EXHIBIT F

FEHR PEERS

TECHNICAL MEMORANDUM

Date: July 3, 2013

To: Mike Tassano, City of Pleasanton

From: Kathrin Tellez and Sarah Nadiranto

Subject: Transportation Assessment for Commons at Gateway

WC11-2878.02

Fehr & Peers conducted a transportation assessment for the proposed Commons at Gateway (Project) in Pleasanton, California. This study evaluates peak-hour intersection and driveway operations under existing and future conditions. Recommendations to improve site access and circulation are provided. The following presents our project understanding, analysis methods, analysis results, site access and circulation, and conclusions and recommendations.

PROJECT DESCRIPTION

The Commons at Gateway is located on a 26.72 acre vacant parcel, east of Interstate 680 (I-680) and south of Bernal Avenue. The site is bound by a vacant parcel to the south, Interstate 680 to the west, the Pleasanton Gateway Shopping Center to the north, and Valley Avenue to the east, as shown on **Figure 1**.

The Project proposes to construct 307 residential units, including 210 apartment units and 97 single-family homes. Each apartment would have a 1-car private garage with additional driveway and on-street parking. The single family homes would be two- and three-story homes each with a private two-car garage. Some homes would also have driveway parking. On-street parking would also be available on the east side of Valley Avenue. The development would be oriented around a 1.3 acre community park that includes a business center, conference facilities, workout area, resort style swimming pool, media center, and spa. The community park area would also include electric vehicle charging stations. These amenities would be available to all community residents.

Access to the site would be provided by two existing roundabout intersections from Valley Avenue and an internal connection from Bernal Avenue through the Pleasanton Gateway

shopping center to the proposed Project. Along Valley Avenue, northern access would be provided at Valley Avenue at Gateway Commons intersection and southern access would be provided at the Valley Avenue and East Gate Way intersection. From Bernal Avenue, access would be provided from a signalized intersection opposite Koll Center Drive and an internal drive aisle through the retail center. A conceptual Project site plan is shown on **Figure 2**.

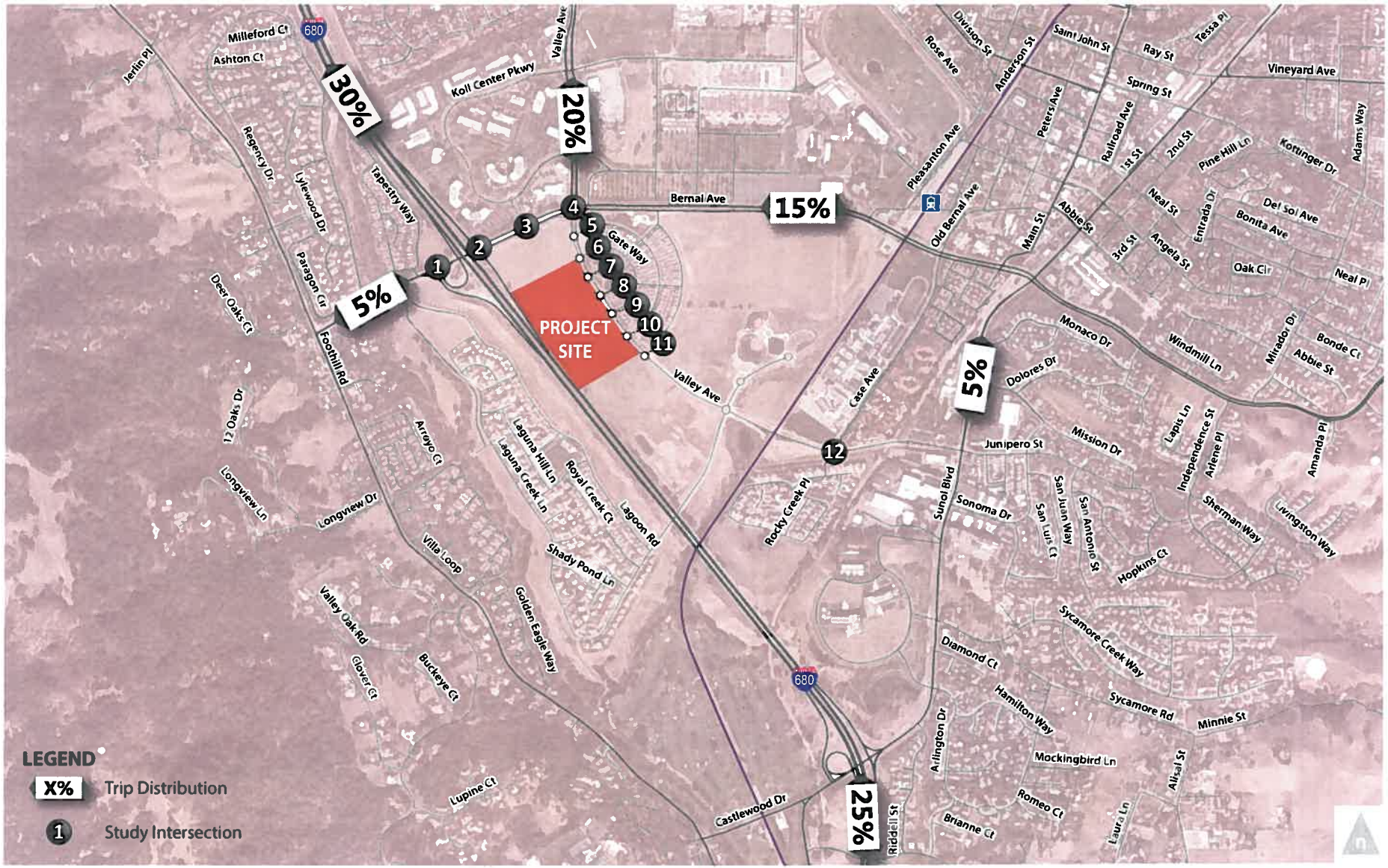

Figure 1.

Study Area and Trip Distribution

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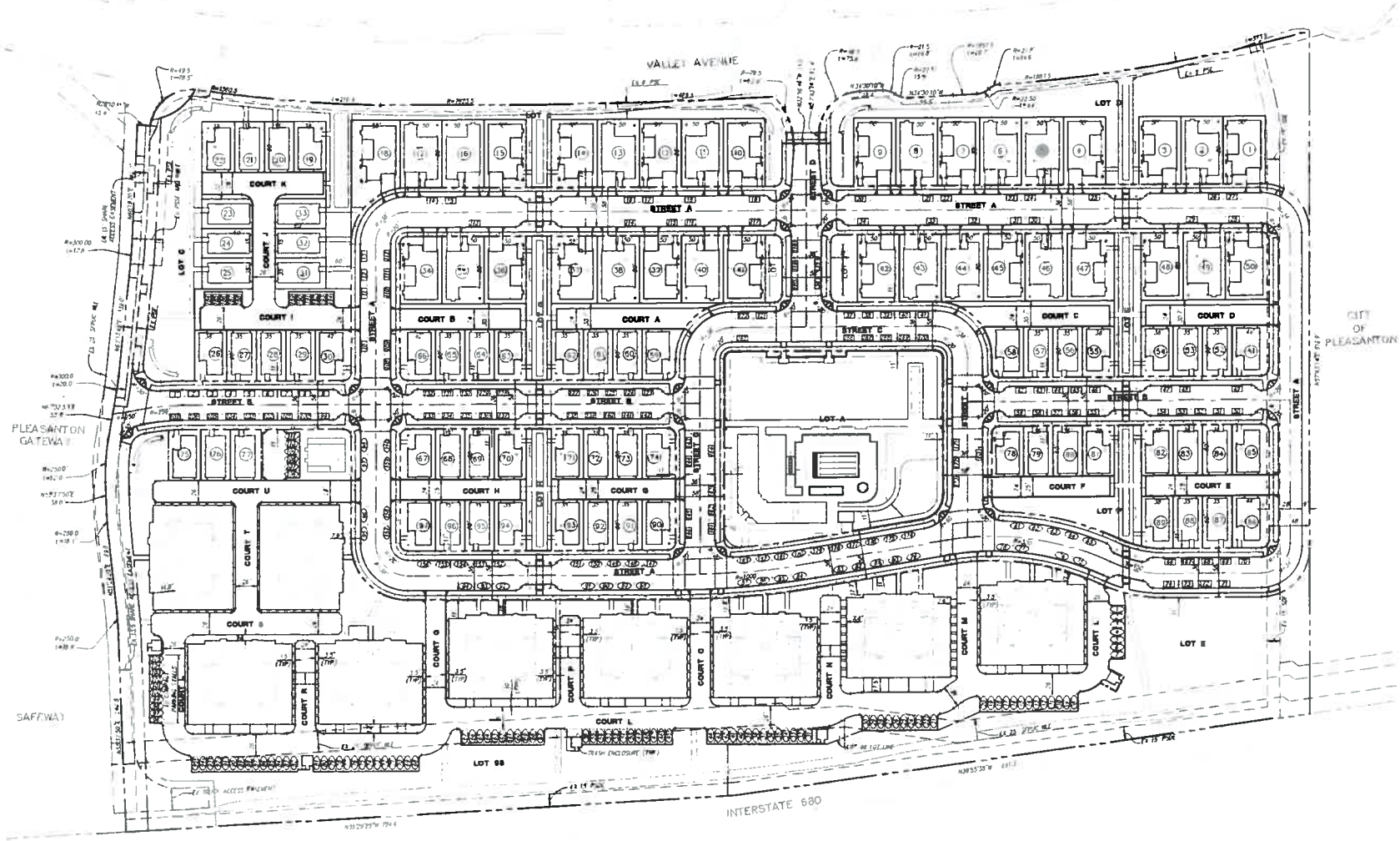

Source: Ruggeri-Jensen-Azar

Figure 2.

Conceptual Project Site Plan

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ANALYSIS METHODS

Study Area and Analysis Scenarios

The following intersections were included in this assessment as they provide access to the Project site and are likely to be affected by the Project:

1. Interstate 680 Southbound Ramps at Bernal Avenue
2. Interstate 680 Northbound Ramps at Bernal Avenue
3. Koll Center Drive at Bernal Avenue
4. Valley Avenue at Bernal Avenue
5. Valley Avenue at Gateway Right-in/right-out Driveway
6. Valley Avenue at Gateway Commons
7. Valley Avenue at Wild Rose Place North
8. Valley Avenue at Wild Rose Place South
9. Valley Avenue at East Gate Way
10. Valley Avenue at Whispering Oaks Way
11. Valley Avenue at Oak Vista Way
12. Valley Avenue at Case Avenue

Study intersection operations were evaluated during the peak hour of traffic for weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods for the following scenarios:

- ***Existing*** – Existing conditions based on recent traffic counts.
- ***Existing Plus Project*** – Existing condition plus Project-related traffic.
- ***Existing Plus Approved Projects*** – Near-term conditions, which consider existing traffic plus anticipated traffic from approved developments that could affect the volumes at the study intersections.
- ***Existing Plus Approved Projects Plus Project*** – Near-term conditions plus Project-related traffic.
- ***Cumulative Without Project*** – Future forecast conditions, which considers local and regional traffic growth.
- ***Cumulative With Project*** – Future forecast conditions plus Project-related traffic.

Existing Conditions

This section describes transportation facilities in the Project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the Project site vicinity.

Regional access to the Project site is provided by ***Interstate 680 (I-680)***. I-680 is a north-south freeway that is near the western boundary of the City of Pleasanton. I-680 extends from the City of Fairfield in the north to the City of San Jose in the south. In Pleasanton, three travel lanes per direction are provided and the facility carries approximately 122,000 vehicles per day, based on information provided by Caltrans. Direct access to the study area is provided by a full interchange at Bernal Avenue, while secondary access is provided at Sunol Boulevard.

Bernal Avenue is an east-west roadway in the Project vicinity. East of downtown Pleasanton, the roadway continues north-south to Stanley Boulevard where it continues as Valley Avenue. Right-turn pockets and exclusive left-turn lanes are provided at signalized intersections and major driveways. The number of travel lanes on Bernal Avenue varies between two and six and Class II bike lanes are provided on the north side of the roadway from Valley Avenue to Pleasanton Avenue and on the south side of the roadway from Oak Vista Way to Pleasanton Avenue. The bike lanes continue east after Old Bernal Avenue. Parking is not permitted along Bernal Avenue. Sidewalks are provided on both sides of the roadway near the Project. In the Project vicinity, the posted speed limit of Bernal Avenue ranges from 35 to 45 miles per hour (mph).

Valley Avenue is a two- to four-lane roadway that forms a ring road with Bernal Avenue around downtown Pleasanton. Near the Project, Valley Avenue continues south of Bernal Avenue to Sunol Boulevard, forming the eastern boundary of the Project. Valley Avenue provides two lanes of travel in both directions north of Bernal Avenue and one lane of travel in both directions south of Bernal Avenue. Right-turn pockets and exclusive left-turn lanes are provided at signalized intersections and major driveways. Between Bernal Avenue in the north and Case Avenue in the south, there are four, one-lane roundabouts along Valley Avenue. Parking pockets are provided on the east side of Valley Avenue. Parking is not permitted on the west side of Valley Avenue along the Project frontage. Class II bike lanes are provided south of Bernal Avenue. A Class III bike route is provided north of Bernal Avenue. Sidewalks are provided on the west side of the roadway north of Bernal Avenue and on the east side of the roadway south of Bernal Avenue. The posted speed limit is 35 miles per hour along the roadway and 15 miles per hour at the roundabouts.

Case Avenue is a two-lane roadway, running north-south between Valley Avenue and Bernal Avenue. The roadway provides access to Hearst Elementary School and Pleasanton Middle School, both located one mile south of the Project. Two-way, left-turn lanes are provided along Case Avenue. Dedicated left-turn lanes are provided at the signalized intersections and a right-turn pocket is provided at the entrance to the middle school. Class II bike lanes and sidewalks are provided along both sides of the street. On-street parking is permitted along most of the roadway. The posted speed limit is 25 miles per hour.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Pedestrian facilities are provided on public roadways adjacent to the site. In the immediate Project vicinity, pedestrian crosswalks, push buttons and signals are provided at the signalized intersections on Bernal Avenue. At the roundabouts, crosswalks are provided along the northern and southern legs. Curb ramps are provided along the east and west legs of existing roundabouts to facilitate street crossings, but crosswalks are not striped. Sidewalks are not currently provided along the Project frontage Valley Avenue, but would be constructed with the project. Pedestrian counts at the intersections on Valley Avenue indicate that the most pedestrian activity occurs at the Valley Avenue at Oak Vista Way intersection with 23 pedestrians crossing Oak Vista Way during the morning peak hour and 8 pedestrian crossings during the afternoon peak hour.

Bicycle facilities in Pleasanton include the following:

- *Bike paths (Class I)* – Paved trails that are separated from roadways. There are also several unpaved off-street trails within Pleasanton. These facilities are typically shared with pedestrians, although bicycles must yield to pedestrians.
- *Bike lanes (Class II)* – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs. There may or may not be parking allowed on the roadway
- *Bike routes (Class III)* – Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.
- *Side Paths* – An off-street facility located adjacent to a roadway that is shared with pedestrians. These paths may be paved or unpaved.

A paved trail encircles the west and north sides of the Koll Center. A trail that parallels I-680 is also provided, with access from Bernal Avenue, west of Meadowlark Drive. Class II bike lanes are provided on Valley Avenue south of Bernal Avenue, westbound Bernal Avenue east of Valley

Avenue, and Laguna Creek Lane between Valley Avenue and Lagoon Road. A side path is provided on the south side of Bernal Avenue east of Valley for pedestrians and bicyclists. A Class III bike route is provided along Valley Avenue north of Bernal Avenue. According to the 2010 Bicycle and Pedestrian Master Plan, Class II bike lanes are proposed along Valley Avenue north of Bernal Avenue.

Existing Transit Service

Transit service in the area is provided by Wheels, Pleasanton Paratransit, Altamont Commuter Express, Amtrak, and Bay Area Rapid Transit (BART). Wheels provides fixed-route and paratransit service throughout the Tri-Valley and connections to other transit service providers. Several Wheels bus routes serve the Project as described in **Table 1**.

The Altamont Commuter Express (ACE) Station is located about one mile (20 minute walk, less than 5 minute bike ride, or a short bus ride) from the Project site, as shown on Figure 2. ACE provides regional transportation connections from Stockton, through Pleasanton, down to San Jose and Santa Clara. Westbound service is provided for the morning commute with eastbound service for the afternoon and the evening commute. Train headways are approximately 60 minutes during both time periods.

Two Bay Area Rapid Transit (BART) stations are located in the City of Pleasanton. West Dublin/Pleasanton BART station is located on Stoneridge Mall Road about 4 miles (8 minute drive) from the Project site. Dublin/Pleasanton BART Station is located on Owens Drive about six miles (10 minute drive) from the Project site. BART provides regional transportation connections to much of the Bay Area and the Dublin/Pleasanton line provides direct access to San Francisco, with stops in Hayward and Oakland where connections may be made to other lines. BART train headways are 15-20 minutes from approximately 5:00 AM to 12:00 AM.

TABLE 1
WHEELS BUS ROUTES

Lines	Route	Nearest Stop	Weekday		Weekend	
			Hours	Headway	Hours	Headway
Rapid, Local, and Express Routes						
8	E. BART to Downtown Pleasanton to E. BART	Valley Ave at Wild Rose Place	6:00 AM to 7:00 PM	60 minutes	8:00 AM to 9:00 PM (Saturdays) 8:30 AM to 2:00 PM (Sundays)	60 minutes (Saturday) 30 minutes (Sunday)
53	Pleasanton ACE Station to W. BART	Pleasanton ACE Station	5:30 AM to 8:45 AM; 4:00 PM to 7:30 PM	30 minutes to 75 minutes	Weekend Service not provided	
54	Pleasanton ACE Station to Hacienda Business Park to BART	Koll Center Parkway at Valley Avenue	5:30 AM to 9:30 AM; 3:45 PM to 6:30 PM	60 minutes to 75 minutes	Weekend Service not provided	
School Routes						
602	Del Prado Park to Foothill High School	Koll Center Parkway at Valley Avenue	7:00 AM to 7:40 AM; 3:00 PM to 3:25 PM	N/A[1]	Weekend Service not provided	

Notes:
1. One bus provided in the AM. Two buses are provided during the PM; however both busses are scheduled to leave at the same time.

Source: Wheels, Livermore Amador Valley Transit Authority and Fehr & Peers, January 2013.

Existing Roadway Operations

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection vehicle turning movement counts were conducted in March 2013 for the driveways that serve the Project site, including shared driveways that provide access to the Gateway shopping center. Traffic counts were collected after the Safeway gas station was open and operational for a few weeks and schools were in normal session. Vehicle counts for the signalized intersection were obtained from the City of Pleasanton, based on Spring 2013 data. For the study intersections, the single hour with the highest traffic volumes during the count periods was identified. Due to the different data collection sources, imbalances between the existing intersection volume counts

were observed. Volume balancing was completed for intersections along Bernal Avenue and Valley Avenue to reduce this imbalance. The peak hour volumes are presented on **Figure 3** along with the existing lane configuration and traffic control. The existing driveway traffic count data are provided in the Technical Appendix.

The operations of roadway facilities are described with the term "level of service" (LOS) in this study. **Appendix A** describes the LOS analysis methods. The City of Pleasanton has set LOS D as the level of acceptable delay at most major intersections, which are defined as intersections of two or more Arterials or one Arterial and one Collector Street. A number of intersections, referred to as Gateway and Exempted Downtown intersections, are exempt from the LOS D policy. These intersections may have a level of service below the LOS D standard if no reasonable mitigation exists or if the necessary mitigation is contrary to other goals and policies of the City. For Gateway intersections, additional vehicle capacity could encourage additional vehicle traffic that should remain on the regional transportation system and could also degrade the pedestrian experience and visual character of the intersection. Gateway intersections evaluated in this assessment include:

- Bernal Avenue at I-680 Northbound Ramp
- Bernal Avenue at I-680 Southbound Ramp
- Valley Avenue at Bernal Avenue

Although the City strives to maintain access to the roadway system from driveways and local streets, there is not a defined level of service standard for those locations.

Results of the existing conditions analysis are presented in **Table 3**, which shows that the intersections that provide access to the Project site operate at LOS D or better during both peak hours. Results of the queue assessment, presented in **Table 4** and **Table 5,** indicate that vehicle queues periodically (typically one to two times during either the AM or PM peak hours) spillback from the available storage for some travel movements.

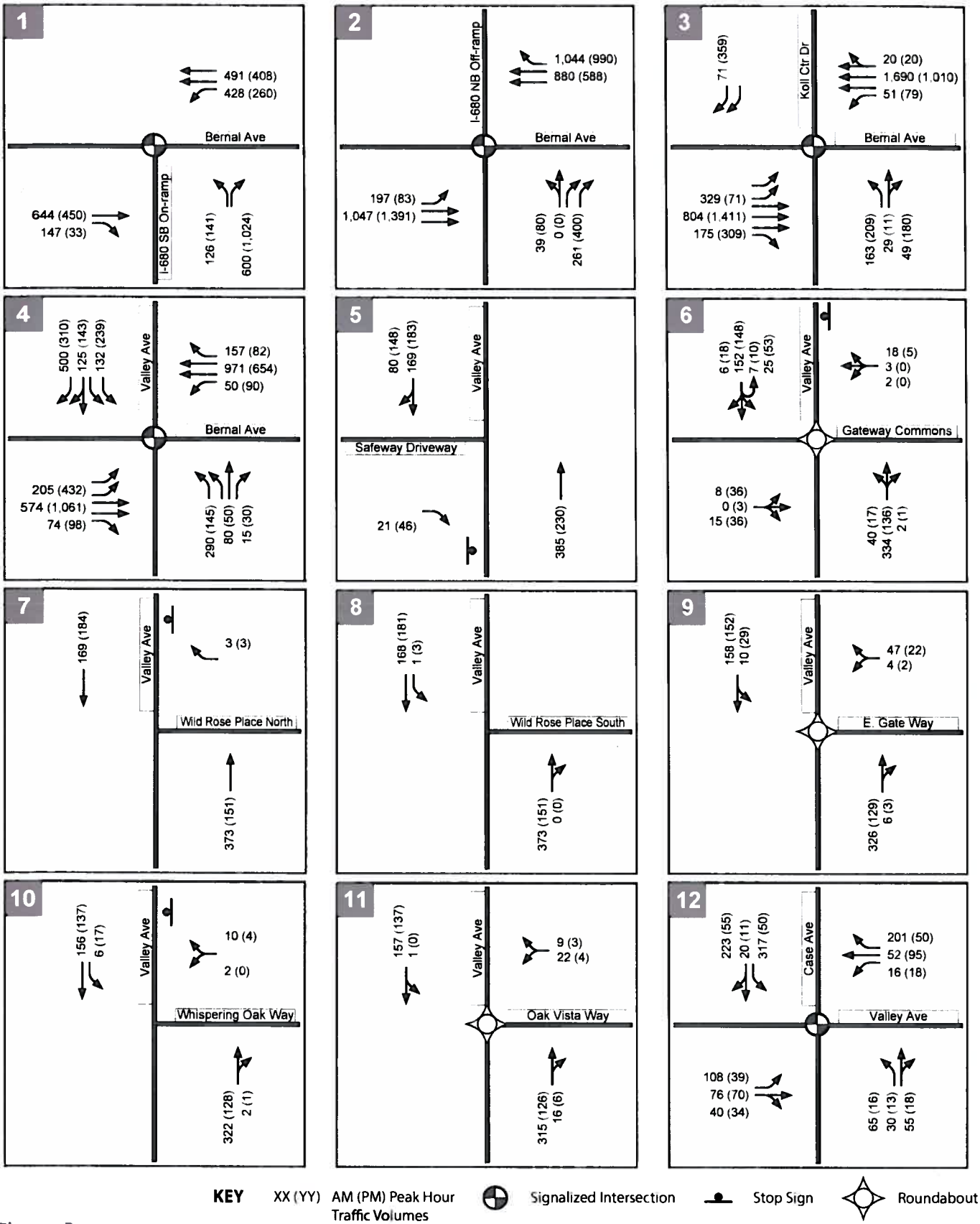

Figure 3.

Existing Peak Hour
Intersection Volumes, Traffic Control and Lane Configurations

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PROJECT TRAFFIC ESTIMATES

To estimate conditions with the Project, vehicle trips expected to be added to the roadway system were combined with existing traffic volumes through the following process:

1. ***Trip Generation*** – The *amount* of vehicle traffic entering and exiting the Project site was estimated.
2. ***Trip Distribution*** – The *direction* trips use to approach and depart the site was projected.
3. ***Trip Assignment*** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created on a daily basis and for the peak one-hour periods during the morning and evening commute periods when traffic volumes on the adjacent streets are highest. The Project trip generation was estimated using rates from the Institute of Transportation Engineers *Trip Generation* (9th Edition) land use numbers 220 (apartment) and 210 (single-family detached housing). The resulting trip generation estimates are shown in **Table 2.**

The Project is located in close proximity bound by Gateway Center, a retail center anchored by a Safeway supermarket, pharmacy, bank, and other small shops and restaurants. On the north side of Bernal Avenue, approximately ¼ of a mile from the center of the Project site, is the Koll Business Center with over one million square feet of office development. Due to the close proximity of the retail plaza and employment center, it is anticipated that some of the future site residents might chose to live in the development due to the proximity to their work place and some may choose to walk to the retail center as most of their daily needs can be met by establishments within a short walking distance.

To estimate the potential level of interaction between the Project and adjacent sites, we used a mixed-use trip (MXD) generation model to estimate the expected interaction between the various uses in the immediate vicinity of the Project site. The MXD model suggests that during the morning peak hour, approximately 5 percent of the trips generated by the Project would be to one of the adjacent destinations, with up to 10 percent of the trips to an adjacent destination during the PM peak hour and on a daily basis.

Considering the potential for non-motorized trips to adjacent uses, the Project is expected to generate approximately 2,180 daily vehicle trips, including 177 AM peak hour vehicle trips and 211 PM peak hour vehicle trips.

TABLE 2
PROJECT TRIP GENERATION ESTIMATES

Land Use	ITE Code	Units	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Apartments	220[1]	210	1,400	21	86	107	86	47	133
Single Family Detached Housing	210[2]	97	1,020	20	59	79	64	38	102
Total			*2,420*	*41*	*145*	*186*	*150*	*85*	*235*
Walk/Bike Trips to Adjacent Development [3]			-240	-2	-7	-9	-15	-9	-24
Net Vehicle Trips			***2,180***	***39***	***138***	***177***	***135***	***76***	***211***

Notes:
1. Trip generated based on Institute of Transportation Engineers (ITE), *Trip Generation* (9th Edition) equations Apartments (Land Use Code 220):
Daily: T = 6.06(X) + 123.56
AM Peak Hour: T = 0.49(X) +3.73; Enter = 20%; Exit = 80%
PM Peak Hour: T = 0.55(X) +17.65; Enter = 65%; Exit = 35%
Where T = trips generated, X = Dwelling Units
2. Trip generated based on Institute of Transportation Engineers (ITE), *Trip Generation* (9th Edition) equations for Single Family Detached Housing (Land Use Code 210):
Daily: Ln(T) = 0.92Ln(X) + 2.72
AM Peak Hour: T = 0.70(X) + 9.74; Enter = 25%; Exit = 75%
PM Peak Hour: Ln(T) = 0.90Ln(X) + 0.51; Enter = 63%; Exit = 37%
Where T = trips generated, X = Dwelling Units
3. Walk/bike trips to adjacent retail development and employment center: Daily = 10%, AM = 5%, PM = 10%.
Source: *Trip Generation* (9th Edition), ITE, 2012; Fehr & Peers, April 2013.

Trip Distribution and Assignment

Vehicle trips expected to be generated by the Project were assigned to the roadway system based on existing travel patterns, locations of complementary land uses, Project site driveway location, and location of parking fields within the site. Trip distribution percentages are presented on **Figure 1.** The net new vehicle traffic generated by the Project was then assigned to streets in the

local roadway system for the AM and PM peak hours. The resulting Project trip distribution through for each study intersection is shown on **Figure 4**.

Project intersection volumes were added to existing traffic counts, to show Existing Plus Project traffic conditions. The resulting traffic counts are shown on **Figure 5.**

TRAFFIC FORECASTS

To assess the changes in traffic flow through the City with approved and planned development, the City of Pleasanton Travel Demand model was used to assess citywide vehicular travel changes. For this Project, the near-term and cumulative forecasts developed for the Housing Element Analysis were adjusted to remove traffic forecasts associated with development of the proposed Project on the site. **Figures 6** through **9** present the Near-Term without Project, Near-Term with Project, Cumulative without Project and Cumulative with Project Peak Hour Traffic Volumes, Lane Configurations, and Traffic Control Devices. These forecasts reflect buildout of the adjacent Gateway Center.

ROADWAY NETWORK

No changes to the lane configurations at the study intersections were assumed, except for Project driveways for the Existing and Near-Term analyses. For the cumulative analyses, planned improvements to the I-680 interchange at Bernal Avenue were assumed to be in place. Planned improvements include modifications to the westbound approach at Bernal Avenue at I-680 northbound ramps to widen the on-ramp to permit the conversion of a westbound through lane to a through-right lane and to the westbound approach at the Bernal Avenue at I-680 southbound ramps to provide dual left-turn lanes and one through lane. The lane configurations assumed under each scenario are shown on the volume figures.

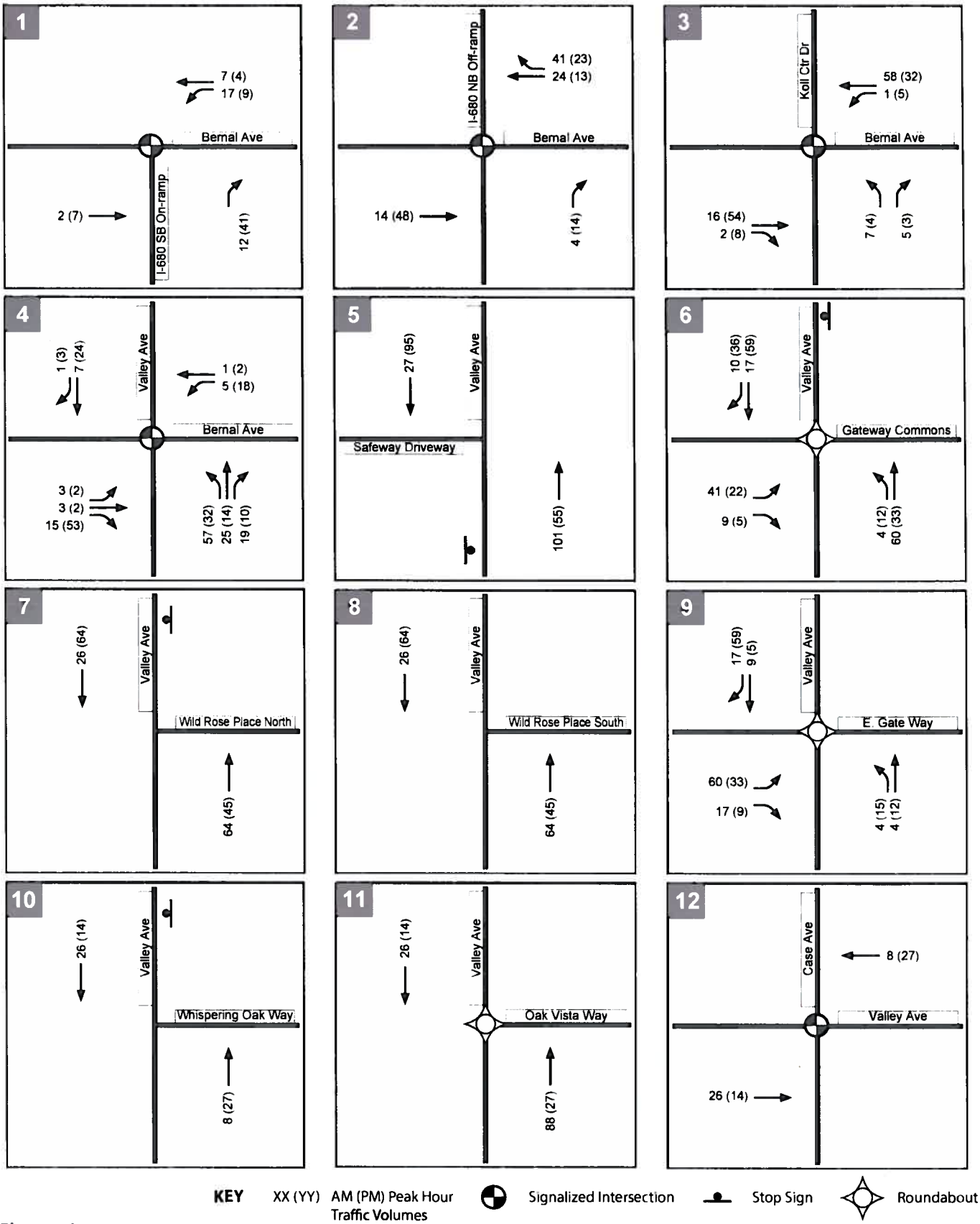

Figure 4.

Project Peak Hour
Intersection Volumes and Traffic Control

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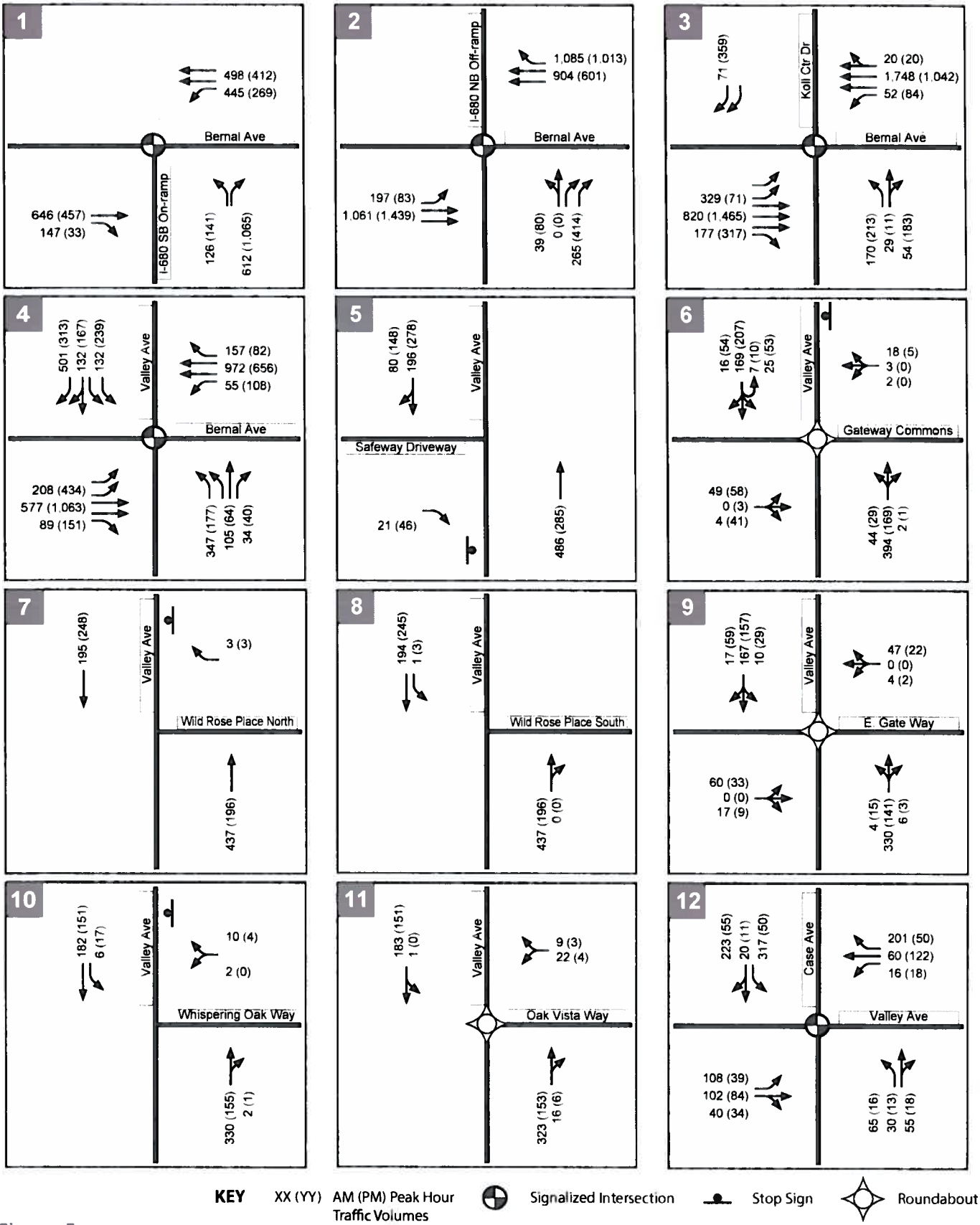

Figure 5.

Existing Plus Project Peak Hour
Intersection Volumes, Traffic Control and Lane Configurations

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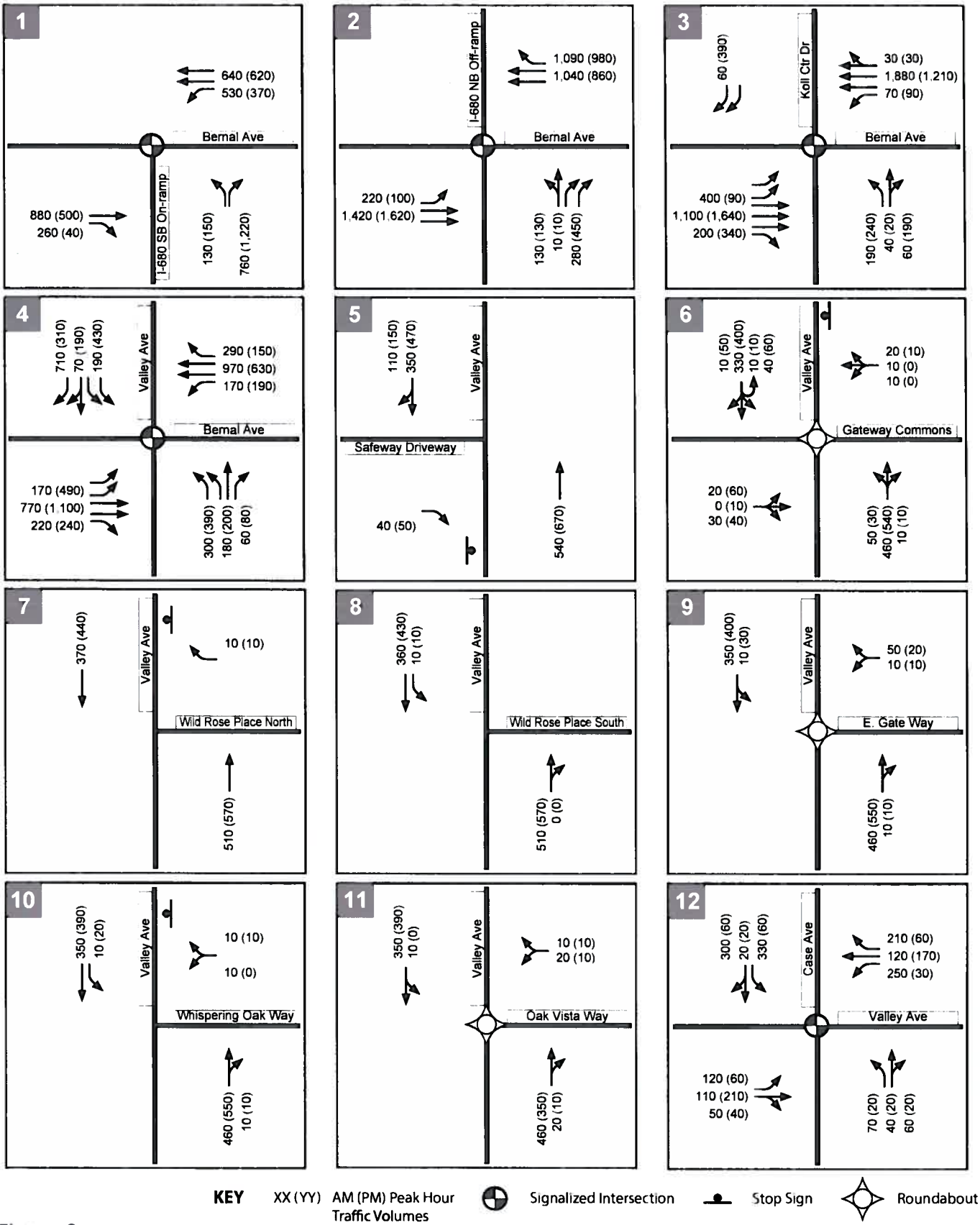

Figure 6.

Near Term No Project Peak Hour

Intersection Volumes, Traffic Control and Lane Configurations

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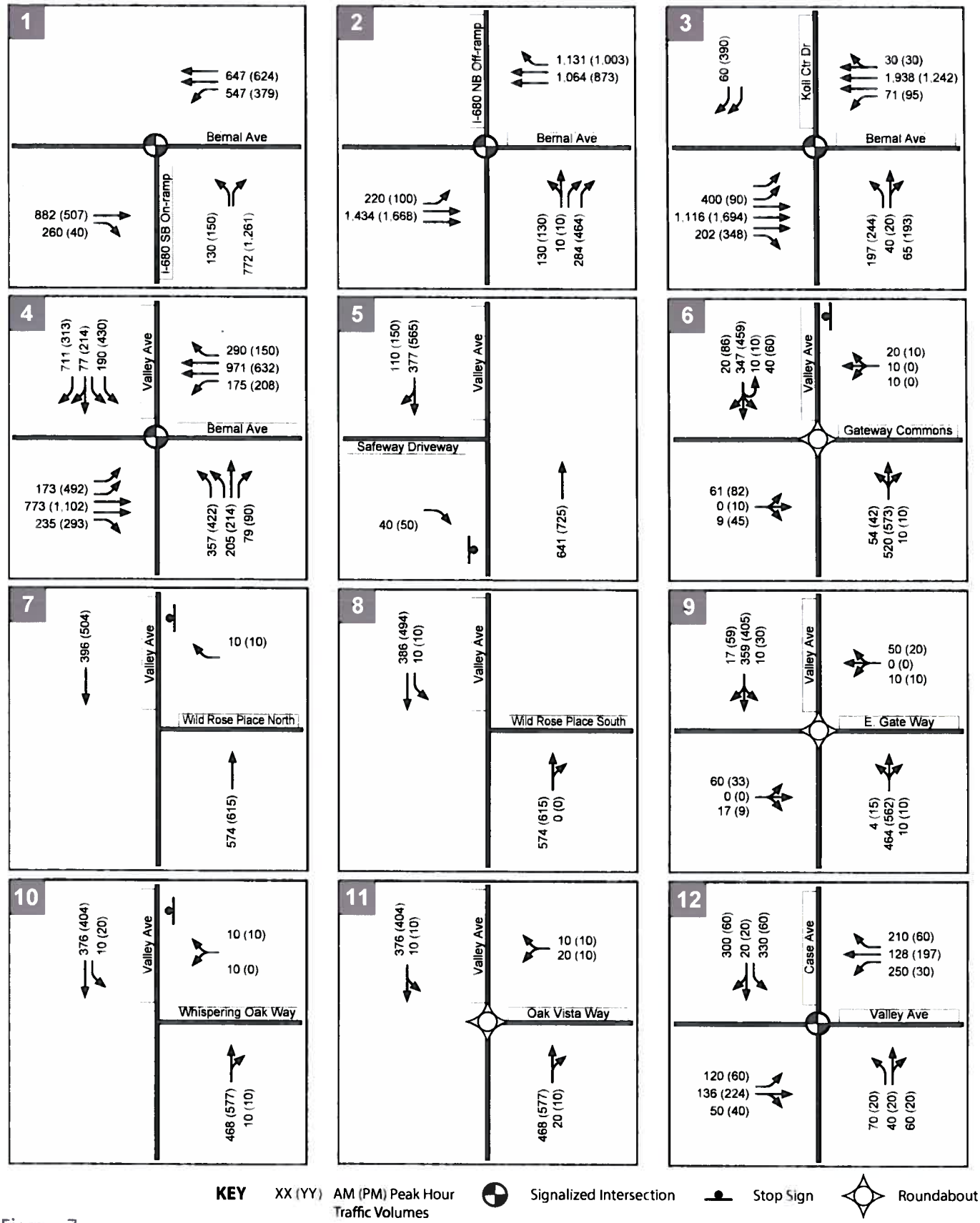

Figure 7

Near Term Plus Project Peak Hour

Intersection Volumes, Traffic Control and Lane Configurations

FEHR PEERS

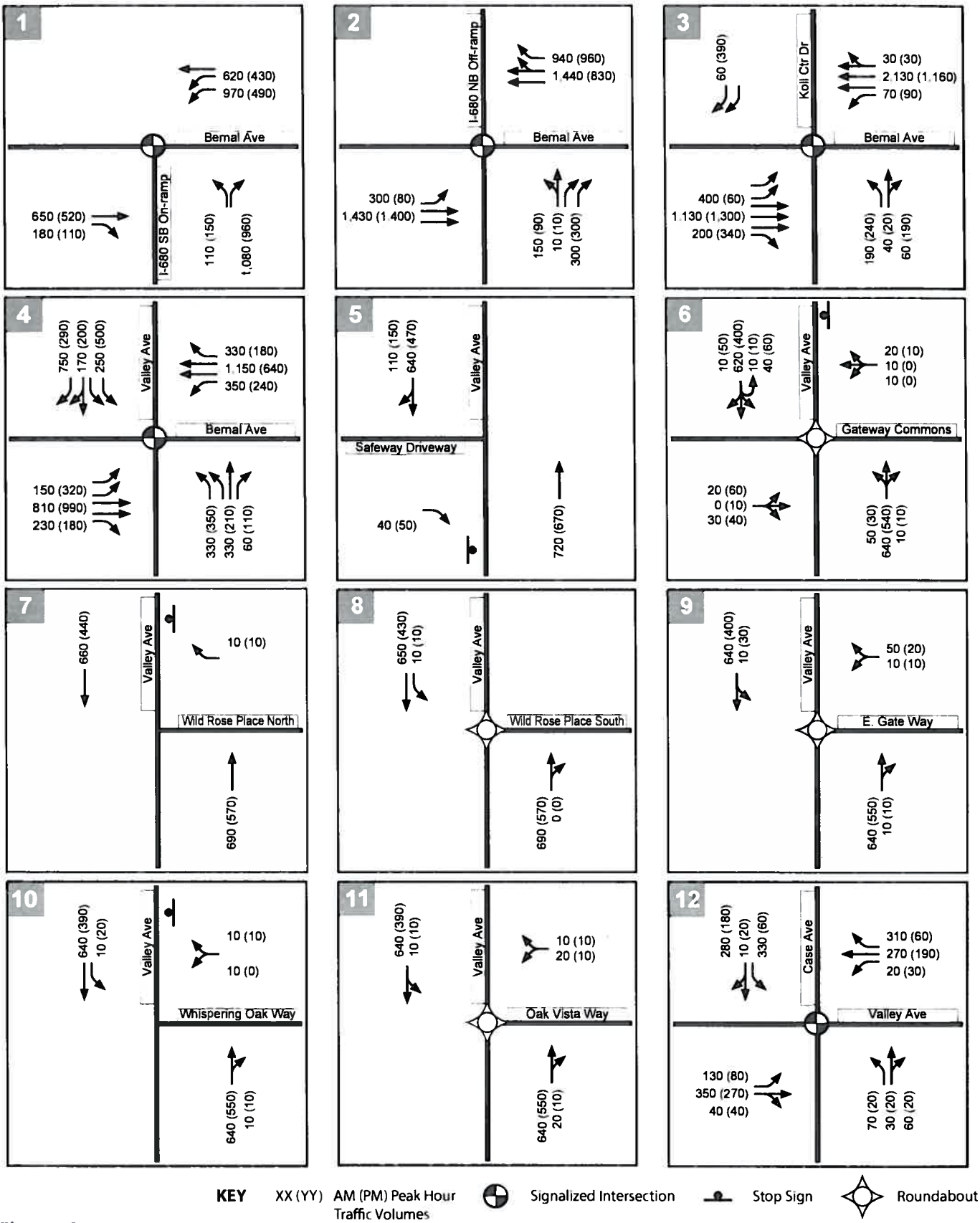

Figure 8.

Cumulative No Project Peak Hour
Intersection Volumes, Traffic Control and Lane Configurations

FEHR & PEERS

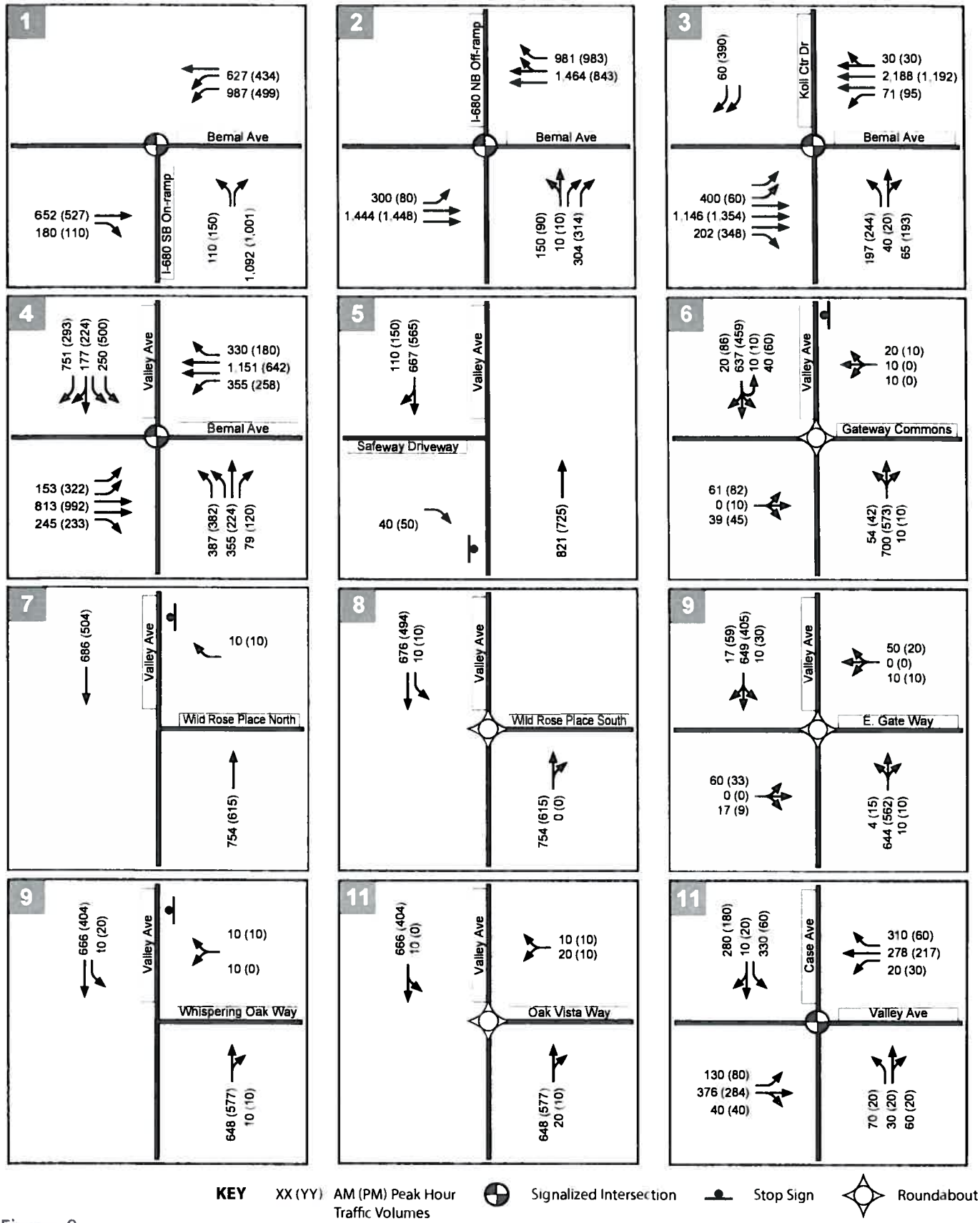

Figure 9.

Cumulative Plus Project Peak Hour
Intersection Volumes, Traffic Control and Lane Configurations

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ANALYSIS RESULTS

Intersection Operations

Signalized and unsignalized intersections were evaluated using Synchro software, and roundabouts were evaluated using SIDRA software for the weekday AM and PM peak hours for analysis scenarios listed previously, based on the analysis methods outlined in Attachment A. **Table 3** presents level of service (LOS) operations at study intersections for the AM and PM peak hours.

As presented in Table 3, the driveways and intersections that provide access to the site from regional transportation system currently operate at LOS D or better during the morning and evening peak hours. With the addition of project traffic, intersections are expected to continue to operate at LOS D or better.

In the near-term and cumulative conditions, intersections would continue to operate at acceptable service levels during both the morning and evening peak hours with the addition of traffic from the Project.

A typical single-lane roundabout has a capacity of up to 2,000 vehicles per hour or 20,000 vehicles per day. Roundabouts operating below capacity have lower average delay and queue lengths than stop controlled and signalized intersections because all approaches are yield controlled. The yield control permits vehicles to advance through the intersection slowly, thereby allowing for a constant flow of vehicles through the intersection rather than requiring vehicles to come to a complete stop. Roundabouts require traffic on Valley Avenue to slow down approaching the intersection, improving access from the side street without requiring Valley Avenue traffic to come to a complete stop. Based on the peak hour traffic volume forecasts, the expected near-term and cumulative volumes would not exceed capacity of the roundabouts; therefore, the roundabouts are expected to operate at acceptable levels of service through the future as shown in Table 3. Additionally, off-peak delay would be significantly less when conflicting traffic volumes are much lower and vehicles are not required to stop.

TABLE 3
PEAK HOUR INTERSECTION LEVELS OF SERVICE

	Intersection	Control[1]	Peak Hour	Existing		Existing Plus Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
				Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]
1.	I-680 Southbound Ramps at Bernal Avenue	Signal	AM	16	B	17	B	49	D	50	D	15	B	15	B
			PM	9	A	9	A	11	B	11	B	10	A	10	A
2.	I-680 Northbound Ramps at Bernal Avenue	Signal	AM	17	B	21	C	30	C	36	D	24	C	26	C
			PM	12	B	13	B	15	B	16	B	10	B	11	B
3.	Koll Center Drive at Bernal Avenue	Signal	AM	18	B	18	B	21	C	21	C	21	C	21	C
			PM	16	B	17	B	18	B	19	B	18	B	18	B
4.	Valley Avenue at Bernal Avenue	Signal	AM	32	C	34	C	33	C	36	D	49	D	53	D
			PM	30	C	32	C	45	D	50	D	44	D	47	D
5.	Valley Avenue at Gateway Right-in/Right-out Driveway	SSSC	AM	1 (10)	A (A)	1 (10)	A (A)	1 (12)	A (B)	1 (12)	A (B)	1 (16)	A (C)	1 (17)	A (C)
			PM	1 (10)	A (A)	1 (11)	A (B)	1 (12)	A (B)	1 (14)	A (B)	1 (12)	A (B)	1 (14)	A (B)
6.	Valley Avenue at Gateway Commons	Round-about	AM	1	A	1	A	1	A	2	A	2	A	3	A
			PM	1	A	1	A	2	A	2	A	2	A	2	A
7.	Valley Avenue at Wild Rose Place (north intersection)	SSSC	AM	1 (11)	A (B)	1 (12)	A (B)	1 (12)	A (B)	1 (13)	A (B)	1 (15)	A (B)	1 (16)	A (C)
			PM	1 (10)	A (A)	1 (9)	A (A)	1 (13)	A (B)	1 (13)	A (B)	1 (13)	A (B)	1 (13)	A (B)

TABLE 3
PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Control[1]	Peak Hour	Existing		Existing Plus Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]
8. Valley Avenue at Wild Rose Place (south intersection)	SSSC	AM	0 (0)	A (A)	0 (0)	A (A)	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)
		PM	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)	1 (1)	A (A)
9. Valley Avenue at East Gate Way	Round-about	AM	6	A	6	A	8	A	9	A	14	B	16	C
		PM	5	A	5	A	10	A	11	B	10	A	11	B
10. Valley Avenue at Whispering Oaks Way	SSSC	AM	1 (11)	A (B)	1 (11)	A (B)	1 (16)	A (C)	1 (16)	A (C)	1 (27)	A (D)	1 (28)	A (D)
		PM	1 (9)	A (A)	1 (9)	A (A)	1 (13)	A (B)	1 (13)	A (B)	1 (13)	A (B)	1 (13)	A (B)
11. Valley Avenue at Oak Vista Way	Round-about	AM	6	A	6	A	8	A	9	A	14	B	15	C
		PM	5	A	5	A	10	A	10	A	10	A	11	B
12. Valley Avenue at Case Avenue	Signal	AM	27	C	27	C	31	C	31	C	32	C	33	C
		PM	14	B	14	B	16	B	16	B	16	B	17	B

Notes: **Bold** text indicates unacceptable operations based on City's level of service policy.

1. Signal = Signalized Intersection; SSSC = Side-street stop-controlled intersections, traffic from the major roadway does not stop; Roundabout = Roundabout control
2. Delay presented in seconds per vehicle; for side-street stop-controlled intersections, delay presented as intersection average (worst approach)
3. LOS = Level of Service.

Source: Fehr & Peers, April 2013.

Vehicle Queues

The average and 95th percentile Vehicle queues were evaluated for vehicle movements where the project is expected to have an effect on traffic volumes, including intersections along Bernal Avenue and project Driveway intersections on Valley Avenue at Gateway Commons, and Valley Avenue at East Gate Way, as summarized in **Table 4** for the 50th percentile queue and **Table 5** for the 95th percentile queue. The 50th percentile queue is an estimated value from the analysis software which represents the average queue length during the peak hour. The 95th percentile vehicle queue is an estimated value from the analysis software that represents the 95th highest queue out of 100 calculations. For the signalized intersections along Bernal Avenue, there are approximately 35 queue observation periods per hour based on the typical cycle length, so the 50th percentile queue as shown in Table 4 is expected to occur 15 to 20 times per peak hour, whereas the 95th percentile queue as shown in Table 5 is expected to occur 1 to 2 times per peak hour. When 95th percentile vehicle queues that exceed the available storage length coincide with poor service levels, it may take several cycles for vehicle queues to clear. However, when intersections are operating within the expected capacity range, queues tend to clear quickly and do not cause long-term disruptions to the transportation network.

Results of the queuing analysis indicate that vehicles traveling westbound on Bernal Avenue accessing northbound I-680 create queues through the Koll Center Driveway during both the morning and evening peak hours. Vehicle queues also extend beyond the available storage at the I-680 southbound on-ramp from westbound Bernal Avenue. The Project would add traffic to these movements, but is not expected to increase vehicle queues by more than one vehicle.

> ***Recommendation:*** The Project applicant shall pay their fair share towards planned improvements at the I-680 at Bernal Avenue interchange through the payment of applicable local and regional traffic impact fees. Improvements are planned for both the northbound and southbound ramps.

Vehicle queues periodically spillback from turn-pockets by approximately 5 to 10 vehicles, at the Bernal Avenue at Valley Avenue intersection in the existing and future conditions. As shown in Table 4, the average queue is within the available storage for all scenarios with exception to the future AM peak hour at the westbound left turn pocket. However, traffic from the Project does not increase queues by more than one vehicle during either the AM or PM peak hour.

Vehicle queues spillback in the westbound direction of the Bernal Avenue at I-680 Southbound intersection for existing and future conditions. As shown in Table 4, the average queue for the

westbound left turn movement exceeds the available storage length. However, traffic from the Project does not increase queues by more than one vehicle during either the AM or PM peak hour. As depicted in Table 3, the intersection is anticipated to operate at acceptable levels so vehicle queues are expected to clear quickly.

Vehicle queues at the intersections on Valley Avenue are projected to be minimal in the existing and near-term conditions with the addition of Project traffic. In the cumulative condition with additional through traffic on Valley Avenue, northbound and southbound vehicle queues on Valley Avenue at the Gateway Commons intersection could extend to the adjacent right-in/right-out intersections; however, the southbound vehicle queue is not expected to extend to Bernal Avenue, nor is the northbound queue expected to block access to the southern Wile Rose Place. As the intersection is projected to operate at acceptable levels, the vehicle queues are expected to clear quickly.

> ***Recommendation:*** Periodically monitor the operation of the Valley Avenue at Gateway Commons intersection as the study area is developed over time and traffic volumes increase.

TABLE 4
50TH PERCENTILE VEHICLE QUEUES IN FEET[1]

Intersection	Movement	Available Storage[2]	Existing		Existing With Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-680 Southbound Ramps at Bernal Avenue	Westbound Left	210	**210**	90	**225**	95	**285**	155	**300**	160	**275**	85	**280**	90
	Westbound Thru	475	25	20	25	20	35	35	40	35	85	50	85	50
	Eastbound Thru	400	315	145	325	150	**700**	200	**710**	205	330	165	340	170
I-680 Northbound Ramps at Bernal Avenue	Westbound Right	560	115	30	155	40	370	45	410	55	60	0	70	0
	Westbound Thru	560	120	25	125	80	185	145	195	150	**600**	180	**645**	190
	Northbound Right	350	10	60	10	65	40	85	40	95	70	35	75	40
	Eastbound Left	150	70	30	70	30	90	40	90	45	**200**	25	**200**	30
	Eastbound Thru	475	55	135	55	150	125	215	130	245	160	105	165	115
Koll Center Drive at Bernal Avenue	Westbound Thru	520	250	115	270	125	335	170	360	180	400	165	420	170
	Westbound Left	195	25	30	25	30	45	40	45	45	45	40	45	45
	Northbound Left	380	75	70	85	75	115	100	115	100	115	100	125	100
	Northbound Thru/Right	380	15	5	15	10	20	20	20	20	20	15	25	15
	Eastbound Left	280	80	10	85	10	125	15	125	15	125	10	130	10
	Eastbound Thru	560	75	150	80	160	120	200	125	215	120	145	125	160
Valley Avenue at Bernal Avenue	Westbound Thru	700	305	195	310	200	305	210	315	210	410	205	410	205
	Westbound Left	175	35	55	35	65	110	130	120	145	**285**	160	**295**	**175**
	Northbound Left	280	100	45	125	55	105	145	130	175	125	120	160	135
	Northbound Thru	450	45	25	55	35	105	125	125	135	220	130	240	140
	Northbound Right	170	--	--	--	--	--	--	--	--	--	--	5	--
	Eastbound Left	510	70	120	70	130	55	150	60	155	55	90	55	90
	Eastbound Thru	510	145	295	150	315	235	370	245	375	290	300	290	305
	Southbound Left	200	45	70	45	75	65	155	65	155	90	190	90	195
	Southbound Thru	500	180	130	190	150	155	170	175	185	315	165	325	175
	Southbound Right	200	65	0	65	7	115	15	125	15	170	5	170	10

TABLE 4
50TH PERCENTILE VEHICLE QUEUES IN FEET[1]

Intersection	Movement	Available Storage[2]	Existing		Existing With Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Valley Avenue at Gateway Commons	Eastbound	360	--	--	--	--	5	--	5	--	5	--	10	--
	Southbound	170	25	10	35	10	45	55	60	70	80	55	125	70
	Northbound	180	10	10	15	20	30	35	35	50	75	35	85	50
Valley Avenue at East Gate Way	Eastbound	110	5	--	5	--	5	--	5	--	5	--	5	--
	Southbound	210	20	5	20	5	35	45	35	50	75	45	80	50
	Northbound	250	5	10	10	10	20	25	25	35	75	25	85	35

Notes. **BOLD** indicates 95th percentile queue could exceed storage length.

1. 95th Percentile Vehicle queue (in feet) as calculated by Synchro. Bold indicates vehicle queues will extend beyond the available storage space.
2. Vehicle storage presented in feet, not accounting for the bay taper. Where two numbers are presented, the first number represents vehicle storage without the Project and the second number represented vehicle storage with the Project.

Source: Fehr & Peers, April 2013.

TABLE 5
95TH PERCENTILE VEHICLE QUEUES IN FEET[1]

Intersection	Movement	Available Storage[2]	Existing		Existing With Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-680 Southbound Ramps at Bernal Avenue	Westbound Left	210	**320**	190	**340**	195	**460**	**270**	**490**	**280**	**385**	150	**370**	155
	Westbound Thru	475	40	30	40	30	50	50	50	50	120	80	125	80
	Eastbound Thru	400	**615**	270	**620**	280	**940**	370	**945**	385	**530**	295	**545**	300
I-680 Northbound Ramps at Bernal Avenue	Westbound Right	560	**570**	**570**	**580**	**580**	**680**	**580**	**730**	**560**	260	55	280	60
	Westbound Thru	560	215	140	225	150	330	270	340	280	**915**	330	**960**	390
	Northbound Right	350	45	115	45	130	85	85	40	195	120	70	125	80
	Eastbound Left	150	135	74	135	70	165	110	165	115	**325**	65	**325**	65
	Eastbound Thru	475	100	241	100	270	220	410	225	455	265	180	265	205
Koll Center Drive at Bernal Avenue	Westbound Thru	520	**530**	265	**555**	270	**670**	325	**705**	335	**700**	315	**760**	325
	Westbound Left	195	85	100	85	110	110	120	110	135	110	120	110	135
	Northbound Left	380	160	165	170	165	190	200	195	215	185	205	190	210
	Northbound Thru/Right	380	55	57	55	60	65	80	65	85	65	70	65	75
	Eastbound Left	280	180	40	175	40	215	50	215	50	230	35	230	35
	Eastbound Thru	560	165	315	170	330	240	380	240	400	235	285	240	300
Valley Avenue at Bernal Avenue	Westbound Thru	700	470	305	470	305	470	295	470	295	600	290	600	290
	Westbound Left	175	80	125	85	145	**240**	**280**	**250**	**320**	**515**	**370**	**525**	**400**
	Northbound Left	280	200	95	260	110	210	**300**	265	**330**	230	250	**285**	**280**
	Northbound Thru	450	85	60	110	70	175	195	200	210	315	200	365	210
	Northbound Right	170	15	25	25	30	30	35	35	40	30	40	45	45
	Eastbound Left	510	125	280	130	280	105	330	110	330	95	175	95	175
	Eastbound Thru	510	250	**600**	255	**600**	365	**635**	365	**640**	400	495	400	**510**
	Southbound Left	200	85	140	85	140	115	315	115	315	145	**365**	140	**365**
	Southbound Thru	500	320	250	335	270	315	285	345	310	**590**	275	**600**	295
	Southbound Right	200	145	40	145	50	**215**	60	**225**	70	**285**	50	**285**	60

TABLE 5
95TH PERCENTILE VEHICLE QUEUES IN FEET[1]

Intersection	Movement	Available Storage[2]	Existing		Existing With Project		Near-Term Without Project		Near-Term With Project		Cumulative Without Project		Cumulative With Project	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Valley Avenue at Gateway Commons	Eastbound	360	5	12	10	15	10	25	25	35	20	25	40	35
	Southbound	170	25	25	30	45	70	85	80	125	**185**	85	**315**	125
	Northbound	180	60	20	85	30	110	135	155	175	**195**	135	**315**	175
Valley Avenue at East Gate Way	Eastbound	110	--	--	5	5	--	--	10	5	--	--	15	5
	Southbound	210	20	20	20	30	50	65	60	80	180	65	205	80
	Northbound	250	45	15	45	15	85	110	90	125	180	110	200	125

Notes: **BOLD** indicates 95th percentile queue could exceed storage length.

3. 95th Percentile Vehicle queue (in feet) as calculated by Synchro. Bold indicates vehicle queues will extend beyond the available storage space.
4. Vehicle storage presented in feet, not accounting for the bay taper. Where two numbers are presented, the first number represents vehicle storage without the Project and the second number represented vehicle storage with the Project.

Source: Fehr & Peers, April 2013.

SITE ACCESS AND ON-SITE CIRCULATION

This section discusses site access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles based on the site plan presented previously on Figure 2. A parking assessment was also conducted. Site recommendations are presented on **Figure 10**.

Vehicle Access

Vehicular access to the site would be provided from a connection to Gateway Commons and a new roadway connecting to Valley Avenue at East Gate Way. Both driveways would provide full access and are projected to operate acceptably during peak hours as shown in Table 3. Provision of a vehicle connection to Whispering Oaks Way would not be necessary to provide acceptable vehicle operations on Valley Avenue.

> ***Recommendation:*** Install all-way stop-control at the Street B/Gateway Commons intersection.

The full access driveway on Valley Avenue would align with the existing roundabout on E. Gate Way.

> ***Recommendation:*** Maintain landscaping on the northwest corner of the intersection to avoid sight distance conflicts (shrubs should not be higher than approximately 30 inches and tree canopies should be approximately six feet from the ground).

Proposed streets providing the main connections through the site and limited driveway access are proposed to be 36 feet wide with parallel parking on both sides. Courts would provide garage access to most of the single-family homes with a width of 24 feet without parking, or 26 feet if perpendicular parking is provided on one side of the street.

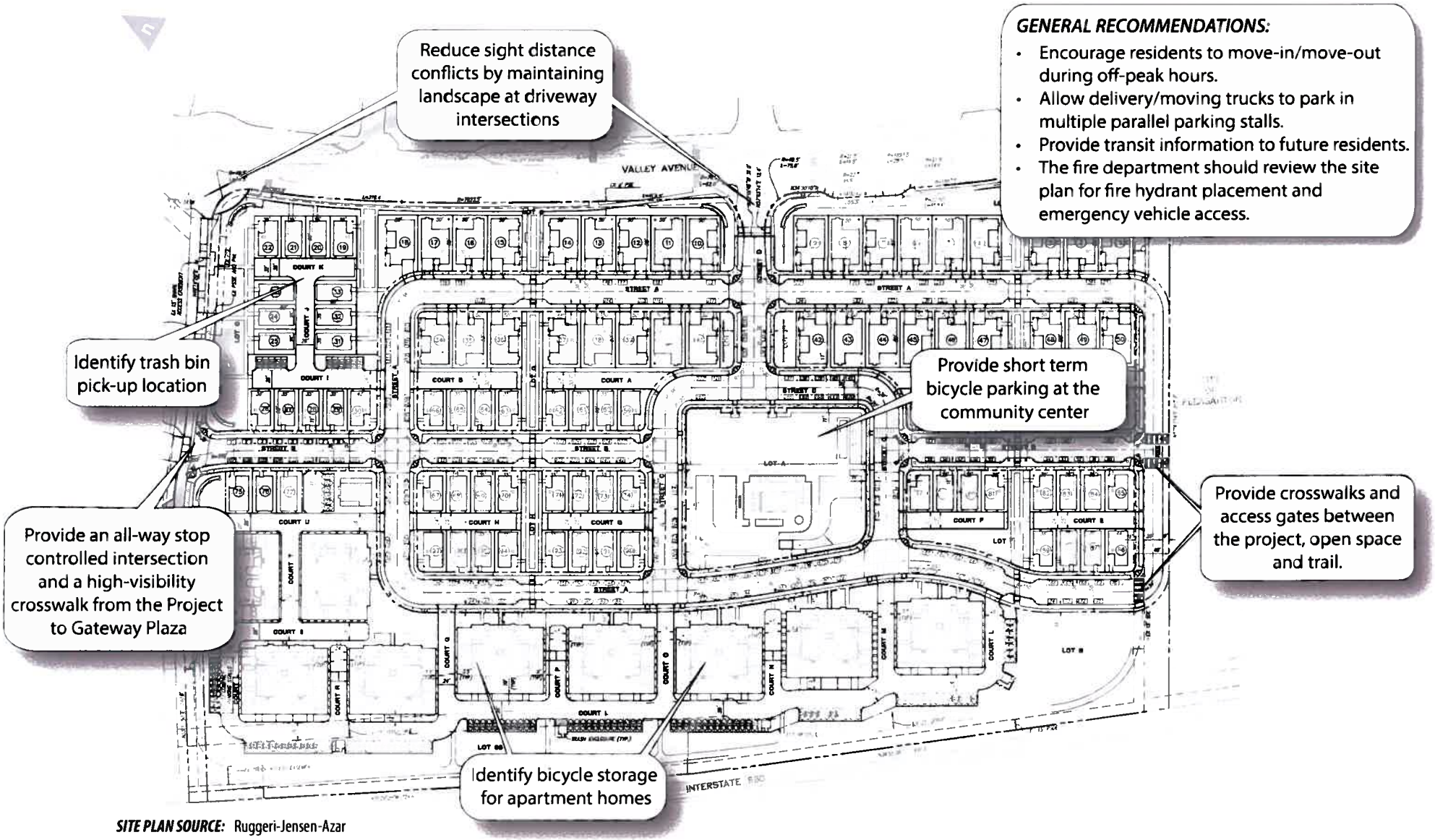


Figure 10.

Consultant Site Plan Recommendations

FEHR PEERS

Emergency Vehicles

A fire station is located on Bernal Avenue approximately 1/4-mile from the Project site. Emergency vehicles have multiple ways of accessing the site from Bernal Avenue and Valley Avenue so if one entrance is blocked, alternative access would be available. An AutoTurn assessment indicates that a large fire truck would enter into the opposite travel lane when navigating through the site. Large emergency vehicles may have difficulty accessing homes on Courts J and K.

> ***Recommendation:*** The fire department should review the site plan for fire hydrant placement and emergency vehicle access. Results of the AutoTurn assessment are shown on **Figure 11** for their use in reviewing site access and circulation.

Pedestrian

As part of the Project, new pedestrian paths could be constructed within the Project site and connect to the existing pedestrian facilities on Valley Avenue. Curb extensions and high visibility crosswalks at intersections would alert drivers to expect pedestrian traffic. Pedestrian paths and plazas would be constructed to facilitate walking throughout the site. Most internal roadways provide sidewalks on both sides of the street with exception to some of the Court frontage. External roadways on Valley Avenue and Gateway Commons provide sidewalk along both sides of the street.

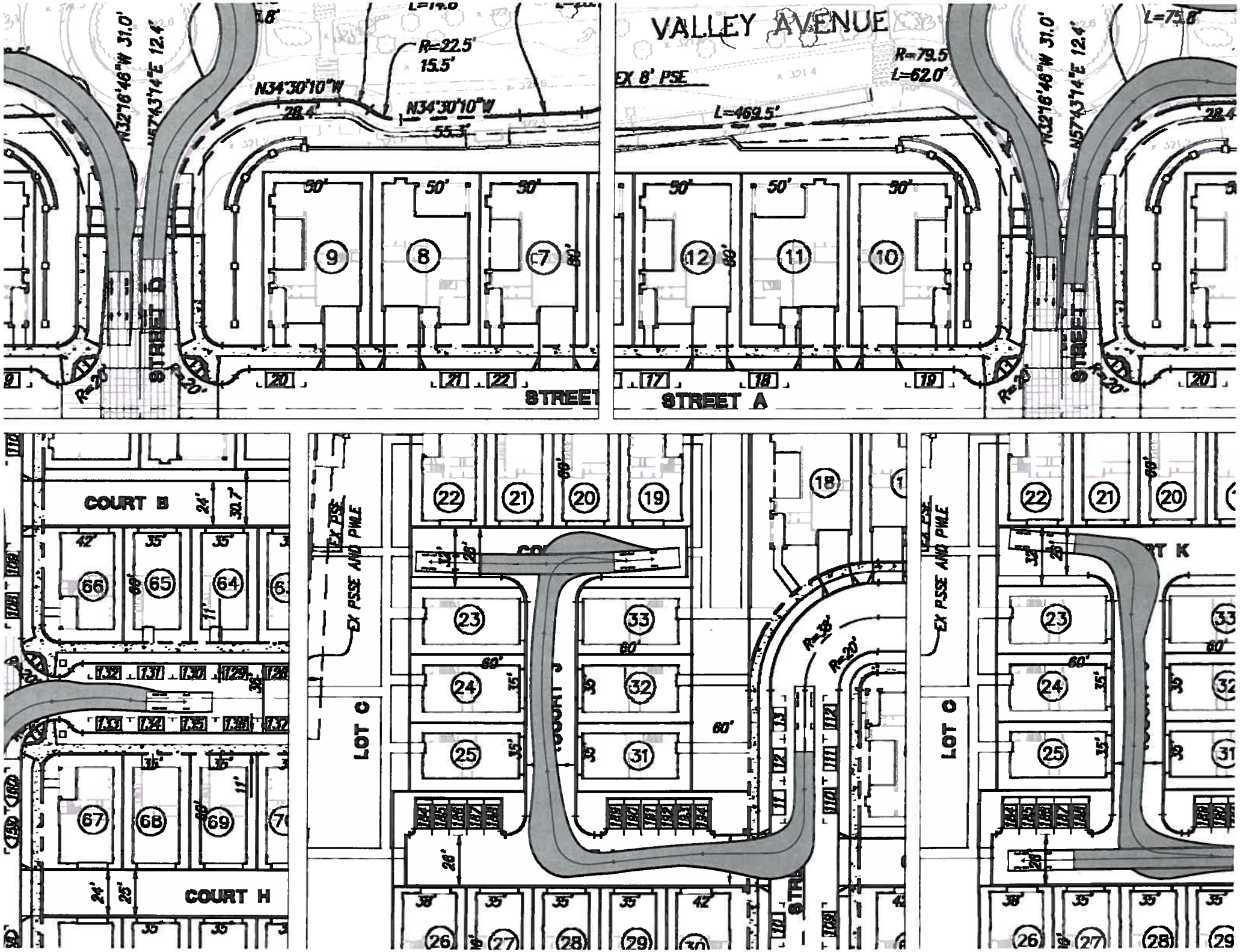
> ***Recommendation:*** Provide a high-visibility crosswalk from the Project to the Gateway shopping center on the east leg of Gateway Commons and Street B, to enhance pedestrian connectivity.

Bicycle

Class II bicycle facilities (bike lanes) are currently provided on Valley Avenue along the Project frontage. The Project proposes a trail connection on the south-west side of the Project to a proposed Regional class III trail which parallels I-680. The Project would connect to the proposed trail from Street A and Street B.

> ***Recommendation:*** Provide a pedestrian crosswalk across Street A to connect the Project to the trail entrances.

> ***Recommendation:*** Provide access gates between the open space, trail and the Project along Street A to encourage residents to use the trail and open space.


VALLEY AVENUE
STREET A
STREET D
COURT B
COURT H
LOT C
EX PSSE AND PWLE
R=22.5'
15.5'
N34°30'10"W
28.4'
55.3'
R=79.5'
L=62.0'
L=469.5'
N32°16'46"W 31.0'
N57°43'14"E 12.4'
R=20'
50'
30'
60'

Bicycles would be permitted within the Project vehicular travel way. Bicycle parking is not shown on the site plan, but it is anticipated that future residents of the single family homes would be able to store bicycles within their private garages.

For the multi-family portion of the site 0.8 secure and weather protected bicycle parking spaces per unit are required, resulting in a requirement of 168 long-term bicycle parking spaces for the 210 apartment units. As each apartment unit would be provided a private garage, the garages should be large enough for storage of a bicycle and a vehicle or bicycle storage rooms should be provided throughout the apartment community. Additionally, short term bicycle parking should be provided at the community center.

> ***Recommendation:*** Identify bicycle storage for the apartment homes and provide short term bicycle parking at the community center.

Transit

Wheels currently serve the Project area with stops along Valley Avenue, Bernal Avenue, and Case Avenue. No changes to the number of transit stops or level of transit service are proposed as part of the Project. Additional transit facilities are located in the Project area such as the ACE and BART station located approximately 1 mile and 5 miles away, respectively.

> ***Recommendation:*** Provide information to new residents regarding transit service provided in the area.

Delivery Vehicle Access

Access to the site by moving trucks, furniture delivery, and trash collection vehicles are expected to occur on a regular basis. No designated loading areas are shown on the site plan. For the majority of single family homes, delivery/moving vehicles would be able to park on the street in close proximity to the destination. For some homes on Courts J and K, internal access may be constrained and delivery vehicles may stop on Valley Avenue or Gateway Commons, which should not be allowed. For deliveries/moving in the apartment home area, trucks may park on the internal drive aisle temporarily blocking two-way travel on some of the Court Streets.

> ***Recommendation:*** Encourage residents to conduct move-in/move-out large vehicle maneuvers during off-peak hours, such as mid-day or weekends, to minimize potential internal vehicle conflicts. Allow delivery moving trucks/delivery vehicles to park in parallel

parking stall(s) on the designated Streets within the development to maintain two-way travel on internal roadways.

Trash collection areas are shown throughout apartment home area and it is assumed that each single family home would have their own private trash containers to be set at the curb on designated collection days. Trash collection vehicles may have difficulty accessing private garbage containers from homes Court J and K and trash containers may need to be picked up from Street A. Should all ten homes from Courts J and K place trash containers on Street A and when on-street parking supplies are at a high level of occupancy, there may not be sufficient curb space for 20 trash containers (assuming one trash and one recycle container per unit)

Recommendation: Review trash collection procedures for the site with Pleasanton Garbage Service to ensure all homes within the development can be served.

Parking

City of Pleasanton requirements for parking were reviewed. For apartment uses, 1.5 to 2 spaces are required for each unit with an additional 1 guest space for each 7 units, resulting in a parking code requirement of 351 spaces for the apartment potion of the project, as shown in **Table 6**. For the single family units, each unit is required two provide 2 spaces per unit, a total requirement of 194 spaces. The apartment portion of the project proposes to provide 216 private garage spaces and 111 off-street parking spaces, for a total off-street parking supply of 327 spaces, a deficit of 24 spaces as compared to code requirements. Each single family home would have a private two car garage and approximately 81 units would have a driveway of sufficient length to accommodate a parked vehicle, satisfying parking code requirements.

On-street parking is also provided, with approximately 183 spaces dispersed throughout the development. Although on-street parking cannot be counted towards the code required parking, as sufficient private reserved parking is provided and guest parking demand would be accommodated by the on-street parking, provision of additional off-street parking is not recommended.

TABLE 6
CITY CODE AUTOMOBILE PARKING REQUIREMENTS

Land Use	Size	Parking Code Requirement	Parking Spaces Required	Private Garage Spaces	Off-Street Spaces[1]	Total
Apartments – First Four 1-2 Bedrooms	4 units	2 per unit	8			
Apartments –1-2 Bedrooms	198 units	1.5 per unit	297			
				216	111	327
Apartments – 3+ Bedrooms	8 units	2 per unit	16			
Apartment Guests	210 units	1 per 7 units	30			
Sub-Total	***210 units***	***~2 per unit***	***351***	***216***	***111***	***327***
Single Family Detached Housing	97 units	2 per unit	194	194	81	275
Total	***307 units***	***~2 per unit***	***545***	***410***	***192***	***602***

Notes:
1. Off-street spaces measured by number of single family dwelling unit driveways
Source: City of Pleasanton Municipal Code Section 18.88.030

Americans with Disability Act parking requirements for apartments were calculated. ADA requires 2 percent accessible parking per assigned garage parking, 2 percent accessible per assigned on-street parking, and 5 percent accessible per unassigned and visitor parking, resulting in an accessible parking requirement of approximately 10 spaces. The Project proposes to include 11 accessible spaces.

CONCLUSIONS AND RECOMMENDATIONS

With construction of the Project, vehicular traffic to the site is expected to operate at acceptable levels of service and even with projected growth in the City, intersections along Bernal Avenue are projected to operate at LOS D or better during the weekday morning and evening peak hours evaluated for this study. With the expected growth, the City should monitor gateway intersections and provide appropriate improvements to minimize poor operations and spillback

to adjacent intersections. The Near-term analysis recommends improvements for Bernal Avenue at the I-680 intersections before the Cumulative year.

Based on our site plan review, the following are recommended for consideration in development of the final site plan:

- Reduce sight distance conflicts by restricting parking on Gateway Commons, approaching Valley Avenue and maintain landscaping at the Valley Avenue at Gateway Commons intersection
- Review trash collection procedures for the site with Pleasanton Garbage Service to ensure all homes within the development can be served.
- Encourage residents to conduct move-in/move-out large vehicle maneuvers during off-peak hours, such as mid-day or weekends, to minimize potential internal vehicle conflicts. Allow delivery moving trucks/delivery vehicles to park in parallel parking stall(s) on the designated Streets within the development to maintain two-way travel on internal roadways.
- Provide information to new residents regarding transit service provided in the area.
- Identify bicycle storage for the apartment homes and provide short term bicycle parking at the community center.
- The fire department should review the site plan for fire hydrant placement and emergency vehicle access.

Technical Attachments:

A – Intersection Level of Service (LOS) Methods

B – Existing (2013) Traffic Count Sheets

C – Level of Service Reports

D – Signalized Intersection Queuing Reports