FEHR PEERS

TECHNICAL MEMORANDUM

Date: June 18, 2018

To: Rjahja Canlas – City of Roseville
Bibiana Alvarez – AES

From: John Gard and Carly Panos – Fehr & Peers

Subject: ***Pistachio Park Draft Traffic Sufficiency Analysis***

RS18-3644

Fehr & Peers has completed a traffic sufficiency analysis for the proposed Pistachio Park project to be located on Parcel F-56 of the West Roseville Specific Plan. The project is located east of Westpark Drive and west of Hayden Parkway on both sides of the planned westerly extension of High School Road (see **Figure 1)**. It would be situated adjacent to a planned new high school. Accordingly, some of the park amenities would be used by high school sports teams as "joint use" facilities, similar to what occurs presently at Woodcreek High School and Mahany Park.

According to the project site plan (*F-56 Park Site Master Plan*, Callander Associates, August 21, 2017), the project includes a variety of active uses including softball/baseball fields, tennis courts, and pickleball courts, as well as approximately 10-acres of passive park space. The project is consistent with the land use identified in the West Roseville Specific Plan, which identifies this parcel as PR – Regional Park.

The purpose of this sufficiency analysis is to evaluate whether the project would result in any new significant impacts beyond those disclosed in the *West Roseville Specific Plan and SOI Amendment Draft EIR (2004*) given the proposed land uses planned for the park. Because conditions relating to the bicycling, pedestrian, and transit systems would remain essentially unchanged, this analysis focuses exclusively on project impacts to the roadway system.

STUDY AREA AND PERIODS

The City of Roseville has historically relied on the weekday PM peak hour to characterize its street system operations and need for capital improvements because this hour generally represents the busiest hour of travel during a typical week. Accordingly, this study analyzes potential impacts associated with its typical weekday PM peak hour operations. The weekday PM peak hour within the study area occurs from 4:30 to 5:30 PM. The following six intersections were analyzed for weekday PM peak hour conditions:

1. Fiddyment Road/Blue Oaks Boulevard
2. Fiddyment Road/Hayden Parkway
3. Fiddyment Road/Pleasant Grove Boulevard
4. Hayden Parkway/High School Road
5. Hayden Parkway/Bob Doyle Drive
6. Westpark Drive/Bob Doyle Drive

These intersections were selected in consultation with City of Roseville Engineering Department staff and consider the project size, location, and expected generation/distribution of trips.

All intersections were analyzed using the *2010 Highway Capacity Manual (HCM)* (Transportation Resource Board, 2010) analysis techniques using the Synchro 9 software program.

STANDARDS OF SIGNIFICANCE

The City of Roseville's level of service policy, as well as other recent projects within the City were used to determine significance criteria. For the purposes of this study, a significant impact would occur if the project would:

1) Cause a study intersection that is currently (or projected to be) operating at LOS C or better to operate at LOS D or worse during the weekday PM peak hour;
2) Cause a study intersection that is currently (or projected to be) operating at LOS D or E to worsen by one or more LOS categories (i.e. from LOS D to E) during the weekday PM peak hour;
3) Cause a study intersection that is currently (or projected to be) operating at LOS F to experience a 12.5-second or greater increase in average vehicle delay during the weekday PM peak hour;
4) Cause the overall percentage of signalized intersections Citywide operating at LOS C or better during the weekday PM peak hour to fall below 70 percent;

For unsignalized intersections, the above criteria are applicable, but for impacts to be significant, the peak hour warrant for consideration of a traffic signal (as described in the *CA MUTCD*, 2014) must also be satisfied.

EXISTING CONDITIONS

Figure 2 shows the existing weekday PM peak hour traffic volumes, lane configurations, and traffic controls. Weekday PM peak hour traffic count data during a mid-week day in February 2018 was obtained from the City's ITS traffic count database for the signalized study intersections. Data collected on a mid-week day in December 2015 was used for all unsignalized intersections. The reasonableness of those counts were checked by comparing the segment volume to the February 2018 counts at nearby signalized intersections.

Table 1 displays the existing weekday PM peak hour traffic operations analysis results at the six study intersections (refer to Appendix A for detailed calculations). As shown, all study intersections currently operate at LOS C or better.

Table 1:
WEEKDAY PM PEAK HOUR INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

Intersection	Control	PM Peak Hour	
		Delay	LOS
1. Fiddyment Rd / Blue Oaks Blvd	Signal	22	C
2. Fiddyment Rd / Hayden Pkwy S	Signal	9	A
3. Fiddyment Rd / Pleasant Grove Blvd	Signal	34	C
4. Hayden Pkwy / High School Rd	Side-Street Stop Control	3 (9)	A
5. Hayden Pkwy / Bob Doyle Dr	All-Way Stop Control	9	A
6. Bob Doyle Dr / Westpark Dr	All-Way Stop Control	9	A

Notes: [1] LOS and delay (sec/veh) results for signalized and all-way stop controlled intersections are reported for the overall intersection. LOS and delay at side-street stop controlled intersections shown for both worst-case street side street movement (in parentheses) and intersection as a whole.
Source: Fehr & Peers, 2018

EXISTING PLUS PROJECT CONDITIONS

This section analyzes the impacts of the proposed project assuming the proposed facilities are being used for typical weekday evening activities. In other words, they do not assume peak or atypical activities such as high-school sporting events, tennis court tournaments, or major gatherings in the passive park. While such activities are expected to occur, it is customary to analyze proposed land developments for typical conditions. Analyses for these types of 'peak' conditions could lead to impacts that result in mitigations that over-design the surrounding transportation infrastructure.

Trip Generation

Project trip generation estimates for the passive park space, tennis courts, and pickleball courts were based on trip rates published in the *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, 2017). For the softball/baseball fields, a reasonably conservative estimate was made in which all three fields are simultaneously in use for high school team practice. The following describes the number of players, coaches, etc. associated with the softball/baseball fields and their expected travel characteristics. Team size and travel characteristics are based on typical weekday conditions at similar high schools in the area (e.g., Woodcreek and Roseville High School).

High school softball and baseball seasons take place in Spring, with practices typically starting right after school (i.e., 3 PM practice start time). Therefore, weekday PM peak hour analysis was based on travel associated with the end of practice. The following specific team characteristics are expected based on similar high school teams:

- Junior Varsity Baseball/Softball Teams: 18 players plus two coaches per team. Based on player ages, it is estimated that one-half would be picked up by parents. Some players would be old enough to drive, and thus one-quarter are assumed to drive themselves. Another one-quarter would either walk/bike or share a ride with a teammate.

- Varsity Softball Team: 18 players plus two coaches. Based on player ages, it is estimated that three-quarters of players would drive themselves. The remaining one-quarter would either walk/bike or share a ride with a teammate.

The presumption of whether or not a high school is present is not relevant to this particular analysis because the evaluation focuses on players/coaches leaving practice during the weekday PM peak hour. Whether they traveled to the fields from an off-site location prior to practice or were already on-campus at the adjacent high school has little effect on weekday PM peak hour conditions.

Table 2 shows the project's expected weekday PM peak hour trip generation.

Table 2:
PROPOSED PROJECT WEEKDAY PM PEAK HOUR TRIP GENERATION

Land Use	Quantity	PM Peak Hour Trip Rate	PM Peak Hour Trips		
			In	Out	Total
Passive Park Space	10-acres	0.11	1	0	1
Tennis Courts	6 courts	4.21	13	12	25
Pickleball Courts	4 courts	4.21	8	9	17
Junior Varsity Baseball/Softball Fields	2 fields	N/A	18	32	50
Varsity Softball Fields	1 field	N/A	2	16	18
New Vehicle Trips			**42**	**69**	**111**

Notes: [1] Trip rates from *Trip Generation Manual, 10th Edition* (ITE, 2017) for passive park space, tennis courts, and pickleball courts using Land Use Codes 411 (Public Park) and 490 (Tennis Courts). Trip generation of sports fields is estimated based on expected travel patterns of two teams practicing at the site during a weekday afternoon. Refer to above text for number of players and expected travel characteristics.

Source: Fehr & Peers, 2018

Trip Distribution

As shown on Figure 1, project access to the southwest area of the park would be provided from Westpark Drive. Access to the northern area of the park would be provided by the planned extension of High School Road. **Figure 3** displays the expected distribution of trips during the weekday PM peak hour. These percentages consider current travel time comparisons between alternate routes and expected destinations of trips (including both high school students and users of the tennis / pickleball courts and passive space).

Study Intersection Operations – Weekday PM Peak Hour Conditions

Project trips were assigned through the study roadway network in accordance with the project's trip generation estimates and distribution percentages. Project trips were then added to existing volumes to yield the forecasts shown in **Figure 4.**

Each study intersection was reanalyzed under existing plus project conditions. **Table 4** displays the results (see Appendix A for detailed calculations). As shown, typical weekday evening activities would not worsen the LOS at any study intersections. Therefore, the project would not cause any significant impacts to the roadway system.

Table 4:
PM Peak Hour Intersection Analysis Results

Intersection	Control	Existing Conditions		Existing Plus Project Conditions	
		Delay[1]	LOS[1]	Delay[1]	LOS[1]
1. Fiddyment Rd / Blue Oaks Blvd	Signal	22	C	22	C
2. Fiddymemt Rd / Hayden Pkwy S	Signal	9	A	9	A
3. Fiddyment Rd / Pleasant Grove Blvd	Signal	34	C	34	C
4. Hayden Pkwy / High School Rd	Side-Street Stop	3 (9)	A	3 (9)	A
5. Hayden Pkwy / Bob Doyle Dr	All-Way Stop Control	9	A	9	A
6. Bob Doyle Dr / Westpark Dr	All-Way Stop Control	9	A	9	A

Notes: [1] LOS and delay (sec/veh) results for signalized and all-way stop controlled intersections are reported for the overall intersection. LOS and delay at side-street stop controlled intersections shown for both worst-case street side street movement (in parentheses) and intersection as a whole.
Source: Fehr & Peers, 2018

CUMULATIVE (2035) CONDITIONS

Project impacts under cumulative conditions were analyzed using the City of Roseville 2035 CIP Travel Demand Model. This model was recently used in the *Placer Valley Sports Complex Transportation Impact Study* (Fehr & Peers, March 2016) to develop weekday PM peak hour forecasts at all study intersections. Those forecasts assumed Parcel F-56 would have trip generating characteristics consistent with assumptions in the *West Roseville Specific Plan and SOI Amendment Draft EIR (2004)*. To evaluate how the proposed uses on this parcel would affect cumulative conditions, trips associated with the proposed uses were assigned to the roadway network according to the aforementioned trip generation and distribution assumptions.

Table 5 displays the traffic operations results at the study intersections under cumulative conditions. As shown, the project would not degrade the LOS at any study intersections. Therefore, the project would not cause any significant impacts under the cumulative conditions.

Table 5:
PM Peak Hour Intersection Analysis Results – Cumulative Plus Project Conditions

Intersection	Control	Cumulative No Project		Cumulative Plus Project	
		Delay[1]	LOS[1]	Delay[1]	LOS[1]
1. Fiddyment Rd / Blue Oaks Blvd.	Signal	38	D	38	D
2. Fiddyment Rd / Hayden Pkwy S	Signal	9	A	10	A
3. Fiddyment Rd / Pleasant Grove Blvd	Signal	52	D	54	D
4. Hayden Pkwy / High School Rd	Side-Street Stop	12	B	12	B
5. Hayden Pkwy / Bob Doyle Dr	All-Way Stop Control	11	B	12	B
6. Bob Doyle Dr / Westpark Dr	All-Way Stop Control	11	B	12	B

Notes: [1] LOS and delay (sec/veh) results for signalized and all-way stop controlled intersections are reported for the overall intersection. LOS and delay at side-street stop controlled intersections shown for both worst-case street side street movement (in parentheses) and intersection as a whole.
Source: Fehr & Peers, 2018

OTHER CONSIDERATIONS

This section discusses parking, project access and on-site circulation, and the project's effect on Vehicle Miles of Travel (VMT).

Parking

The project would include off-street parking in the following three areas:

- Parking would be provided in the most southerly area of the site adjacent to the baseball diamond. Access to this parking would be provided by a pair of inbound-only and outbound-only driveways on Westpark Drive.
- Parking would be provided in the central area of the site between the softball diamonds and tennis courts. Access to this parking would be provided by driveways located on Westpark Drive and High School Road.
- Parking would be provided in the easterly area of the site to serve the passive park. Access to this parking would be provided by a driveway on Westpark Drive.

Data collected by Fehr & Peers in 2015 at two soccer tournaments (one at Maidu Regional Park

and the other at Cherry Island Soccer Complex) indicated that both events had a peak parking demand rate of 80 spaces per field. Given the similarity of team sizes and nature of playing two games per day between these two sporting events, this value is considered useful in reviewing parking demand for the proposed project. It is typical for baseball/softball diamonds to be used for youth recreational/travel leagues. Thus, if all three fields were in use and had back-to-back games, the peak parking demand would be about 240 spaces. Additional demand could be generated by use of other on-site amenities.

When the fields are being used for high school games, substantial parking demand could also occur due to the visiting team and spectators. However, the specific parking demand can vary considerably depending on how the visiting team is transported to the facility (i.e., by private vehicle or bus) and whether players on the home team continue to park within the high school campus parking lot or move their vehicles to the field.

Since the project is proposed as a joint use facility with the high school, overflow parking demand would be accommodated by parking within the school grounds.

Project Access and On-Site Circulation Review

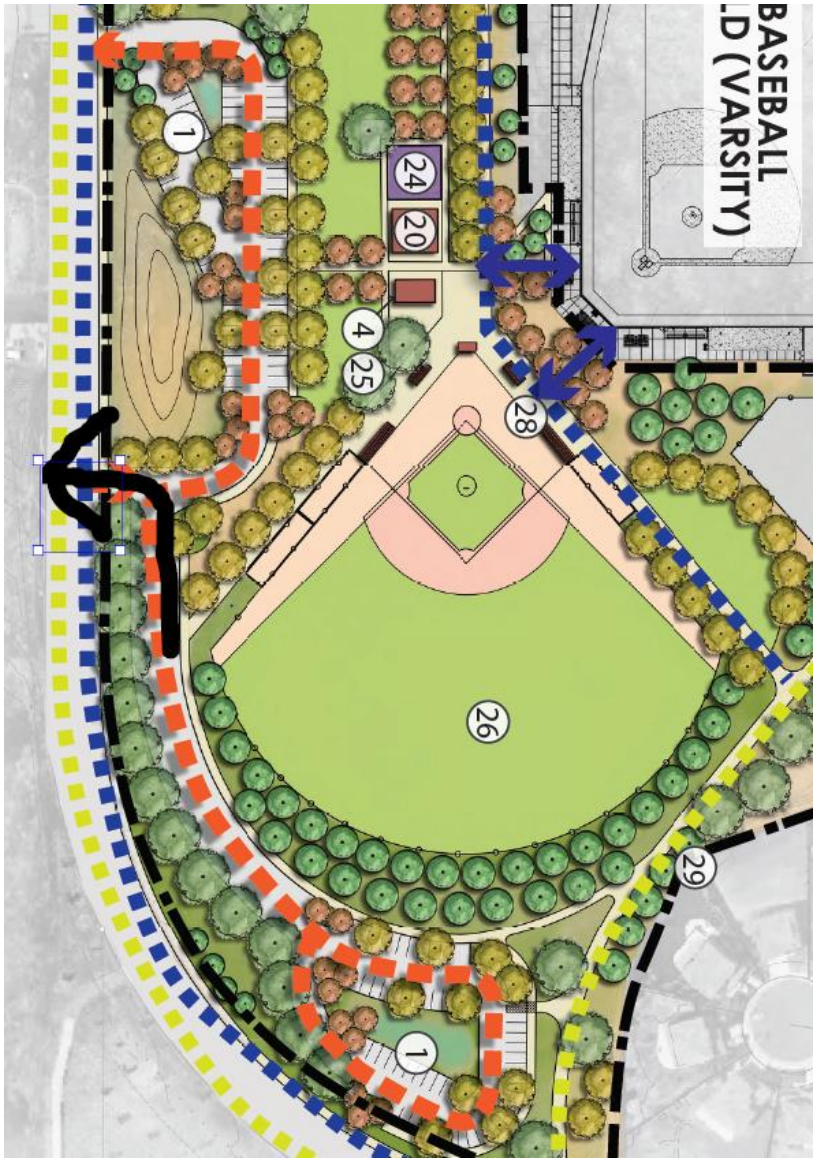
The width of Westpark Drive along the project's frontage varies from about 40 to 46 feet. Most of it currently is striped for one lane in each direction separated by a double yellow line. The northerly portion along the project's frontage is striped as a three-lane cross-section with a designated left-turn lane provided at two locations (small parking lot and entrance to wastewater treatment plant). The City of Roseville's *Bikeway Master Plan (2008)* identifies both Class I (off-street path) and Class II (on-street lane) facilities along Westpark Drive along the project's frontage. The project site plan shows lines representing a proposed pedestrian path and proposed bike circulation along the project's frontage on Westpark Drive.

Due to the conceptual nature of the site plan, detailed evaluations of proposed project features are not possible. However, the following general recommendations are offered:

1. The cross-section of Westpark Drive along the project frontage should take into consideration the planned Class II bike lane, potential need for dedicated left-turn lanes at driveways, and potential for vehicles to park on-street. The posted speed limit of 45 miles per hour should also be considered. In other areas of the City, the City has replaced Class II bike lanes with wide shoulders along park frontages to enable on-street parking, while still providing a space for bicylists to travel (when events are not being held).
2. The driveway that would provide access to the parking area located between the softball diamonds and tennis courts would be situated less than 100 feet south of the entrance into the wastewater treatment plant driveway located on the west side of the street. This offset driveway spacing is less than desired, though it is noted that trips entering/exiting the wastewater treatment plant are likely very low.

Some motorists may not comply with the inbound-only and outbound-only paired driveway configuration that would serve the most southerly parking area. Specifically, motorists exiting

from the parking beyond the baseball diamond outfield wall may decide to make a quick left-turn to exit the facility (via the inbound driveway) versus instead circulating through the larger parking lot. This movement is illustrated in the black arrow shown below.



City staff has indicated that a detailed site plan will be prepared in accordance with City of Roseville improvement/design standards such that the plan addresses the potential issues listed above.

VMT

It is difficult to calculate the project's VMT due to the high variability in level/type of use from one day to the next. However, it is clear that providing high school sports fields adjacent to a high school would have the general effect of causing less vehicle travel by student-athletes than if the facilities were instead placed at an off-site location. Additionally, it is noted that the project under consideration meets the intent of the West Roseville Specific Plan.

Traffic Sufficiency Analysis

As requested by AES, we have provided answers to the following questions:

- *Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?*

  Answer: No. The project would not cause any significant impacts at intersections within the study area under normal operating conditions, which is the standard typically applied by the City.

- *Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?*

  Answer: While there are new circumstances pertaining to City circulation policies, planned roadway improvements, and other factors, none of those changed circumstances would cause the project to have new significant impacts or substantially more severe impacts. Examples of changed circumstances include the City now analyzing weekday AM peak hour conditions as part of its significance criteria, different methods used to analyze intersection level of service, and new planned roadways associated with more recently approved specific plans (i.e., Sierra Vista).

- *Any New Information Requiring New Analysis or Verification?*

  Answer: No new information has become available that would require any new analyses beyond what is presented in this memorandum.