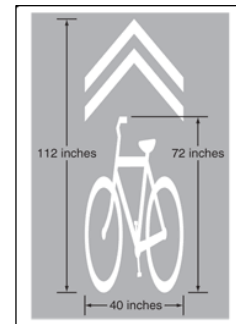
Eastbound U-Turns at Dolores Drive The proposed site plan provides a widened sidewalk along the Mount Diablo frontage just west of Dolores. This widened sidewalk results in narrowed pavement and a shorter crosswalk at the signalized intersection, which is positive. However, the change results in insufficient space for the eastbound to westbound U-turn movement. TJKM recommends that 30 feet of pavement be provided between the sidewalk and the nearest edge of the median. This would require reducing the sidewalk by about five feet, but would still result in a wider sidewalk area than currently exists.

Parking along Mount Diablo Boulevard The proposed project includes angle parking along the frontage of the proposed project. Given the moderate volumes along Mount Diablo Boulevard (about 15,000 two-way vehicles per day) and current “complete street” concepts being instituted by Lafayette, adding angle parking along Mount Diablo Boulevard does not seem inappropriate. Currently, angle parking exists along the south side of eastbound Mount Diablo Boulevard between Dewing Avenue and Lafayette Circle; in addition informal (unmarked) angle parking exists across the street from the proposed project along portions of the Diamond K frontage also along the eastbound lanes.

The angle parking is not needed for the project to meet required City parking requirements, although it would be useful for the project itself for convenient parking. If the angled parking stalls were restricted to two-hour limits between 9 a.m. and 9 p.m., the stalls would be available for customers of this and other nearby retail/restaurant uses during the day, while still being available for overnight residential parking. There would be adequate parking for residents and employees in the garage.

The proposed parking is shown as back-in angle parking. The rationale for back in parking is the bike lane along the site frontage; as described in the Fehr and Peers traffic study it has been demonstrated in other applications that back in parking potentially creates a safer environment when bike lanes are present. This situation occurs because unparking motorists have a better view of any bicyclists in the area. However, it is noted that the painted westbound bike lane begins at Dolores Avenue; east of Dolores a shared bike/auto lane exists. Under these circumstances, it is difficult to justify back in parking solely because of the bike lane. TJKM is of the opinion that in this circumstance, conventional head in parking may be the most appropriate scheme.

The City may wish to consider two options dealing with the combination of parking and bicycle facilities along the site frontage. If conventional angle parking is retained, it may be appropriate to extend the auto/bike shared lane that exists in other portions of the downtown past the site frontage; the separate bike lane would begin west of the project rather than at Dolores as it does now. The purpose of this would be to not give the impression to bicyclists that a separate facility exists with some added protection for bike riders. The installation of Sharrow pavement markings (illustrated) would reinforce the lack of a specific bike lane. In this instance, the City can also explore the possibility of “sliding” the boundary between the existing 25 mph speed limit (east of Dolores) and the 35 mph speed limit (west of Dolores) to a point west of the proposed project at the point where the angle parking would end and the separate bike lane would begin. In this area, a possible pavement striping and marking scheme would be to create one 12-foot wide westbound lane against the median area and a 20-foot wide westbound Sharrow lane that would provide space for through traffic, unparking vehicles, and bicycles.



A second parking option is to retain parallel parking along the site frontage. This would allow retention of a separate bike lane and the existing speed limit boundaries. In this instance, a possible striping and marking scheme would be to provide two 11-foot wide eastbound lanes, a five-foot wide marked bicycle lane, a three-foot buffer and an eight-foot wide recessed parallel parking area.

Garage parking The garage parking consists of two sections of secured resident parking areas totaling 106 stalls and 63 unsecured stalls for restaurant and retail customers and employees as well as guests of residents. The layout of the garage appears to work well and allows all categories of parkers to utilize either the Dolores Drive or Mount Diablo Boulevard entrances. TJKM recommends that only one stall be reserved for each of the 66 residential units and the remaining stalls be available to all residents. This approach will minimize the occurrence of a “filled” garage when some of the assigned stalls are unoccupied.

Queuing Near Project

Table 3 shows the queuing calculations prepared by TJKM utilizing the traffic volumes shown in the Fehr and Peers report but with the proposed new signal timing. The queues calculated by TJKM are similar to those calculated by Fehr & Peers.

Table 3: 95th Percentile Queue Lengths for Existing and Existing + Project Conditions

<i>Intersection</i>	<i>Movement</i>	<i>Storage Length</i>	<i>Existing Conditions (ft.)</i>	<i>Existing + Project Conditions (ft.)</i>	<i>Difference (ft.)</i>
Mt. Diablo Blvd. /Dolores Dr.	EBL	60	45(40)	50(62)	5(22)
	WBL	65	47(67)	45(63)	-2(-4)
	NBTL	-	92(160)	93(162)	1(2)
	SBTL	95*	89(67)	101(86)	12(19)
Mt. Diablo Blvd./Happy Valley Rd.	EBL	85	276(481)	288(490)	12(9)
	WBL	60	67(106)	67(106)	0(0)
	SBR	35	125(157)	125(166)	0(9)

Note:

Reported queues are AM peak hour (PM peak hour). *95 feet = distance from stop bar to garage entrance

The project traffic adds about one car length of queuing or less at all locations shown. The eastbound left turn lane on Mount Diablo Boulevard at Dolores has a maximum queue of 62 feet and a storage length of 60 feet (not 75 feet as shown in the Fehr & Peers report), which is an acceptable condition. However, as shown in Figure 1, TJKM suggests that the eastbound left turn lane be lengthened to accommodate any surges in demand. It appears about 20 feet of additional storage can be obtained without requiring any median tree removal.

On southbound Dolores Drive, the main interest is whether existing plus project conditions might produce queues that would block the proposed garage entrance, thereby blocking the northbound lanes as garage-bound cars await a gap in southbound traffic to enter the garage. The site plan shows about 95 feet of pavement between the stopping point for southbound vehicles and the nearest access point to the garage. The actual inbound entrance lane is located about 105 feet from the stopping point. The calculated existing queues are 89 feet in the morning and 67 feet in the evening. With project traffic added, the calculated queues are 101 feet in the morning and 86 feet in the evening. This shows that the demand and the supply are about equal in the morning with project traffic. In the evening, when most vehicles enter the garage, there is about one car length to spare. The 38 arriving afternoon vehicles amount to about one car per signal cycle on average. In Figure 1, TJKM recommends KEEP CLEAR markings on the southbound lanes near the garage entrance for those instances when the 95th percentile queue is exceeded.

The garage serving 3658 Mount Diablo Boulevard has two driveways on the east side of Dolores Drive across the street from the proposed development. The two driveways are located closer to Mount Diablo Boulevard than the entrance to the proposed garage for the new development. Any queuing on Dolores Drive would have minimal impacts on motorists using the existing entrance driveway, since most 3658 vehicles will arrive from Mount Diablo Boulevard on northbound Dolores Drive, not directly affected by southbound queuing vehicles. Vehicles exiting the existing garage would be affected by the southbound queues on Dolores Drive, which as noted in Table 3, would be about one car longer than existing conditions. Vehicles exiting the garage would queue within the garage and would not block any public streets.

As noted in the Truck Loading Dock section above, the actual truck dock is located closer to the intersection than the main garage entrance. This points out the need to closely monitor the times when this dock is used and to ensure its physical design accommodates the trucks that are likely to use it. Clearly, truck deliveries should not occur during any of the busy periods of the day.

Other Issues

1. TJKM concurs with the analysis that either a single lane or a two-lane roundabout would not be appropriate at or near this project.

2. TJKM concurs that parking should be eliminated and landscaping controlled along the entire west side of Dolores Drive to preserve sight distance.
3. TJKM suggests the City consider rectangular rapid flash beacons instead of the less effective in-pavement flashers at the proposed Dolores Drive crosswalk.

TJKM will be pleased to respond to any comments on this review.

Very truly yours,

A handwritten signature in black ink that reads "Chris D. Kinzel". The signature is written in a cursive, flowing style.

Chris D. Kinzel, P.E.
Vice President