

Appendix I: Traffic Operations Evaluation

FINAL REPORT

TRAFFIC OPERATIONS EVALUATION FOR SAN RAMON CITY CENTER PROJECT

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EXECUTIVE SUMMARY

This study analyzes the traffic impacts of the San Ramon City Center project located along Bollinger Canyon Road in San Ramon. The project is the construction of 488 condominium units, a 169-room hotel, 681,769 square feet of office park, 663,339 square feet of retail, a 6-screen cinema, 75,150 square feet for City Hall, and a 35,340 square foot library.

The analysis looked at four traffic operations conditions, Existing, Existing plus Project, 2020, and 2020 plus Project. The 2020 traffic conditions were developed using the modest recent version of the Contra Costa Transportation Authority Countywide Travel Demand Model.

The City of San Ramon's General Plan 2020 was passed by voters in 2002. The General Plan articulates a vision for the City and it is the final plan that guides all land use decisions made throughout the City to the year 2020. The General Plan has evolved into a long-range planning document that includes performance standards as well as Capital Improvements, Development Mitigation, and fee financing programs. It also includes an Urban Growth Boundary (UGB), urban mixed-use center and an open space plan. The traffic analysis completed for the General Plan 2020 EIR used the Contra Costa approved travel demand model and included a 20-year horizon.

The City Center project is an in-fill development project and because the General Plan 2020 provided a long-range plan for 2020, the traffic analysis for the City Center project includes a comprehensive traffic analysis for Horizon Year 2020. The City Center traffic analysis is consistent with the City's Growth Management Program and meets the goals and objectives of the Contra Costa Transportation Authority Growth Management Program and Technical Procedures.

San Ramon's growth management policies and initiatives are also consistent with the Contra Costa Transportation Improvement and Growth Management Program (Measure C) and includes:

- Adopt and apply traffic level of service standards to the local roadway system,
- Adopt performance standards for police, fire, parks, water, flood control, and sanitary sewer facilities,
- Adopt and implement Transportation Demand Management (TDM) ordinance,
- Adopt a five-year capital improvement program that lists projects, costs and funding mechanisms,
- Ensure that new development "pays its own way" through the adoption and implementation of mitigation fees,
- Address housing options and job opportunities at the local, regional, and county level, and
- Participate in cooperative, multi-jurisdictional planning process to reduce cumulative regional traffic impacts of development.

In addition, the General Plan 2020 includes several elements all required by State law (Land Use, Housing, Circulation, Open Space, Conservation, Safety and Noise). Four other elements that address local concerns and regional requirements (Growth Management, Economic Development, Public Facilities, and Parks) are also included in the plan.

The proposed project will generate 1,668 AM peak hour trips, 2,995 PM peak hour trips, and 30,127 daily trips. Because the existing BR 2 development will be demolished as part of the project, the assigned Existing plus Project traffic are 1,353 AM peak hour trips, 2,711 PM peak hour trips, and 28,105 daily trips. For 2020, there is 328,200 square feet of office space that is a part of the project, but is already entitled and included in the 2020 projections. The assigned traffic for 2020 is 865 AM peak hour trips, 2,293 PM peak hour trips, and 24,926 daily trips.

The analysis identified three locations where the project would result in a significant traffic impact for the Existing plus Project condition. These locations are Bollinger Canyon Road/San Ramon Valley Boulevard, Bollinger Canyon Road/Sunset Drive, and Bollinger Canyon Road/Alcosta Boulevard. All of these locations can be mitigated to an acceptable level of service. At Bollinger Canyon Road/San Ramon Valley Boulevard, the addition of a northbound right turn lane, a part of the City's Capital Improvement Program for this intersection, would mitigate the impact. At Bollinger Canyon Road/Sunset Drive, the modification of the intersection to have a free-flowing southbound right turn lane for traffic destined to northbound I-680 would mitigate the impact. At Bollinger Canyon Road/Alcosta Boulevard the addition of a third eastbound and westbound through lane on Bollinger Canyon Road, a project the City will advertise in Summer 2007, will mitigate the impact.

The analysis identified two locations where the project would result in a significant traffic impact for the 2020 plus Project condition. These locations are Bollinger Canyon Road/Norris Canyon Road and Bollinger Canyon Road/Sunset Drive. Both of these locations can be mitigated to an acceptable level of service. At Bollinger Canyon Road / Sunset Drive the modification of the intersection to have a free-flowing southbound right turn lane for traffic destined to northbound I-680 would mitigate the impact. To provide additional congestion relief to the Bollinger Canyon Road / Sunset Drive intersection the southbound curb lane on Camino Ramon approaching Bishop Drive would be signed to allow a through movement during the AM and PM peak hours. At Camino Ramon/Bollinger Canyon Road the southbound through lane would also allow right turns. At Bollinger Canyon Road / Norris Canyon Road the installation of a traffic signal, an improvement planned as part of the City's Capital Improvement Program, would mitigate the impact.

Several I-680 freeway segments operate at level of service F for the Existing and for the 2020 conditions. The project will add traffic to I-680. By definition, the addition of project traffic to a LOS F segment is a significant impact. Improving the level of service to acceptable operations would require widening of the freeway mainline for several miles. Widening of the freeway is considered impracticable because of right-of-way limitations.

The project will satisfactorily accommodate other modes of travel. Sufficient parking is proposed to accommodate the project demand. The project will also provide sufficient bicycle and motorcycle parking. The project will safely accommodate pedestrians and will enhance pedestrian treatments in the area. The bicycle lane on Bishop Drive that currently ends at Sunset Drive will be extended to the Iron Horse Trail. Improved access to the Iron Horse Trail will be made at the signalized intersections along the eastern frontage of the project. Part of the project will be the addition of a new transit center as part of City Hall. Transit accessibility will be advanced with the new transit center.

1.0 INTRODUCTION

This study analyzes the traffic impacts of the San Ramon City Center project. The proposed project contains office space development that replaces the existing Bishop Ranch 2 (BR2) complex, plus additional office development. Bishop Ranch 2 comprises of 194,652 square feet of existing development and existing traffic generation. Therefore, for the project condition scenarios, 194,652 square feet of office development has been netted out of the analyses and the traffic generation.

Three project alternatives were analyzed:

- Flex Retail
 - 488 Condominium units
 - 169-room Hotel
 - 487,117 square feet Office Park (681,769 square feet less 194,652 square feet)
 - 663,339 square feet Retail
 - 6-screen Cinema (21,945 square feet)
 - 75,150 square feet Civic Center
 - 35,340 square feet Library
- Flex Office
 - Same as Flex Retail but 50,142 square feet of Retail space is converted to Office.
- Flex Retail No Civic Center
 - Same as Flex Retail but 75,150 square feet Civic Center plus 35,340 square feet Library is converted to 110,490 square feet Office.

BR 2 located in the northwest quadrant of Bollinger Canyon Road and Camino Ramon, is an existing 194,652 square foot office complex. BR2 would be demolished as part of this development proposal. Replacement office space would be constructed in the southeast quadrant of the Bollinger Canyon Road/Camino Ramon intersection. The replacement office space would be 681,769 square feet, for a total net expansion of 487,117 square feet over existing office space. The retail expansion would be 663,339 square feet located north of Bollinger Canyon Road on both sides of Camino Ramon. The retail expansion will include a six-screen cinema. A 169-room hotel and 488 condominium units would also be a part of the redevelopment on the north side of Bollinger Canyon Road on both sides of Camino Ramon. A 75,150-square foot civic center and 35,340-square foot library would also be developed on the south side of Bollinger Canyon Road. Some flexibility exists in the project description. Potentially, 50,142 square feet of the retail expansion may become office space and, similarly, the Civic Center and Library may be replaced with 110,490 square feet of office space. These potential changes were explored in the analysis and the results are provided in this document.

In addition to the development space, the project also includes a new Transit Center at the southwest quadrant of the Bollinger Canyon/Camino Ramon intersection. It was also desired to retain Camino Ramon between Bishop Drive and Bollinger Canyon Road in its current cross section during commute hours, but reduce the cross section during non-commute hours and allow on-street parking adjacent to the retail outlets. This will facilitate pedestrian crossing between retail components of the project. The city is exploring opportunities to accommodate on-street parking while avoiding negative impacts to traffic circulation and roadway capacity.

The analysis will include investigations of limited duration parking concepts designed around peak use and commuter patterns.

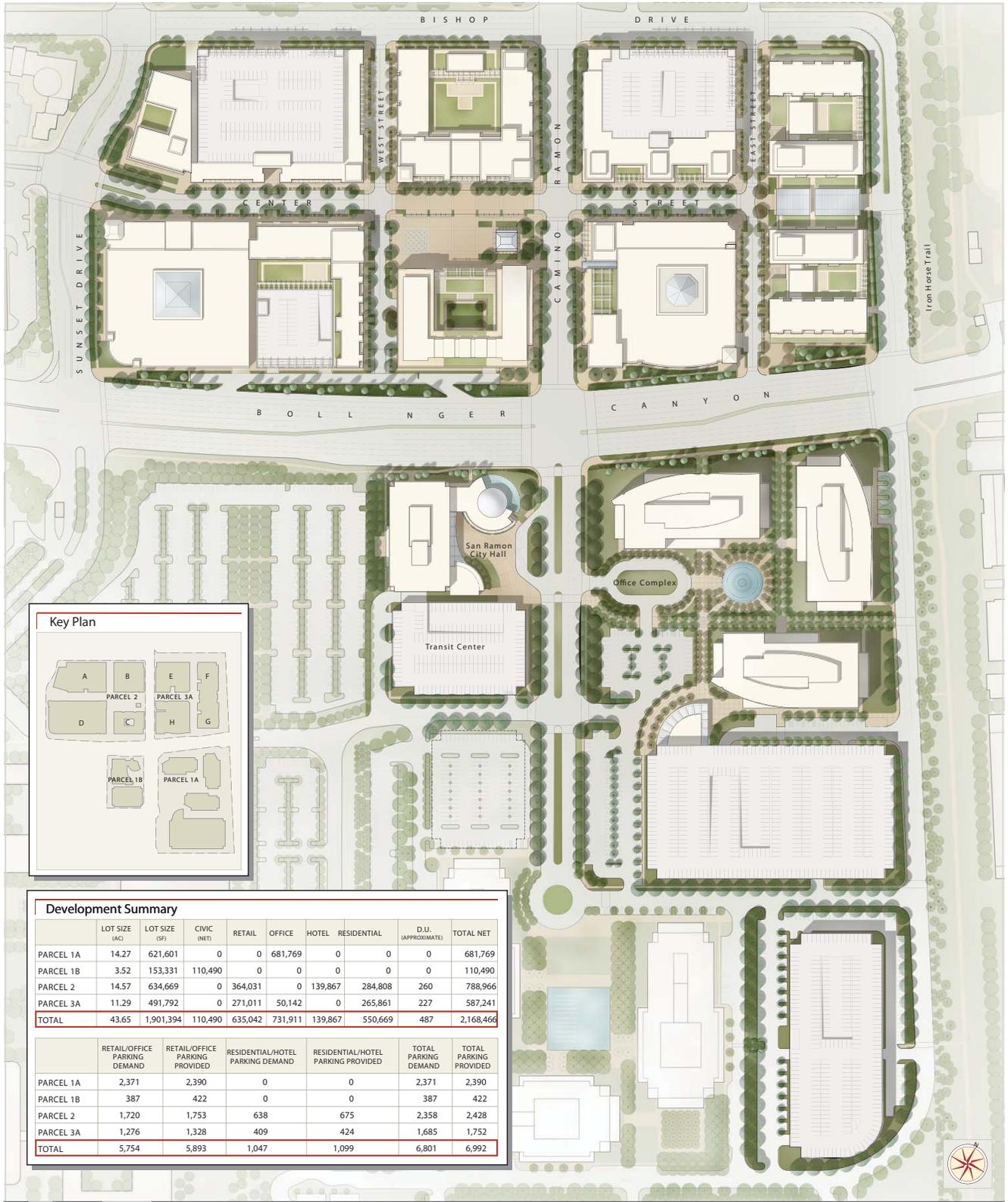
The project site and the distribution of the project components are shown on Figure 1. Figure 2 shows the location of the project in the City of San Ramon and also shows the study intersections.

1.1 Analysis Scenarios

Four analysis scenarios are included in the traffic operations analysis. These scenarios are as follows:

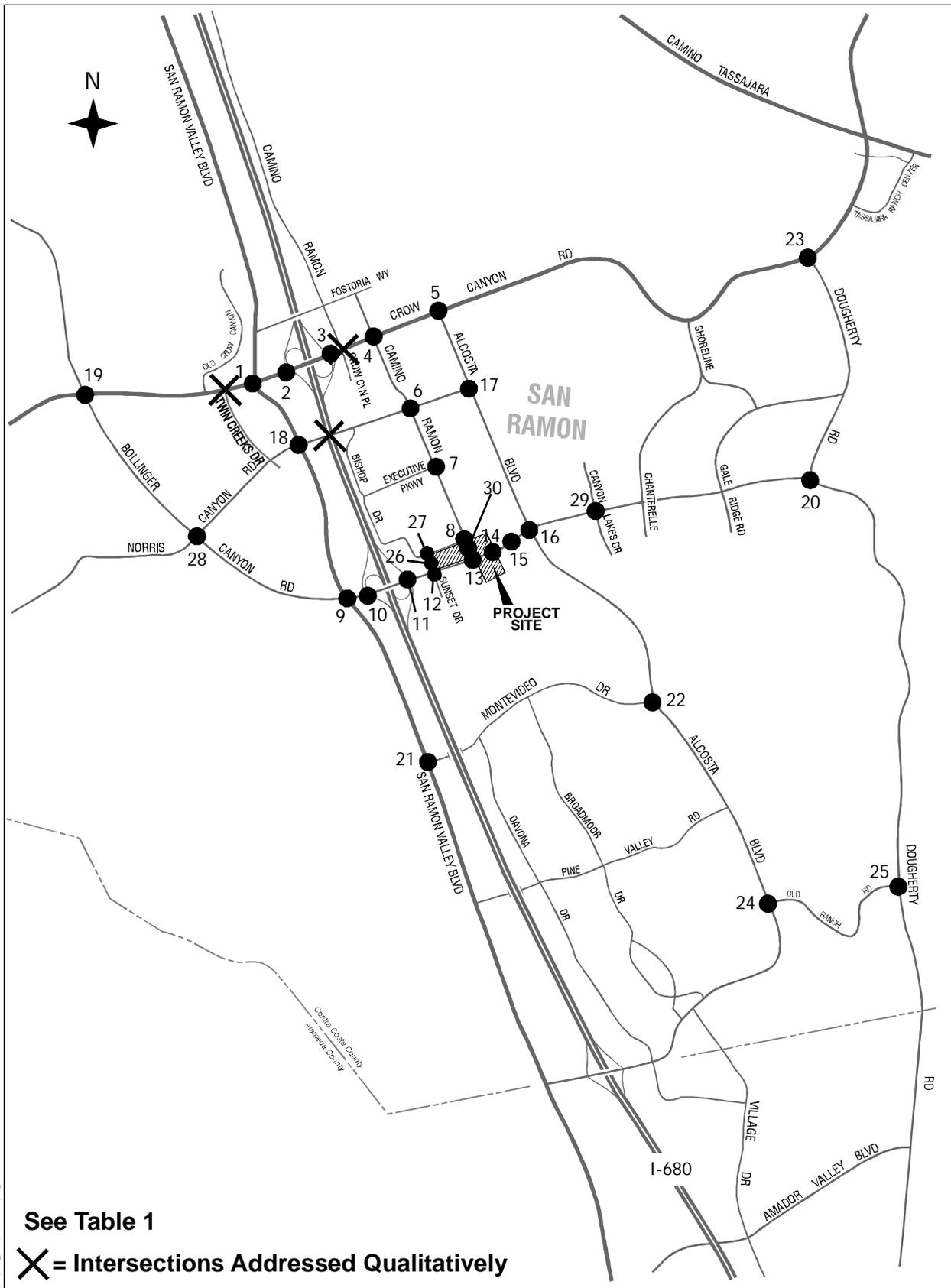
- Existing Conditions for the AM and PM peak hours. Traffic counts were conducted between May 2006 and February 2007 to serve as the existing conditions in the area.
- Existing Plus Project Conditions, considering three different project scenarios. First, the Flex Retail condition refers to the addition of traffic from 487,117 square feet of new office park, 663,339 square feet of retail space plus a six-screen cinema of 21,945 square feet, a 169-room hotel, 488 condominium units, a 75,150 square foot civic center, and a 35,340 square foot library. In the second condition, referred to as Flex Office, 50,142 square feet of retail space is changed to office space. The third condition, referred to as Flex Retail No Civic Center, is the same as the first, but with the civic center and library replaced with 110,490 square feet of office space. Because the Flex Retail condition is expected to generate the most traffic during the critical PM peak hour this scenario was added to the AM and PM peak hour existing conditions.
- 2020 Conditions with the build-out of the City's General Plan, approximately in the year 2020. In addition to growth within San Ramon, additional regional growth is also assumed. The 2020 traffic volumes were developed from the most recent Contra Costa Transportation Authority Countywide Travel Demand Model. This scenario includes the effect of a median HOV connector at Norris Canyon Road.
- 2020 Plus Project Conditions consists of the previous scenario with the addition of traffic from the Flex Retail alternative project condition, as described in the existing plus project conditions above. The office development in the project was reduced by 328,220 square feet for each of the project scenarios in 2020 to account for the existing entitlements (Chevron) that are included in the background 2020 scenario.

The addition of project traffic includes modifications to the intersections of Camino Ramon/Bishop Drive and Camino Ramon/Bollinger Canyon Road. A southbound left turn lane will be added to Camino Ramon/Bishop Drive and a southbound left turn lane removed from Camino Ramon/Bollinger Canyon Road. A two-phase signal will be placed on Camino Ramon approximately mid-way between Bishop Drive and Bollinger Canyon Road at Center Street to facilitate crossing Camino Ramon by vehicles and pedestrians. Bishop Drive will also be completed to the east and wrap around the project to connect with Bishop Ranch One East at Bollinger Canyon Road. Minimizing the width of Camino Ramon between Bishop Drive and Bollinger Canyon Road will facilitate its crossing by pedestrians. At Bollinger Canyon



Source: Cooper, Robertson & Partners
Architecture, Urban Design

Illustrative Site Plan



Study Intersections Rev. 2.0d

SAN RAMON CITY CENTER PROJECT

Figure 2
VICINITY MAP AND STUDY AREA INTERSECTIONS

Road/Bishop Drive a westbound right turn is added to facilitate the traffic movement from Bollinger Canyon Road to the new extension of Bishop Drive. An additional improvement is a second northbound left turn lane at Camino Ramon/Bollinger Canyon Road. The current traffic volumes for this left turn exceed 300 vehicles per hour, a generally accepted threshold for dual left turn lanes. These modifications were considered in all scenarios where project traffic was added by adjusting traffic volumes at the intersections that would be affected by these project improvements. Additional discussion of the roadway modifications is contained in Chapter 4 along with a graphic showing the recommended changes (Figure 16). The details of these modifications need to be coordinated with City staff through the design process.

1.2 Project Study Area

Figure 2 shows the project site and the analyzed intersections. The analysis of these intersections provides an assessment of the effect of the proposed development. The project study area included the following 30 intersections. These locations were reviewed with the City of San Ramon and agreed upon as the appropriate study area.

- | | |
|---|---|
| 1. Crow Canyon Rd./ San Ramon Valley Blvd. | 14. Bollinger Canyon/Bishop Ranch East |
| 2. Crow Canyon Rd./I-680 Southbound Ramps | 15. Bollinger Canyon Rd./Market Place |
| 3. Crow Canyon Rd./I-680 Northbound Ramps | 16. Bollinger Canyon Rd./Alcosta Blvd. |
| 4. Crow Canyon Rd./Camino Ramon | 17. Alcosta Blvd./Norris Canyon Rd. |
| 5. Crow Canyon Rd./Alcosta Blvd. | 18. San Ramon Valley Blvd./Norris Canyon Rd. |
| 6. Camino Ramon/Norris Canyon Rd. | 19. Bollinger Canyon Rd./Crow Canyon Rd. |
| 7. Camino Ramon/Executive Parkway | 20. Bollinger Canyon Rd./Dougherty Valley Rd. |
| 8. Camino Ramon/Bishop Dr. | 21. San Ramon Valley Blvd./Montevideo Dr. |
| 9. Bollinger Canyon Rd./San Ramon Valley Blvd. | 22. Alcosta Blvd./Montevideo Dr. |
| 10. Bollinger Canyon Rd./I-680 Southbound Ramps | 23. Crow Canyon Rd./Dougherty Valley Rd. |
| 11. Bollinger Canyon Rd./I-680 Northbound Ramps | 24. Alcosta Blvd./Old Ranch Rd. |
| 12. Bollinger Canyon Rd./Sunset/Chevron Park West | 25. Old Ranch Rd./Dougherty Valley Rd. |
| 13. Bollinger Canyon /Camino Ramon | 26. Sunset Dr./Shopping Center |
| | 27. Bishop Dr./Sunset Dr. |
| | 28. Bollinger Canyon Rd./Norris Canyon Rd. |
| | 29. Bollinger Canyon Rd./Canyon Lakes Dr. |
| | 30. Camino Ramon/Center St., (future) |

In addition to these 30 study intersections, three intersections were analyzed qualitatively. These intersections are Crow Canyon Road/Twin Creeks Road and Crow Canyon Road/Crow Canyon Place, and Norris Canyon Road (future intersection). While these intersections are important locations in the City's circulation system, the traffic operations at these locations can be estimated from surrounding locations. Therefore, specific traffic operations were not performed at these locations.

1.3 Roadway Systems

The highways and arterials noted below are designated routes of Regional Significance by the Contra Costa Transportation Authority and the Tri-Valley Transportation Action Plan. A Route

of Regional Significance is a component of the cooperative multi-jurisdictional planning required first by Measure C and continued in Measure J. Routes of Regional Significance are roads that serve regional mobility, or act as reliever routes for the regional systems, and serve more than one jurisdiction. A route of Regional Significance is required to meet designated Traffic Service Objectives (TSO). Within San Ramon, the City's level of service standards exceed the TSO's.

Freeways serve regional and intercity trips and are under the jurisdiction of the State of California Department of Transportation (Caltrans). In the vicinity of the San Ramon City Center project, I-680 is a north/south freeway serving the San Ramon Valley. I-680 has three mixed flow lanes and one high occupancy vehicle lane (HOV) in each direction. Auxiliary lanes have recently been constructed on I-680 between Bollinger Canyon Road and Crow Canyon Road. Auxiliary lanes were also recently constructed on I-680 through Danville between Diablo Road and Sycamore Valley Road. There are two interchanges that service the San Ramon City Center project from I-680, Crow Canyon Road and Bollinger Canyon Road. This is a route of regional significance.

Arterials handle high traffic volumes provide intra-city circulation, and serve to a limited degree local land use. These facilities provide access to major activity centers and to freeways.

Within the vicinity of the San Ramon City Center project the following roadways are arterials and are Routes of Regional Significance:

- Crow Canyon Road (4 to 6 lanes)
- Bollinger Canyon Road (6 to 8 lanes)
- Alcosta Boulevard (4 lanes)
- San Ramon Valley Boulevard (4 lanes)
- Dougherty Road (6 lanes)

Note that Crow Canyon Road will be 8 lanes from I-680 to Alcosta Boulevard with the completion of construction in summer 2007. A Plan Line study has been prepared for Bollinger Canyon Road. A Plan Line study establishes the need for future widening along a corridor and then determines how that widening can occur through lane transitions and right-of-way acquisition. The Plan Line study for Bollinger Canyon Road widens the corridor to 8 lanes with additional turn lanes at intersections.

Collector Streets are the next in the hierarchy of street classifications. They carry less traffic than arterials and provide a higher level of access to local land uses. Within the vicinity of the San Ramon City Center project the following roadways are collector streets:

- Norris Canyon Road (2 to 4 lanes)
- Camino Ramon (4 lanes)
- Montevideo Drive (2 lanes)

Local roadways following collector streets in the hierarchy of street classifications. Local streets carry the least amount of traffic, but provide the highest level of local access. Near the San Ramon City Center project the following streets are local streets:

- Executive Parkway (2 lanes)
- Bishop Drive (2 lanes)
- Chevron Park Circle (2 to 4 lanes)
- Sunset Drive (4 lanes)
- Market Place (2 lanes)

2.0 EXISTING CONDITIONS

2.1 Existing Traffic Operations

Table 2-1 shows the count dates for each of the analyzed intersections. All of the counts were obtained between May 2006 and February 2007.

Table 2-1 Intersection Count Dates

Intersection	Count Dates AM Peak Hour/PM Peak Hour
1. Crow Canyon Rd./San Ramon Valley Blvd.	May 2006/May 2006
2. Crow Canyon Rd./I-680 SB Ramps	May 2006/May 2006
3. Crow Canyon Rd./I-680 NB Ramps	May 2006/May 2006
4. Crow Canyon Rd./Camino Ramon	May 2006/May 2006
5. Crow Canyon Rd./Alcosta Blvd.	May 2006/May 2006
6. Camino Ramon/Norris Canyon Rd.	May 2006/May 2006
7. Camino Ramon/Executive Parkway	May 2006/May 2006
8. Camino Ramon/Bishop Drive	May 2006/May 2006
9. Bollinger Canyon Rd./ San Ramon Valley Blvd.	May 2006/May 2006
10. Bollinger Canyon Rd./I-680 SB Ramps	May 2006/May 2006
11. Bollinger Canyon Rd./I-680 NB Ramps	May 2006/May 2006
12. Bollinger Canyon Rd./ Sunset/Chevron Park W.	May 2006/May 2006
13. Bollinger Canyon Rd./Camino Ramon	May 2006/May 2006
14. Bollinger Canyon Rd./Bishop Ranch 1 E	May 2006/May 2006
15. Bollinger Canyon Rd./Market Place	May 2006/May 2006
16. Bollinger Canyon Rd./Alcosta Blvd.	May 2006/May 2006
17. Alcosta Blvd./Norris Canyon Rd.	May 2006/May 2006
18. San Ramon Valley Blvd./Norris Canyon Rd.	May 2006/May 2006
19. Bollinger Canyon Rd./Crow Canyon Rd.	May 2006/May 2006
20. Bollinger Canyon Rd./Dougherty Valley Rd.	May 2006/May 2006
21. San Ramon Valley Blvd./Montevideo Dr.	February 2007/February 2007
22. Alcosta Blvd./Montevideo Drive	February 2007/February 2007
23. Crow Canyon Rd./Dougherty Valley Rd.	May 2006/May 2006
24. Alcosta Blvd./Old Ranch Rd.	February 2007/February 2007
25. Old Ranch Rd./Dougherty Valley Rd.	February 2007/February 2007
26. Sunset Drive/Shopping C.	May 2006/May 2006
27. Bishop Drive/Sunset Drive	May 2006/May 2006
28. Bollinger Canyon Road/Norris Canyon Road	February 2007/February 2007
29. Bollinger Canyon Road/Canyon Lakes Dr.	May 2006/May 2006

2.1.1 Methodology

The City of San Ramon uses the intersection Level of Service (LOS) analysis methodology required by CCTA's Technical Procedures, termed "CCTALOS" (Contra Costa Transportation Authority Level of Service), which relates service level grades to a volume to capacity ratio (v/c). The volume to capacity ratio relates the total traffic volumes for critical opposing movements to

the theoretical capacity for those movements. This methodology can only be used for signalized intersections. Table 2-2 describes each service level grade and associated volume to capacity ratio for signalized intersections. Table 2-3 describes the level of service grade and associated control delay for all way stop controlled intersections.

Table 2-2 CCTALOS Intersection Level of Service Definitions

Level of Service	Description	Volume/Capacity Ratio (V/C)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream.	< 0.61
B	Stable traffic. Traffic flows smoothly with few delays.	0.61 – 0.70
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	0.71 – 0.80
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	0.81 – 0.90
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	0.91 – 1.0
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 1.0

Source: Contra Costa Transportation Authority (CCTA)

Table 2-3 Level of Service Criteria for AWSC Intersections

Level of Service	Control Delay (s/veh)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

Source: Highway Capacity manual (HCM)

2.1.2 Existing Levels of Service

The existing volumes are shown in Figure 3A and Figure 3B. The existing intersection geometry is shown in Figure 4A and Figure 4B. Table 2-4 summarizes the existing traffic operations during the AM and PM peak hours for the study area intersections. As noted in Table 2-4, all intersections operate at level of service C or better during both peak hours with the exception of the Bollinger Canyon Road/San Ramon Valley Boulevard, Bollinger Canyon Road/Alcosta Boulevard and San Ramon Valley Boulevard/Montevideo Drive intersections, which operate at level of service D during the PM peak hour. Two existing intersections are evaluated quantitatively. Crow Canyon Road and Crow Canyon Place is expected to operate as well as or better than Crow Canyon Road and Camino Ramon. Likewise, Crow Canyon Road and Twin Creeks Drive is expected to operate as well or better than Crow Canyon Road and San Ramon Valley Boulevard. The existing traffic operations are well within the City's thresholds for acceptable operations. The CCTALOS output is included in the Appendix.

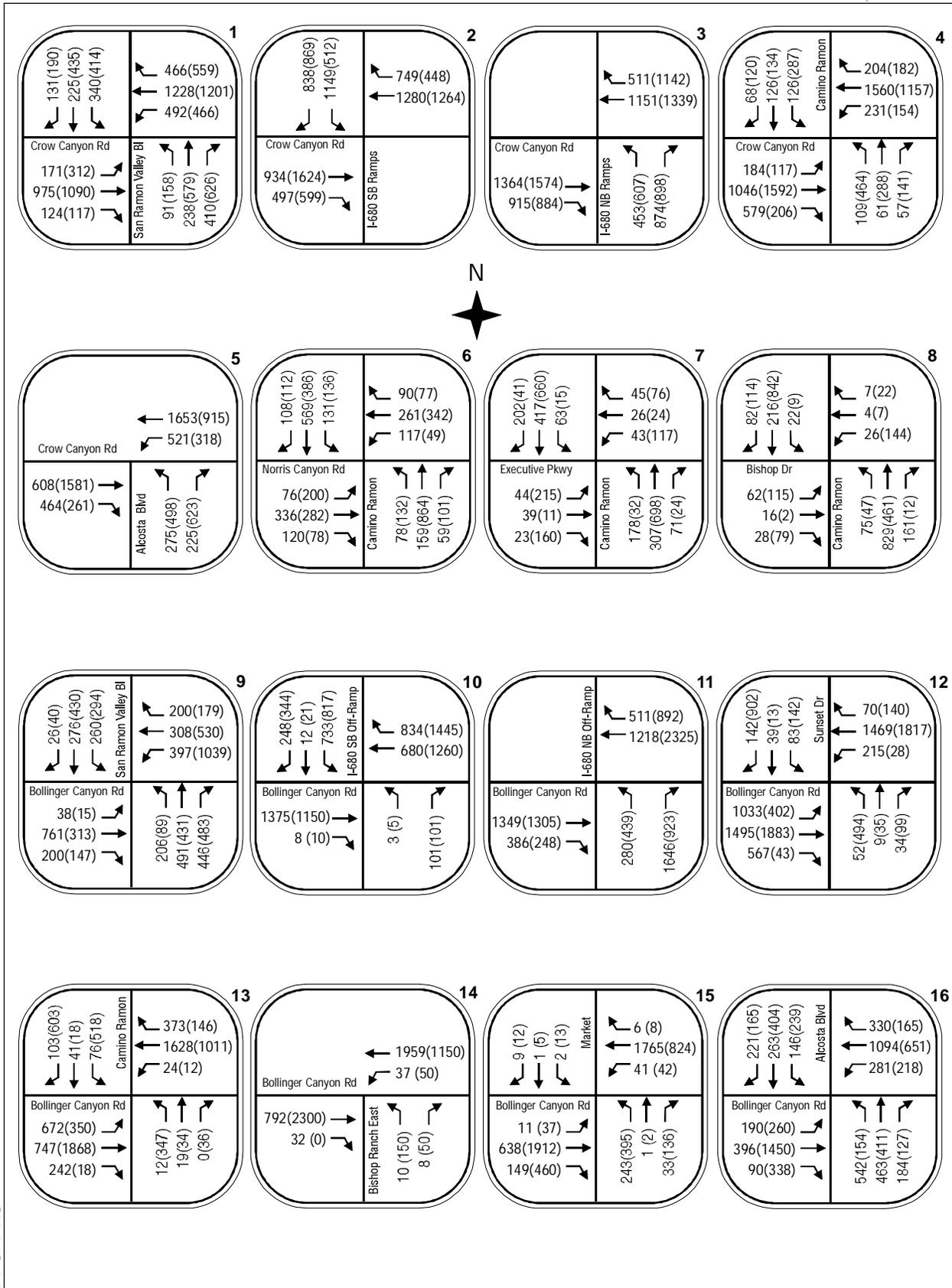


Exhibit 2-02

Figure 3A
EXISTING TRAFFIC VOLUMES
AM (PM) Peak Hour

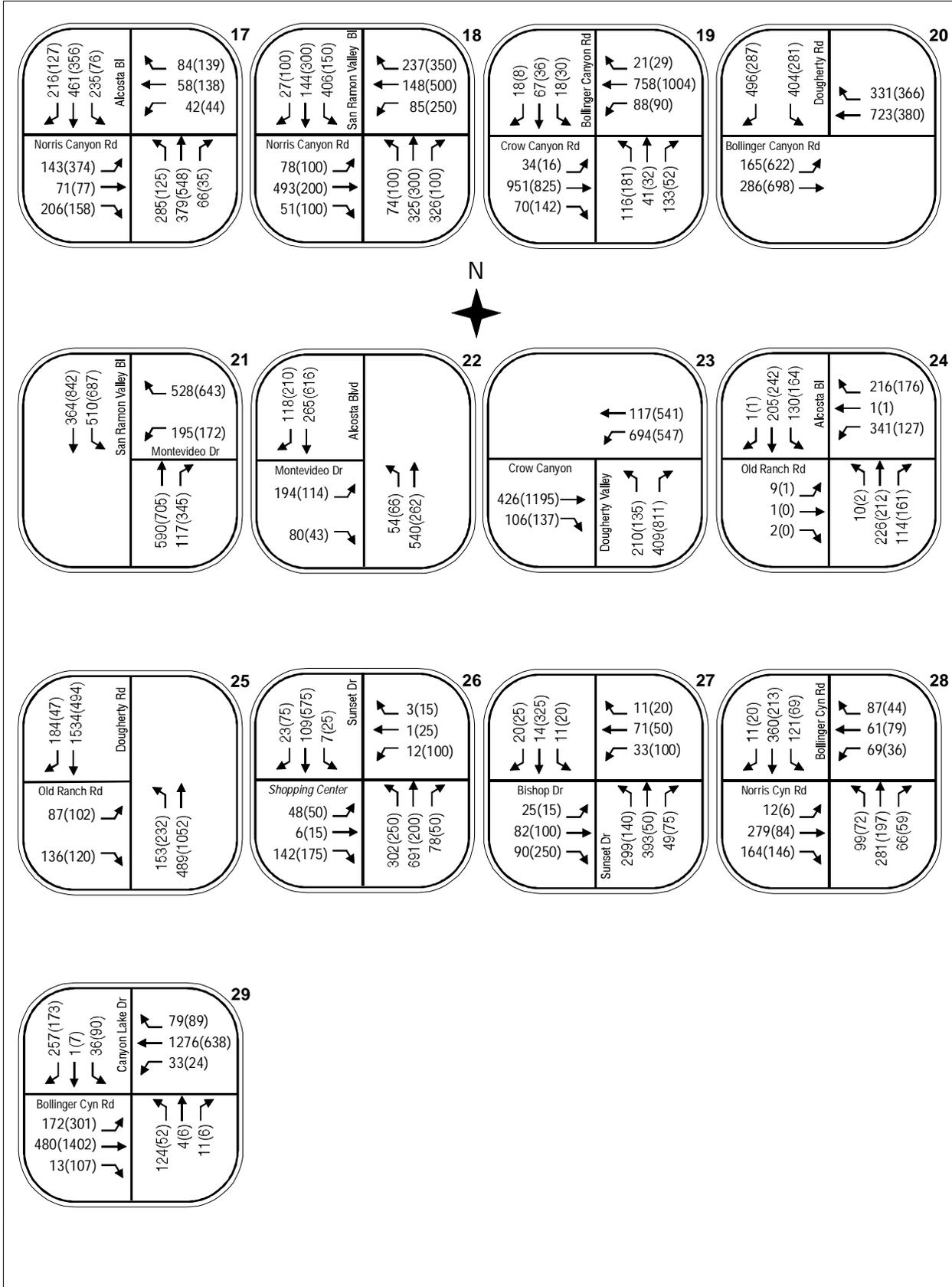
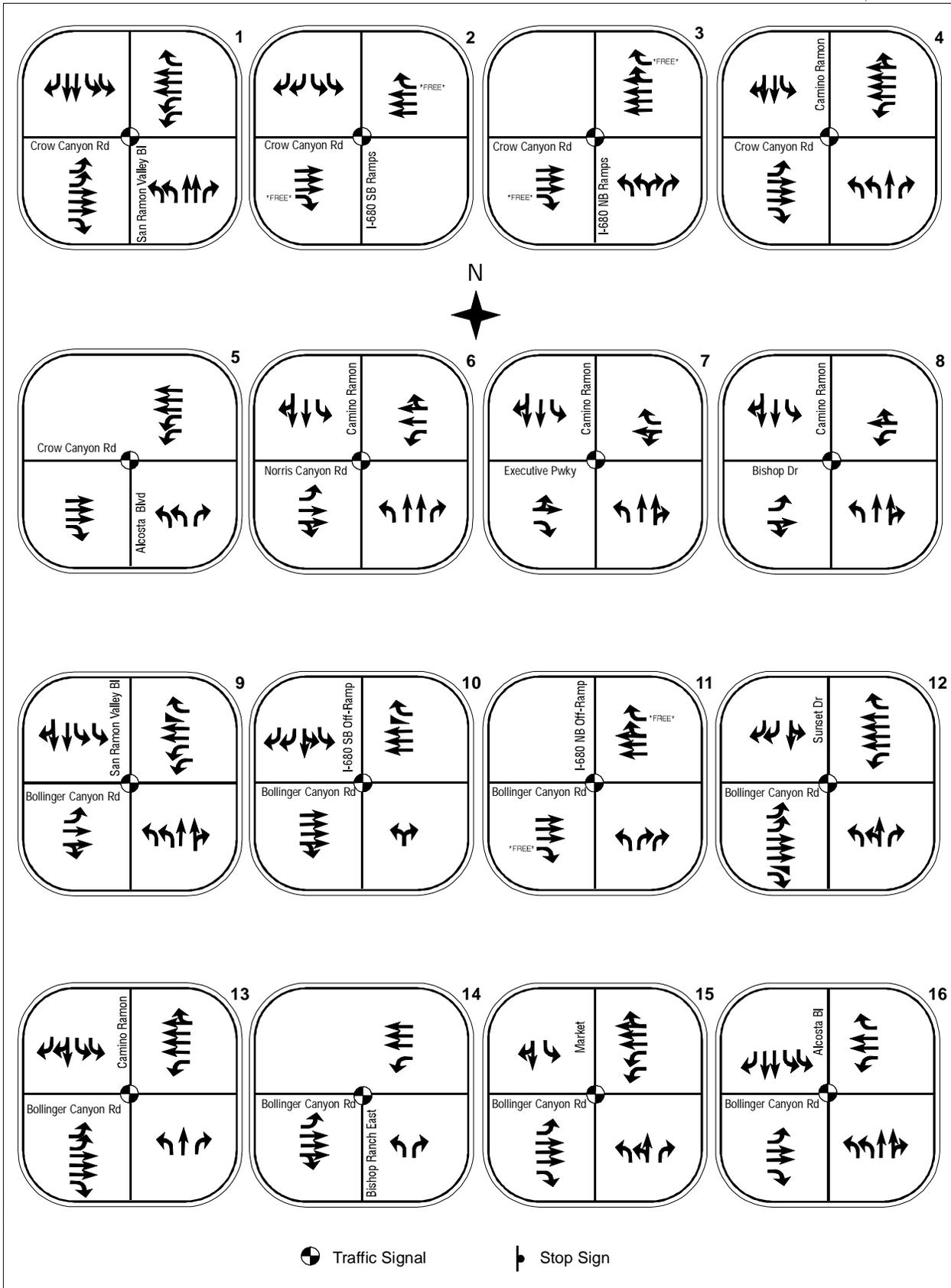


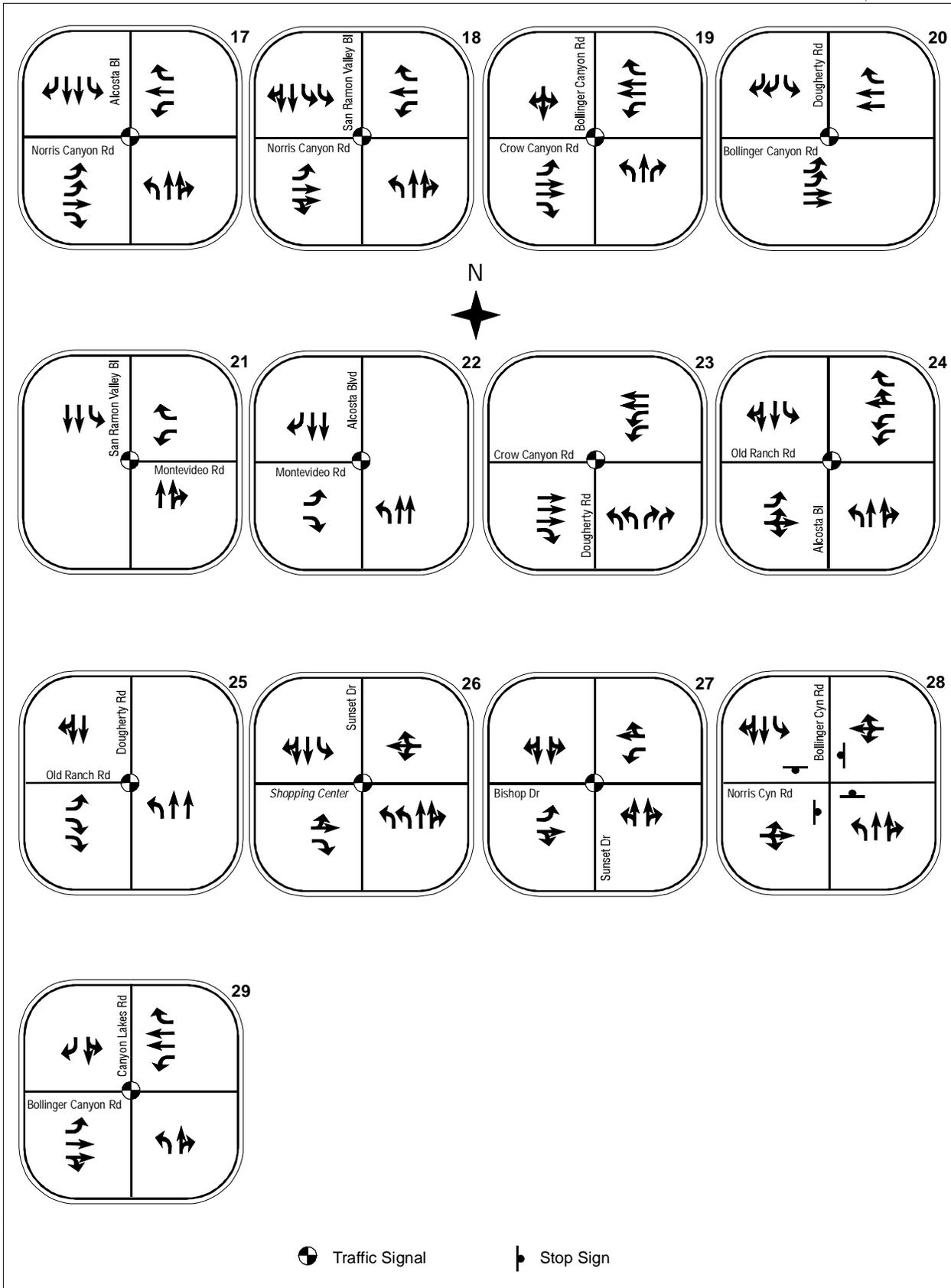
Exhibit 3 - San Ramon City Center Project

Figure 3B
EXISTING TRAFFIC VOLUMES
AM (PM) Peak Hour



Existing Geometry/rev. 1.dcf

SAN RAMON CITY CENTER PROJECT
Figure 4A
EXISTING GEOMETRY



Existing Geometry/rev 1.dwg

SAN RAMON CITY CENTER PROJECT
Figure 4B
EXISTING GEOMETRY

Table 2-4 Existing Intersection Levels of Service

Intersection	Existing (With Existing Lane Configurations)			
	AM Peak Hour		PM Peak Hour	
	V/C Ratio	LOS	V/C Ratio	LOS
1. Crow Canyon Rd./San Ramon Valley Blvd.	0.56	A	0.74	C
2. Crow Canyon Rd./I-680 SB Ramps	0.59	A	0.57	A
3. Crow Canyon Rd./I-680 NB Ramps	0.52	A	0.60	A
4. Crow Canyon Rd./Camino Ramon	0.57	A	0.76	C
5. Crow Canyon Rd./Alcosta Blvd.	0.44	A	0.67	B
6. Norris Canyon Rd./Camino Ramon	0.46	A	0.59	A
7. Camino Ramon/Executive Parkway	0.36	A	0.43	A
8. Camino Ramon/Bishop Drive	0.36	A	0.46	A
9. San Ramon Valley Blvd./ Bollinger Canyon Rd.	0.79	C	0.88	D
10. Bollinger Canyon Rd./I-680 SB Ramps	0.50	A	0.57	A
11. Bollinger Canyon Rd./I-680 NB Ramps	0.75	C	0.71	C
12. Bollinger Canyon Rd./ Sunset/Chevron Park W.	0.66	B	0.68	B
13. Bollinger Canyon Rd./Camino Ramon	0.56	A	0.74	C
14. Bollinger Canyon Rd./Bishop Ranch 1 E	0.39	A	0.56	A
15. Bollinger Canyon Rd./Market Place	0.45	A	0.54	A
16. Bollinger Canyon Rd./Alcosta Blvd.	0.71	C	0.81	D
17. Norris Canyon Rd./Alcosta Blvd.	0.40	A	0.43	A
18. San Ramon Valley Blvd./Norris Canyon Rd.	0.55	A	0.55	A
19. Crow Canyon Rd./Bollinger Canyon Rd.	0.46	A	0.45	A
20. Bollinger Canyon Rd./Dougherty Valley Rd.	0.50	A	0.47	A
21. San Ramon Valley Blvd./Montevideo Dr.	0.62	B	0.81	D
22. Alcosta Blvd./Montevideo Drive	0.27	A	0.28	A
23. Crow Canyon Rd./Dougherty Valley Rd.	0.41	A	0.57	A
24. Alcosta Blvd./Old Ranch Rd.	0.30	A	0.26	A
25. Dougherty Valley Rd./Old Ranch Rd.	0.64	B	0.37	A
26. Sunset Drive/Shopping C.	0.30	A	0.38	A
27. Bishop Drive/Sunset Drive	0.36	A	0.47	A
28. Bollinger Canyon Road/Norris Canyon Road	0.86*	C*	0.37*	B*
29. Bollinger Canyon Road/Canyon Lakes Dr.	0.59	A	0.55	A

V/C = volume to capacity ratio

LOS = level of service

* = Highway Capacity Manual (HCM) unsignalized intersection analysis

2.1.3 Thresholds of Significance

Thresholds of significance relate to the City's policies regarding traffic circulation, bicycle and pedestrian circulation, and transit service. According to the General Plan 2020, traffic service criteria are quantifiable, but the pedestrian, bicycle, and transit service criteria are qualitative and are intended to provide a basis against which to evaluate the City's policies for these modes of travel.

A proposed development project would have significant impacts on the transportation system if it would:

- Cause a study intersection to exceed the City's standard of LEVEL OF SERVICE C, with level of service D (volume to capacity ratio less than or equal to 0.90) for no more than three hours of the day (a.m., noon and p.m. peak hours). This criterion is consistent with, and slightly more stringent than, the CCTA Transportation Service Objective for intersections on Routes of Regional Significance.

- Fail to provide for reasonably efficient pedestrian and bicycle circulation, through the implementation of City standards and the General Plan 2020 proposed bicycle and trail network or General Plan 2020 policies related to pedestrian and bicycle circulation.
- Create a condition, either by design or by the generation of traffic, that provides a barrier to, or unsafe condition for, pedestrian and bicycle circulation.
- Create a transit demand that would exceed currently planned transit service.

In addition to the General Plan 2020 policies establishing standards of significance, the City entered into an annexation and development agreement (Dougherty Valley Settlement Agreement) that defines specific traffic performance requirements to minimize the impact to City of San Ramon employees and visitors. These requirements are consistent with General Plan 2020 policies:

- Strive to maintain traffic level of service C or better as the standard at all intersections, with level of service D during no more than three hours of the day for the morning, noon, and afternoon peak hours.
- Accept level of service D during two-hour peak periods, with the possibility of intersections at or closely approximating the limits of level of service D only on arterial routes bordered by non-residential development where improvements to meet the City's standard would be prohibitively costly or disruptive.

The agreement stipulates that the City of San Ramon shall not change or approve land use designations, densities, or circulation systems in the City's Outlying Areas if it would cause (unless mitigated) the General Plan 2020 traffic service standards to be exceeded on the following streets and specific intersections:

- Bollinger Canyon Road from San Ramon Valley Boulevard to Alcosta Boulevard
- Camino Ramon from Bollinger Canyon Road to Crow Canyon Road
- Norris Canyon Road from San Ramon Valley Boulevard to Alcosta Boulevard
- Bollinger Canyon Road at Alcosta Boulevard, Camino Ramon, Sunset Drive, and San Ramon Valley Boulevard
- Camino Ramon at Bishop Drive and Executive Parkway
- Norris Canyon Road at Alcosta Boulevard, Camino Ramon, Bishop Drive, and San Ramon Valley Boulevard.

2.2 Existing Freeway Analysis

2.2.1 Existing Freeway Operations

The freeway analysis was conducted using 2000 Highway Capacity Manual (HCM) software for the study section of I-680 north and south of Bollinger Canyon Road. The analysis includes both the freeway mainline and on-and off-ramps to and from Bollinger Canyon.

This analysis included four freeway sections: 1) northbound north of the I-680 Bollinger interchange, 2) southbound north of the I-680 Bollinger interchange, 3) northbound south of the I-680 Bollinger interchange, and 4) southbound south of the I-680 Bollinger interchange. A ramp analysis was also completed at five ramps on the I-680 Bollinger interchange: 1)

northbound off-ramp, 2) southbound off-ramp, 3) southbound on-ramp, 4) southbound on-ramp (loop), and 5) northbound on-ramp (loop). The northbound on-ramp is analyzed as a roadway because of the auxiliary lane which begins at Bollinger Canyon Road and extends to Crow Canyon Road. Auxiliary lanes are analyzed as weaving sections up to 2,500 feet long. Beyond that length, weaving does not apply. The analysis of a single lane addition, the case for the northbound Bollinger Canyon Road on-ramp, is simply considered to be a basic freeway segment with an additional lane. Therefore, Table 2-7 includes the auxiliary lane in the basic freeway segment analysis. Also, Table 2-8 includes the northbound on-ramp as a ramp as a roadway analysis.

Level of Service is a quality measure describing operation conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with level of service A representing the best operating conditions and level of service F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions. The level of service for a basic freeway segment is based on density given in units of passenger cars per mile per lane. These level of service thresholds are given in Table 2-5. Table 2-6 provides level of service thresholds for merge and diverge areas, which are also based on density.

Table 2-5 Level of Service Threshold for a Basic Freeway Segment

Level of Service	Density Range (pc/mi/ln)
A	0 - 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45

pc/mi/ln = passenger cars per mile per lane. **Table 2-6 Level of Service Threshold for Merge and Diverge Areas**

Level of Service	Density Range (pc/mi/ln)
A	0 - 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35
F	Demand Exceeds Capacity

pc/mi/ln = passenger cars per mile per lane.

The results of the existing freeway analysis are provided in Table 2-7. The results of the ramp analysis are provided in Table 2-8. South of Bollinger Canyon Road, I-680 operates at level of service F in the southbound direction. South of Bollinger Canyon Road in the northbound

direction the level of service is E. In both directions north of Bollinger Canyon Road, I-680 operates at LOS C and D.

The Bollinger Canyon Road/I-680 ramps operate at level of service F in the AM peak hour except the northbound loop on-ramp which operates at level of service C and the northbound on-ramp which operates at level of service A. During the PM peak hour the southbound on ramps, both the diagonal and loop ramps operate at level of service F today except for the northbound on-ramps which operate at acceptable levels.

Table 2-7 HCS Freeway Section Level of Service Analysis

Freeway Section Peak Hour		NB South of Bollinger Interchange		SB South of Bollinger Interchange		NB North of Bollinger Interchange		SB North of Bollinger Interchange	
		AM	PM	AM	PM	AM	PM	AM	PM
2006 Existing	LOS	E	E	F	F	C	C	D	D
	Density (pc/mi/hr)	44.7	36.0	*	*	23.1	23.7	30.5	34.1
	Avg. pc Speed (mph)	52.4	59.0	*	*	65.0	65.0	62.7	60.4

*Density and average speed are not determined if LOS F. NB = Northbound
 pc/mi/ln = passenger cars per mile per lane. SB = Southbound
 HCS = Highway Capacity Software

Table 2-8 HCS Ramp LOS Analysis

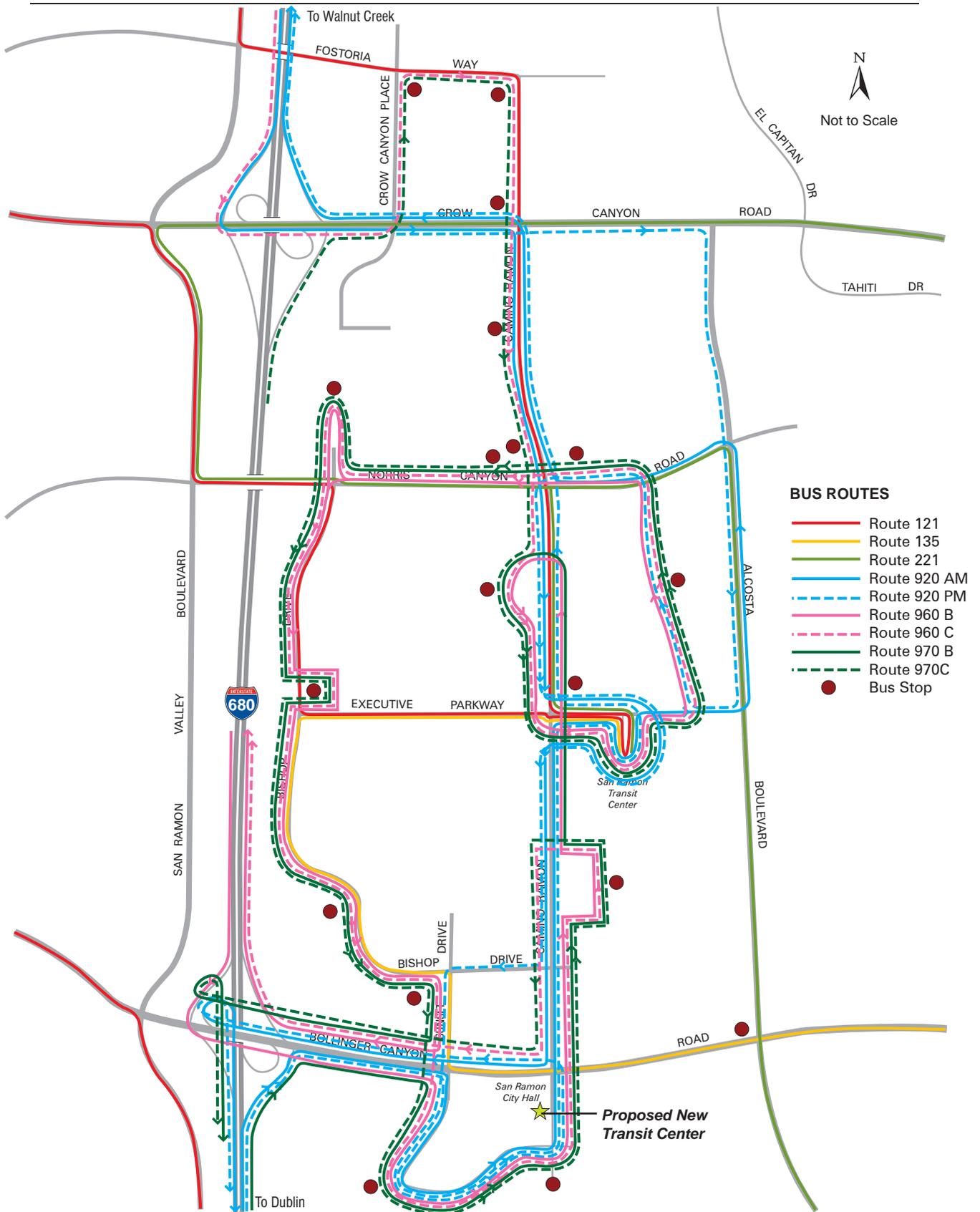
I-680 Bollinger Canyon Road Interchange	2006 Existing			
	AM		PM	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Northbound Off-Ramp	F	*	C	20.4
Southbound Off-Ramp	F	*	F	*
Southbound On-Ramp	F	*	F	*
Southbound On-Ramp (loop)	F	*	F	*
Northbound On-Ramp (loop)	C	27.9	C	26.3
Northbound On-Ramp**	A	V/C = 0.26	B	V/C = 0.45

*Density not determined if LOS F. pc/mi/ln = passenger cars per mile per lane.
 **Only the volume capacity ratio of the ramp is provided due to the auxiliary lane configuration. HCS = Highway Capacity Software

2.3 Transit Service

2.3.1 Existing Transit Service

Central Contra Costa Transit Authority (County Connection) provides transit services in the vicinity of the project site. Figure 5 shows the existing transit services in the area. The project site is located about 0.4 miles from the San Ramon Transit Center, which is situated near the intersection of Executive Parkway and Camino Ramon, adjacent to the Iron Horse Trail. Several bus routes serve the transit center and the surrounding area, namely Routes 121, 135, 221, 920, 960B, 960C, 970B, and 970C. The routes are briefly described below.



Existing Transit Routes.ai

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Figure 5
EXISTING TRANSIT ROUTES

Route 121 provides local service seven days a week throughout the San Ramon Valley, including the Study Area, between the Walnut Creek BART and the Dublin/Pleasanton BART Station. In San Ramon, Route 121 provides service along Camino Ramon and San Ramon Valley Boulevard (paralleling I-680) with deviations along Crow Canyon Road, Bollinger Canyon, Bishop Ranch Business Park and the San Ramon Transit Center. Weekday frequencies on Route 121 are approximately every 30 minutes during peak hours and every 60 minutes during midday and evening hours. Weekend frequencies are every hour. Weekday service begins on Route 121 at approximately 5:15 AM and ends at approximately midnight. Saturday service begins at approximately 7:00 AM and runs until 10:30 PM. Sunday service begins at approximately 8:40 AM and ends at 6:30 PM.

Route 135 provides service between the San Ramon Transit Center and Dublin/Pleasanton BART Stations along Bollinger Canyon Road through the Dougherty Valley. During the peak hour, service is provided every 20 minutes and the off-peak hours service is provided every 45 minutes. In addition to a stop at the San Ramon Transit Center the route includes stops at Sunset Drive and Bollinger Canyon Road at the Marketplace.

Route 221 provides limited peak hour service on weekdays between Alamo and San Ramon. In San Ramon, service is provided on Crow Canyon Road (east of I-680), San Ramon Valley Boulevard (between Crow Canyon Road and Norris Canyon Road) and Annabel Lane in Bishop Ranch. Select trips also travel south of Annabel Lane to serve the San Ramon Transit Center, Alcosta Boulevard, Montevideo Drive and Broadmoor Drive. Morning service on Route 221 begins at approximately 6:00 AM and ends at 8:00 AM. Afternoon service begins at approximately 2:30 PM and ends at 4:00 PM.

Route 920 operates on weekdays between Walnut Creek (Mitchell Drive park-and-ride lot) and the ACE station in Pleasanton and from the ACE station to Bishop Ranch. The service runs five times (twice in the AM and three times in the PM) in the southbound direction and six times (three times in the AM and PM) in the northbound direction. In the vicinity of the project site, the route stops at the San Ramon Transit Center, at the stop located eastbound at Chevron, at eastbound Bishop Ranch 1 south of Bollinger Canyon Road near Camino Ramon, and at the AT&T site, depending on the direction of travel and peak hour.

Routes 960 B/C and Routes 970 B/C – A long-standing financial agreement between the Bishop Ranch Transportation Association (Sunset Development, Chevron and Marriott), provide enhanced and expanded service to and from San Ramon Valley. Routes 960 B/C and Routes 970 B/C provide service for commuters traveling to/from the Bishop Ranch Business Park, Walnut Creek and Dublin/Pleasanton BART Station. However, service is also available to the general public. These routes are designed to connect the Bishop Ranch area with BART Stations to the south and north along I-680. Route 960 provides connections to and from Walnut Creek BART Station and Route 970 provides connections to and from Dublin/Pleasanton BART Station. During the peak hours, service is provided every 15-20 minutes and the off-peak hour's service is provided every 45 minutes. Service is designed to meet every peak hour BART train in the AM and PM hours, beginning at 6:00 AM and ending at approximately 8:00 PM.

Bishop Ranch employees ride all San Ramon Valley routes (121, 135, 960, 970 and 920) free with an Express Pass.

The existing bus schedules are included in the Appendix.

2.4 Existing Pedestrian and Bicycle Facilities

2.4.1 Existing Bicycle Facilities

The Contra Costa Comprehensive Countywide Transportation Plan includes pedestrian and bicycle facilities as an important part of meeting the diverse needs of Contra Costa County.

Similar to transit, bicycle system is an important component of the overall transportation system because, among other factors, it provides another means of access for people who do not own a motor vehicle. Bicycle systems are generally classified using the following classes of bicycle facilities:

- Class I (bike path) provides an exclusive right-of-way for bicyclists and pedestrians, with cross flows of motorists minimized.
- Class II (bike lane) provides a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross flows by pedestrians and motorists permitted.
- Class III (bike route) provides a right-of-way designated by signs or permanent markings that is shared by pedestrians and motorists.

An example of Class I facility is the Iron Horse Trail that runs immediately to the east of the proposed project site. The Iron Horse Trail is a 23-mile bicycle/pedestrian off-road regional trail developed and operated by the East Bay Regional Park District. This trail serves both recreational and transportation functions. Near the project site, Class II facilities, or bike lanes, exist west of Sunset Drive on Bishop Drive, on Alcosta Boulevard, and on San Ramon Valley Boulevard. Bollinger Canyon Road west of San Ramon Valley Boulevard also has Class II bike lanes. West of San Ramon Valley Boulevard, Bollinger Canyon Road becomes a Class III bicycle facility and extends on the south edge of Bollinger Canyon Road to the Iron Horse Trail. Class III bicycle facilities on Bollinger Canyon Road should be used by experienced bicyclists only since the roadway has relatively high speeds and significant automobile traffic demand.

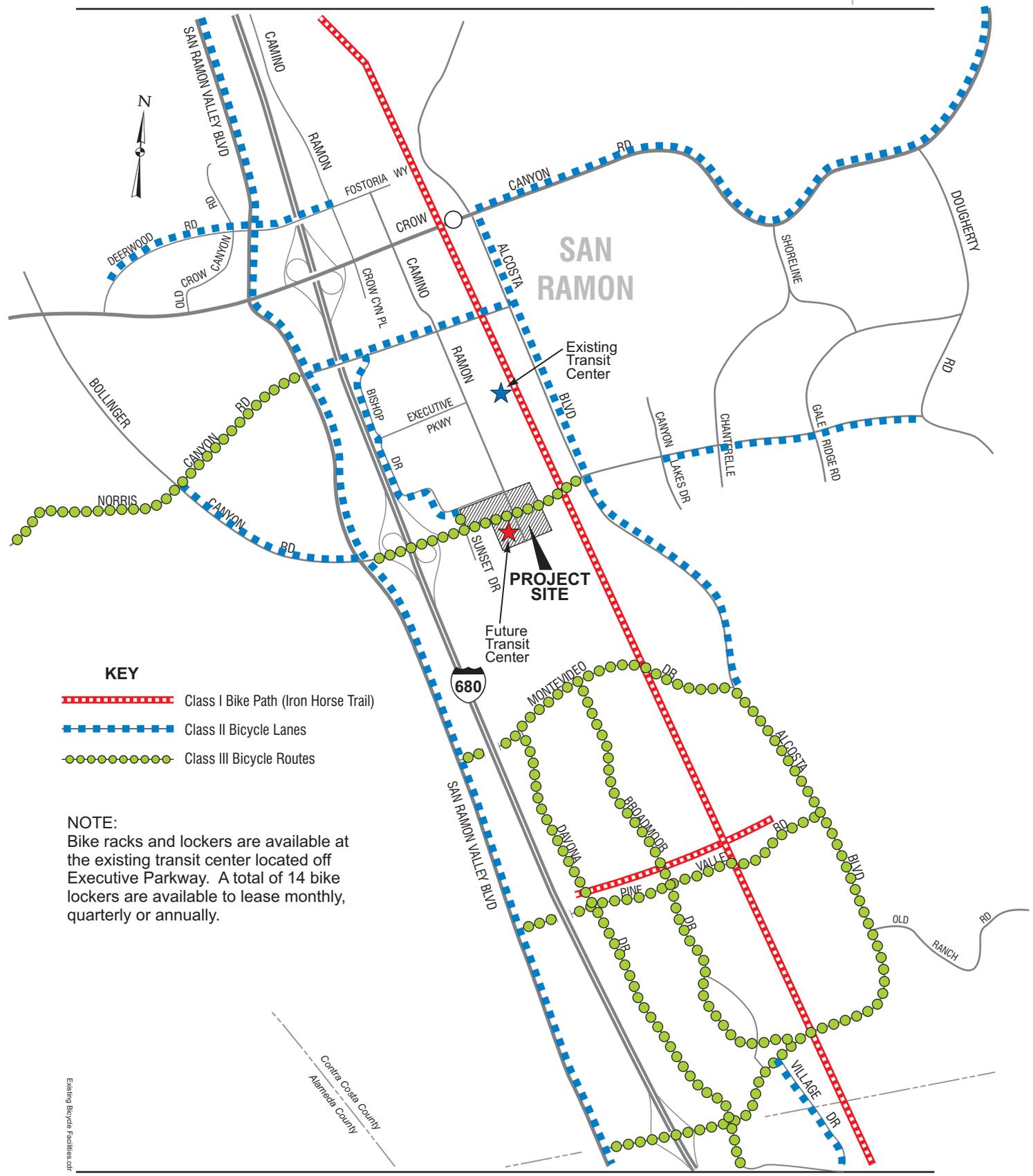
Figure 6 shows the existing bicycle transportation network near the planned project site.

2.4.2 Existing Pedestrian Facilities

Pedestrian facilities in the vicinity of the project site include striped crosswalks, sidewalks, and an off-street trail.

Figure 7 shows the existing pedestrian facilities in the area surrounding the proposed project. Signalized intersections near the project site provide pedestrian signal indications using pedestrian countdown signal heads and audio signals for visually impaired. Pedestrian phases are actuated with pushbuttons.

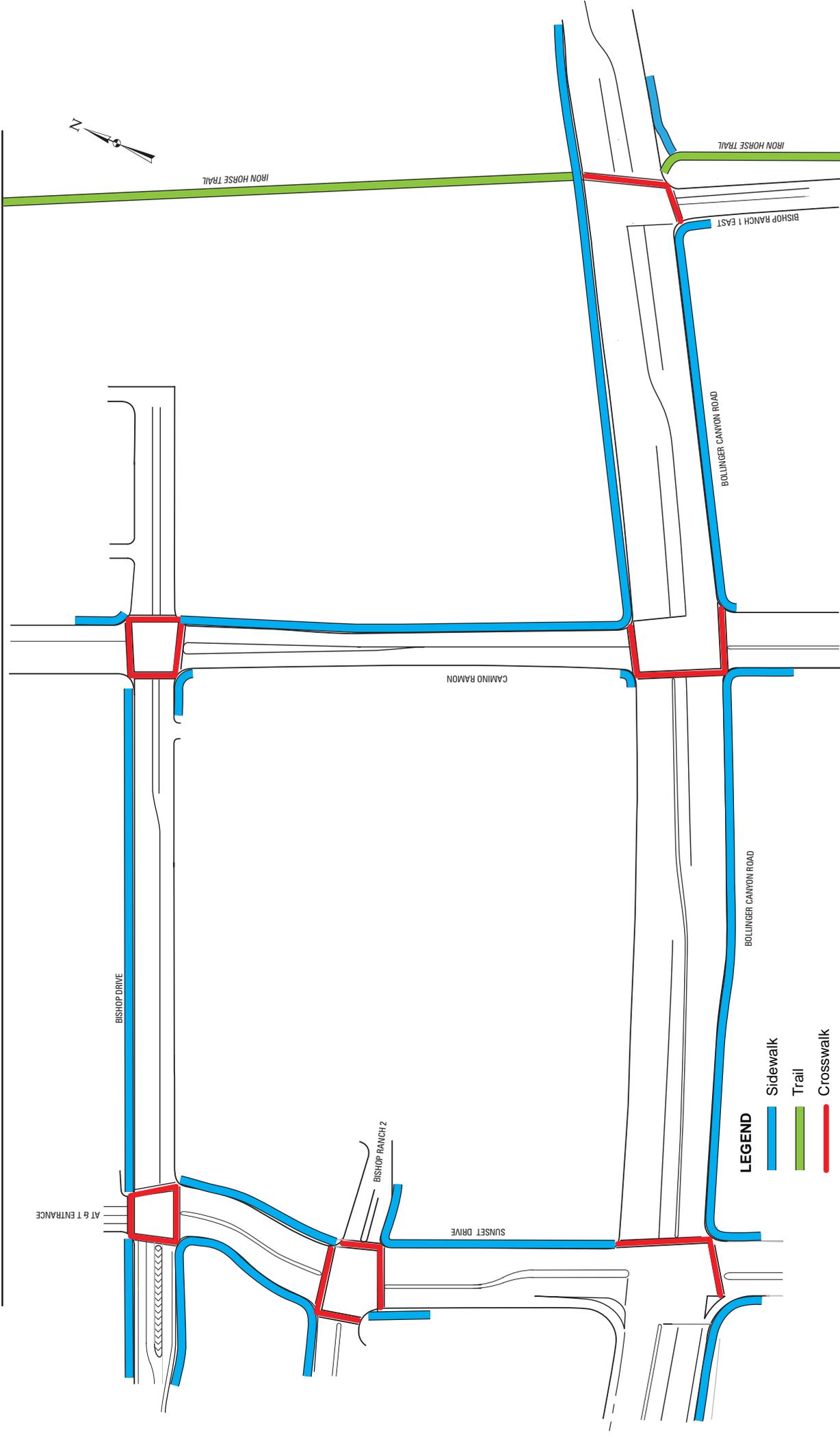
A pedestrian sidewalk runs along the south edge of Bishop Drive from west of the project site to Sunset Drive where the sidewalk terminates. A meandering sidewalk runs on the north edge of Bishop Drive to Camino Ramon where it ends. A short stretch of sidewalk is available on the



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Figure 6
EXISTING BICYCLE FACILITIES

Existing Bicycle Facilities.cdr



south side of Bishop Drive between Camino Ramon and a parking lot access just west of Bishop Drive and Camino Ramon intersection. Currently, no sidewalks exist on Bishop Drive west of Camino Ramon.

In the project vicinity, a sidewalk extends along the south edge of Bollinger Canyon Road from west of Sunset Drive to east of the Iron Horse Trail. On the north edge of the road, a sidewalk runs east from Camino Ramon. The sidewalks connect to the Iron Horse Trail just east of the proposed project site.

Sunset Drive has a sidewalk on the west edge of the roadway from Bollinger Canyon Road to Bishop Ranch 2/Center Street access. North of Bishop Ranch 2/Center Street access, sidewalks extend on both sides of the roadway to Bishop Drive, where they connect with a meandering sidewalk situated on the north edge of Bishop Drive.

Bishop Ranch 2/Center Street access has a sidewalk on its south side extending east of the Sunset Drive. To the west of the Sunset Drive, the access has sidewalks on both sides of the roadway.

A sidewalk runs on the east edge of Camino Ramon, extending from north of Bishop Drive to Bollinger Canyon Road. South of Bollinger Canyon Road a sidewalk runs on the west edge of Camino Ramon.

Bishop Ranch 1 East has a sidewalk along its west edge and the Iron Horse Trail running to the east.

Figure 7 shows the locations of crosswalks at the intersections near the project site. All legs of Bishop Drive and Sunset Drive, Bishop Ranch 2/Shops at Bishop Ranch and Sunset Drive, and Bishop Drive and Camino Ramon intersections have pedestrian crosswalks. The intersections of Bollinger Canyon Road with Sunset Drive and Bishop Ranch 1 East have crosswalks only across their south and east legs. Bollinger Canyon Road and Camino Ramon intersection has no crosswalk on its east leg.

2.5 Planned and Proposed Transportation Improvements

This section summarizes planned improvements to streets and intersections within San Ramon that are outlined in planning documents prepared by and/or for local jurisdictions.

2.5.1 *San Ramon General Plan 2020, approved by voters in 2002.*

The San Ramon General Plan 2020 provides a long-term vision for the City. The General Plan 2020 focuses on achievable goals that can be implemented by 2020. The General Plan 2020 includes a Traffic and Circulation component. Chapter 5 specifies the following improvements for the study area.

Arterial Roadways

- Crow Canyon Road: Widen to eight lanes from I-680 to Alcosta Boulevard (being constructed as of summer 2007). Widen to six lanes from Alcosta Boulevard to Danville Town limits. Preserve right-of-way for widening to four lanes from Bollinger Canyon Road to Alameda County line.

- Dougherty Road: Support construction to six lanes from Crow Canyon Road to Alameda County line.
- Bollinger Canyon Road: Widen to eight lanes from I-680 to Alcosta Boulevard. Construct to six lanes from Alcosta Boulevard to Dougherty Road (North). Construct to four lanes from Dougherty Road (North) to Dougherty Road (South).
- San Ramon Valley Boulevard: Complete construction to four lanes from Montevideo Drive to Alcosta Boulevard.
- Alcosta Boulevard Extension: Extend Alcosta Boulevard north from Crow Canyon Road to Fostoria Parkway as a four-lane street. Widen and construct Fostoria Parkway as a four-lane roadway from Camino Ramon east to Alcosta Boulevard extension. (These streets are partially within the Danville Town limits, and these projects would require the support and participation of the Town of Danville.)

Collector and Local Roadways

- Deerwood Road: Widen to four lanes from San Ramon Valley Boulevard to Crow Canyon Road.
- Camino Ramon: Widen to four lanes from Crow Canyon Road to Fostoria Parkway.
- Twin Creeks Drive: Extend and construct as a four-lane street from Crow Canyon Road to Old Crow Canyon Road.

Bicycle and Pedestrian Facilities

- Study the feasibility of bicycle/pedestrian overcrossings on the Iron Horse Trail at Bollinger Canyon Road and Crow Canyon Road. (This study is currently underway.)
- Designate Fostoria Parkway as a Class III bicycle facility from Crow Canyon Place to Iron Horse Trail (to be constructed).
- Provide new Class II bike lanes on Dougherty Road.

2.5.2 Bollinger Canyon Road Plan Line Study

This project prepared a Plan Line Study for the ultimate geometric alignment of Bollinger Canyon Road from San Ramon Valley Boulevard to Canyon Lakes Drive. The Plan Line Study is currently in the design phase and will be finalized and adopted by the end of 2007.

2.5.3 Contra Costa Countywide Comprehensive Transportation Plan (CTP 2004 Update)

The CTP 2004 Update is a 20-year plan developed by the Contra Costa Transportation Authority (CCTA) that will serve as a long-range transportation-planning document for Contra Costa County. During the development of the CTP 2004, the CCTA has identified a range of projects, with several of the projects being located in the study area. The following is a list of improvements in the vicinity of the project site, excluding the improvements already described elsewhere in this section.

- Development of an Iron Horse Trail Corridor Concept Plan for Bollinger Canyon, Crow Canyon, and Sycamore Valley Road. Concept Plan will study the feasibility of

constructing pedestrian/bicycle overcrossing(s) along the corridor at the three identified locations.

- Installation of Iron Horse Trail signage for bicyclists and pedestrians along the entire length of Iron Horse Trail.
- Widening of San Ramon Valley Boulevard from Sycamore Valley Road to Crow Canyon Road from 2 to 4 lanes.
- Crow Canyon Road and Dougherty Road intersection modification: Reconfigure the eastbound approach on Crow Canyon Road to three through lanes and one right-turn lane and reconfigure the southbound Dougherty Road south of the intersection to include an acceleration lane for vehicles that have made right-turns from the eastbound Crow Canyon Road.

2.5.4 Tri-Valley Transportation Plan/Action Plan (Year 2000 Update)

In 1994, seven jurisdictions comprised of Alameda County, Contra Costa County, Dublin, Pleasanton, Livermore, Danville and San Ramon formed the Tri-Valley Transportation Council (TVTC). In 1995, the TVTC adopted the Tri-Valley Transportation Plan/Action Plan for Routes of Regional Significance. The TVTC created a Joint Exercise of Powers Agreement (JEPA) and a Tri-Valley Transportation Development Fee was adopted and signed by all TVTC jurisdictions in 1998. In addition, the TVTC identified 11 transportation improvement projects as “high priority” for the region, including:

1. The I-580/I-680 interchange – completed.
- 2a. SR 84 – I-580 to I-680 Expressway.
- 2b. SR 84 – Isabel/Rte. 84 interchange at I-580.
3. I-680 Auxiliary Lane Project–Contra Costa–Segments 1 and 3 completed.
4. West Dublin BART Station – currently under construction.
5. I-580 HOV Project.
6. I-680 HOV Project-SR 84 to Sunol Grade.
7. Foothill/San Ramon at I-580 interchange.
8. Alcosta/I-680 interchange – completed.
9. Crow Canyon Road-Alameda County portion.
10. Vasco Road improvements – Alameda County portion.
11. Express Bus Service – Alameda County (LAVTA).

2.5.5 I-680 Investment Options Study (2003)

In 2003, DKS Associates in association with CH2M Hill prepared this study for the Contra Costa Transportation Authority. The study examined several long-term investment options for the I-680 corridor. The recommended option contained numerous improvements along I-680 in the study area. These improvements are referenced below.

- New Express Bus Service: Additional service between the study area and Martinez, East County, and Fremont/San Jose consistent with the Enhanced Scenario recommendations from the Express Bus Study; eight new buses in this service area; and expansion of the existing CCCTA maintenance facility to accommodate

additional buses. The additional express bus service would not replace or compete with existing bus service.

- A Project Study Report (PSR) for the Norris Canyon Project has been initiated. The Contra Costa Transportation Authority, in concert with San Ramon and Caltrans, will develop and finalize a PSR that will confirm the scope, schedule and estimated costs of the Norris Canyon project. The Project will provide convenient and direct access for transit, car/vanpools to and from the San Ramon Transit Center and will improve safety due to the reduction in the amount of weaving by HOV's entering or exiting the freeway. Figure 8 illustrates the HOV ramp concept. The PSR is anticipated to be completed by August 2008.
- San Ramon Transit Center Enhancements: Includes expanded parking to be achieved through lease agreements with adjacent properties.
- HOV Lane Extension South (Alcosta Boulevard to south of the I-580 Junction): Includes re-striping the median and widening the outside shoulder to create the width necessary to extend the HOV lanes through the interchange. May require design exemption to accommodate additional lane. The major part of the costs is for improvements in Alameda County.
- Northbound HOV Lane Extension: North (Livorna Road to North Main Street): Through the SR 24 junction. A PSR is currently underway.
- Sycamore Valley Road Direct HOV Ramps: Includes reconstruction of interchange, widening of median, and construction of new HOV-only on- and off-ramps in both the northbound and southbound directions.

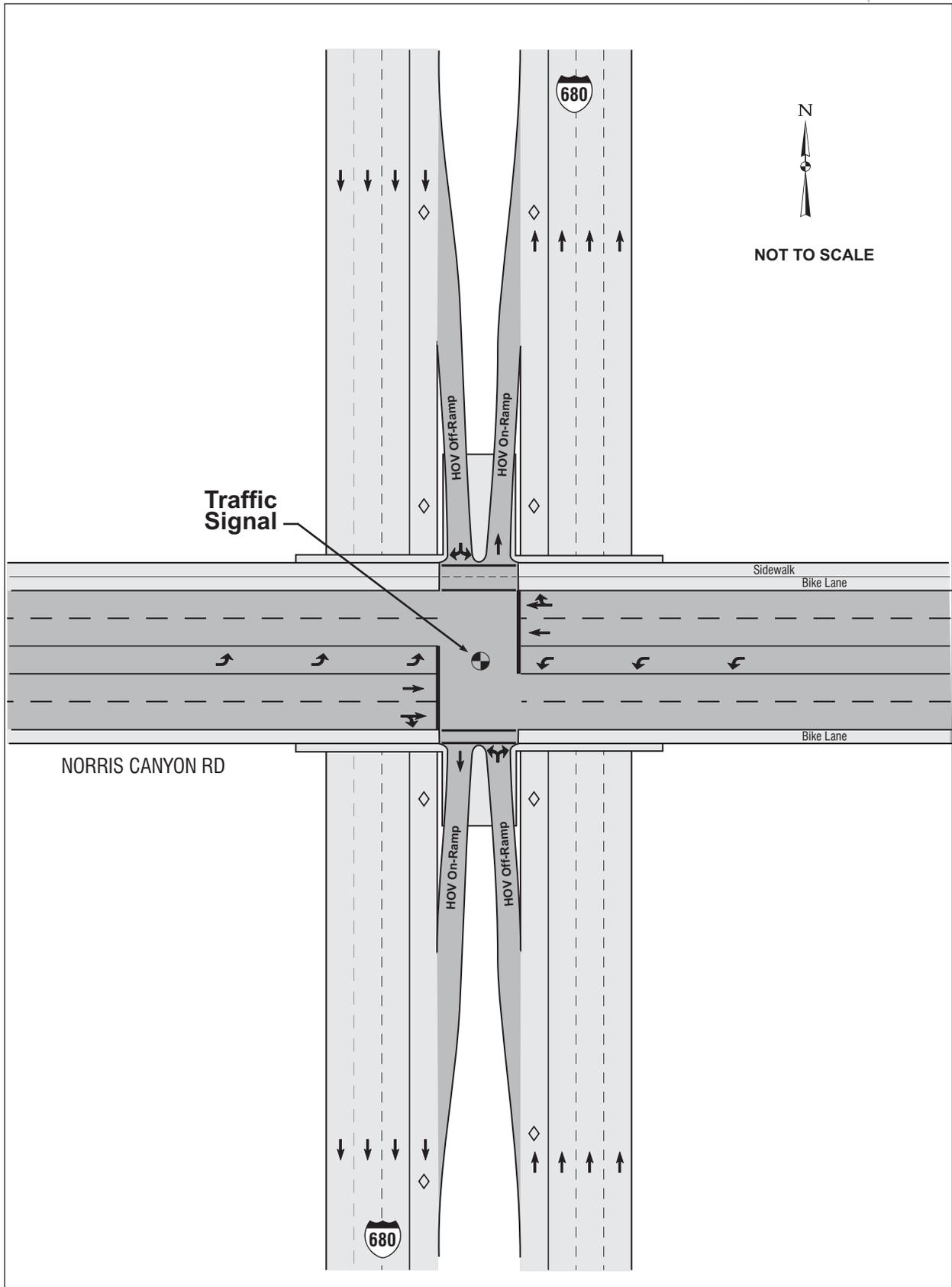
2.5.6 Measure J

Contra Costa's Transportation Sales Tax Expenditure Plan, adopted by Contra Costa voters in 2004, will continue with the County's existing ½-cent transportation sales tax to 2034. The Expenditure Plan includes Capital Improvement Projects and Programs ranging from the Caldecott Tunnel Fourth Bore, Highways 4 expansion, intersection improvements on I-680 and State Route 242, adding express bus service from Central Contra Costa to the San Ramon Valley, a San Ramon School Bus Program, Pedestrian, Bicycle and Trail Facilities, to name a few.

A critical capital improvement project for the San Ramon Valley includes: "Interstate 680 Carpool Lane Gap Closures/Transit Corridor Improvement." The Project will extend existing bus/carpool/vanpool lanes on southbound I-680 from North Main Street to Livorna Road and northbound from North Main Street to north of SR 242. Construct bus/carpool on-and-off ramps at Norris Canyon Road and/or Sycamore Valley Road, and other transit corridor improvements.

2.5.7 The County Connection Fiscal Years 2005-2014 Short Range Transit Plan

A short-range transit plan addresses transit improvements expected over the next 5 +/- years. The Plan justifies the County Connection's funding requests and outlines likely changes in services and operations in the future. The Plan is based on the current information and subject to change as new data becomes available. The changes listed below are divided in two groups: Track I and Track II. Track I changes are expected to be implemented in the foreseeable future.



Norris HOV Ramps.cdr

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Figure 8
NORRIS CANYON ROAD HOV RAMP CONCEPT

Track II changes depend on the availability of funding and may or may not be implemented within a reasonable time frame.

Track I Planned Service Changes

- Route 121 Alignment Changes
- New Service Using Out-of Service Bus Trips: This project will review current out-of service bus trips for the potential of operating these trips or portions of these trips as regular in-service trips. Each day County Connection buses travel between the operations facility and the starting points of the routes. These trips could provide service between San Ramon and Dublin, between Downtown Concord and North Concord industrial area.

Track II Proposed Service Changes

- Dougherty Valley Transit Service: This transit plan recommends the creation of an all day route serving Dougherty Valley and Dublin BART, changes to existing Route 121 and the creation of a new local San Ramon bus route. The highest priority has been the new Dougherty Valley route and some of the changes on Route 121. The inauguration of Dougherty Valley Transit Service took place in December 2006.
- CCCTA Route 920 service expansion to serve hypothetical Altamont Commuter Express fourth train. Currently, per agreement with ACE, County Connection provides service to each of ACE's three morning and afternoon trains. Route 920 links the Pleasanton Train Station to Bishop Ranch in San Ramon as well as Walnut Creek.
- Provide limited holiday service on New Year's Day, Labor Day, Fourth of July, Memorial Day, Thanksgiving, or Christmas Day. Currently, no service is provided during these holidays.
- Provide restructured weekend service designed to link major weekend traffic generators with more densely developed residential areas. This improvement would mostly focus on restoring Saturday service to areas that had their Saturday service eliminated as part of the recent efforts to reduce the Authority's operating budget deficit.
- Paratransit is expanded to provide ADA parallel service during the same times and days as Track II fixed-route projects.
- Increased express bus service (various routes).

2.5.8 San Ramon Transit Plan

In 2004, San Ramon embarked on a public transit analysis to provide an objective assessment and overview of the multiple transit services and operational alternatives available to the City. The final plan, adopted by the San Ramon City Council in April 2005, is a transit-planning tool to assist and guide the City's policy makers toward the pursuit of improved and expanded transit service throughout San Ramon.

The San Ramon Transit Plan articulates a vision for public transit services for residents, seniors, youth, commuters and the business community. San Ramon's vision of transit service includes:

- Fixed Route Circulator Service.
- Service to south San Ramon, including California High School, Pine Valley Middle School and the San Ramon Senior center.
- Expanded weekend service.
- Service to Activity Centers along the Northwest corridor of San Ramon Valley Blvd.
- Maximize the existing regional transit routes to effectively meet the needs of all San Ramon residents and commuters.
- Maximize the use of transit funds.

2.5.9 The Contra Costa Countywide Bicycle

This Plan describes bicycle and pedestrian needs in the Contra Costa County and outlines goals and strategies as they apply to bicycling and walking. The Plan seeks to encourage local efforts to improve bicycle and pedestrian facilities facilitating safety and attractiveness of bicycling and walking. The Plan lists several projects proposed in the study area including already listed above Iron Horse Trail overcrossing at Bollinger Canyon Road as well as Old Ranch Road Bicycle Trail running from Old Ranch Park to Stage Coach Road.

2.5.10 BART Fiscal Year 2006 to 2015 Short Range Transit Plan and Capital Improvement Program

This report identifies a new West Dublin/Pleasanton station that is planned to be constructed on Blue Line between Castro Valley and Dublin/Pleasanton stations in the median of I-580. The station is projected to open in fiscal year 2009.

3.0 PROJECT ANALYSIS

3.1 Trip Generation

The addition of 487,117 square feet of office space, 663,339 square feet of retail space, a six screen cinema of 21,945 square feet, a 169 room hotel, 488 condominium units, a 75,150-square foot civic center, a 35,340-square foot library, and any alternate project conditions would add traffic to the study area intersections. Trip generation of the proposed development was calculated using statistics from the Institute of Transportation Engineers and the Civic Center traffic report prepared for the City of San Ramon. The ITE publication Trip Generation, 7th Edition, was used to determine the trip rates for the project. Trip generation and the subsequent traffic operations analysis is conducted for the typical AM and PM peak hours. Traffic volumes and impacts at other times, such as noon or the afternoon school peak hour, would be less. Table 3-1, Table 3-2, and Table 3-3 summarize the trip generation expected for the three project conditions, respectively.

Reductions to the standard trip generation rates have been made to reflect how the project will actually generate traffic once it is built and occupied. Two types of reductions have been made. First, reductions have been made because of the interaction between the various land uses of the project. Second, percentage reductions have been taken into account for proximity to the proposed transit center, pass-by traffic that would otherwise still be on the roadway network, and travel demand management programs that are in place in Bishop Ranch.

For internal trip reductions, adjustments were made to the retail, office park, condominium, and hotel land use trip generations based on the ITE methodology for determining the internal capture associated with multi-use development. The calculation sheets are included in the appendix. Retail, office park, condominium, and hotel were assumed to generate internal trips at the City Center development. Guests at the hotel are expected to use the adjacent retail services and interact with the adjacent office space similar to residents in the condominium units. The internal trips were subtracted from the single-use trip generation estimate to determine the external trips for each land use. Additional percentage based reductions were made, and these reductions were applied to the external trips, not the single-use trip generation estimate.

The additional percentage based reductions include proximity to the proposed transit center, retail pass-by trips, TDM (transportation demand management), and a PM walk mode. A two percent reduction was made for the condominiums and hotel for residential development near a major transit facility and a similar two percent reduction of the office trip generation was made for employment near a major transit facility. These reductions were adapted from the Santa Clara County Congestion Management Plan for development within 2,000 feet of a major bus stop. Data was adapted from Santa Clara County in the absence of any guidelines from Contra Costa County. The retail pass-by trip reduction was determined based on the fitted curve equation from the ITE pass-by methodology. The TDM reduction of 15 percent is based on historic data from the City and the Bishop Ranch Business Park TDM programs. The City of San Ramon's TDM program was originally established in February 1989. Over the years, the program has evolved into one of three regional TDM programs known as 511 Contra Costa. The City provides administrative oversight and implements the 511 Southern Contra Costa County TDM programs.

TDM is a series of measures promoting alternatives to the single occupant vehicle for reducing traffic congestion and improving air quality by maximizing the use of the existing transportation infrastructure. These measures include carpooling, vanpooling, transit, walking, bicycling, telecommuting, compressed workweeks, etc. The primary goal of the City's Employer TDM program is to reduce traffic congestion and improve air quality through the reduction of work-related car trips.

As part of this endeavor, the City facilitates a TDM Advisory Committee, which is comprised of five (5) business members appointed by the City Council to make recommendations to the staff, and City Council on the delivery of TDM programs, activities, services, and policies. The TDM committee is responsible for the following:

1. Coordinate and monitor the implementation of the Regional and Citywide TDM efforts in order to achieve reductions in employment-related single occupant vehicle traffic.
2. Recommend to City Council improvements in City services and facilities to assist employers in reducing single occupant vehicles.
3. Develop and implement commute alternative programs in concert with 511 Contra Costa and the Contra Costa Transportation Authority.
4. Coordinate TDM efforts with all employers and complexes in the City.
5. Coordinate TDM efforts with local and regional agencies as designated by the City.
6. Serve as liaison between the City and business community.

The Bishop Ranch Transportation Association has been an active member of the City's TDM program since the program's inception. Bishop Ranch has been recognized a multiple number of times at the local, regional, state, and federal level for their leadership and contribution to reduce the number of single occupant vehicles and encourage commuters to carpool, ride transit, vanpool, walk, bicycle, etc., to work.

Bishop Ranch also continues to create and implement unique, creative and successful TDM strategies that improve air pollution by significantly reducing traffic congestion.

Since 1989, the City has collected data related to commute patterns from businesses throughout the City including the Bishop Ranch Business Park. Over the years, the survey data has included information and survey results from Bishop Ranch Business Park and the City of San Ramon. Recent survey data from the City's TDM program includes:

Number of surveys distributed

	1997	1999	2001	2003	2006
Number of surveys distributed:	22,684	23,601	24,726	21,336	18,332
Number of surveys returned:	3,874	3,701	4,905	6,718	6,953
Response Rate:	17%	16%	20%	31%	38%

Commute Modes 2003

Commute Mode	Percent
Drive alone	77.7%
Carpool	10.5%
Vanpool	3.4%
BART & bus	2.6%
Bus	1.2%
Motorcycle	0.4%
ACE	0.6%
Bicycle	0.6%
Walk	0.4%
Telecommute	1.5%
Compressed day off	1.2%
Total	100%

Commute Modes 2006

Commute Mode	Percent
Drive alone	68.8%
Carpool	9.5%
Vanpool	3.3%
BART & bus	2.4%
Bus	2.5%
Motorcycle	0.6%
ACE	0.9%
Bicycle	1.2%
Walk	0.6%
Telecommute	2.2%
Compressed day off	1.7%
Other	6.3%
Total	100.0%

Two reductions were made for the city hall and library. A transit/TDM reduction of 10 percent was made for the city hall and library PM peak hour traffic was reduced by 25 percent for walking. These percentages are consistent with the prior environmental review for these projects in 2003.

The amount of traffic expected to be generated by the 488 planned condominiums would be 173 trips in the AM peak hour, 150 trips in the PM peak hour, and 1,525 daily trips as noted in Table 3-1. Reductions for internal trips and the two percent transit center reduction were assumed in this forecast.

The amount of traffic expected from the hotel would be 55 trips in the AM peak hour, 57 trips in the PM peak hour, and 703 daily trips. Reductions for internal trips and the two percent transit center reduction were assumed.

Table 3-1 also documents the amount of traffic that would be generated by the 663,340 square feet of retail development in the project. The retail component would generate 331 trips in the AM peak hour, 1,568 trips in the PM peak hour, and 16,487 daily trips. An internal trip reduction was applied. The external retail traffic was also reduced by 22 percent to account for pass-by traffic. Pass-by trips are trips passing by on adjacent streets and stopping at the project as an intermediate stop between the original origin and destination. The 22 percent adjustment was applied to the daily traffic, and the AM peak hour outbound traffic and the PM peak hour inbound traffic (which are the non-peak directions during the peak commuter hours). No TDM or transit center reduction was applied to the traffic forecast for the retail component of the project.

The six-screen cinema is not expected to generate trips during the AM peak hour, but will generate 121 trips during the PM peak hour and 348 daily trips. No reduction was made to the cinema-generated traffic.

As noted in Table 3-1, the 681,770 square-foot office park is expected to generate 891 trips in the AM peak hour, 724 in the PM peak hour, and 5516 daily trips. During the AM peak hour the majority of these trips, 89 percent, would be inbound. During the PM peak hour, the majority of the office trips, 86 percent, would be outbound. An internal trip reduction was applied. The external trips were reduced by 15 percent to reflect the successful TDM program in place within

the Bishop Ranch Business Park. In addition, a two percent reduction has been assumed for the proposed transit center.

The amount of traffic expected from the library would be 36 trips in the AM peak hour, 133 trips in the PM peak hour, and 1,405 daily trips. During the AM peak hour, 70 percent of these trips would be inbound and during the PM peak hour the directional distribution would be evenly split. The total PM peak hour trip generation has been reduced by 25 percent to reflect the anticipated amount of people that would walk to the library during this period.

The amount of traffic expected from the City Hall would be 183 trips in the AM peak hour, 243 trips in the PM peak hour, and 4,143. During the AM peak hour, 90 percent of these trips would be inbound and during the PM peak hour, 70 percent of these trips would be outbound. The total trip generation has been reduced by 10 percent to reflect the successful TDM program in place within the Bishop Ranch Business Park. The trip generation rates and the trip reduction assumptions for the library and City Hall are consistent with Civic Center traffic report completed in 2003.

The Flex Office project condition trip generation provided in Table 3-2 differs from the first project condition in that 50,142 square feet of the retail would be converted to office space (Flex Office). All other assumptions and reductions were applied in a similar manner to the Flex Retail scenario.

The Flex Civic Center project condition trip generation provided in Table 3-3 differs from the first project condition in that the civic center and library are turned into office and included in the office park since the office park is planned adjacent to these uses. All other assumptions and reductions were applied in a similar manner to the Flex Retail scenario.

Only the Flex Retail scenario was analyzed since it produces the highest number of PM peak hour trips and the PM peak hour is the critical period. In addition, the difference between the trip generations of the project scenarios is small and differences in analysis results are anticipated to be negligible. The Flex Retail Scenario is expected to generate 2,995 PM peak hour trips compared to 2,976 for the Flex Office and 2,672 for the Flex Civic Center Scenarios during the PM peak hour.

3.2 Office Trip Generation Methodology

Two types of credit were applied to the office use trip generation. The first trip generation deduct is a "replacement" deduct as it accounts for the teardown of 194,652 square feet of the existing BR2 office building. The second trip generation deduct is regarding a "previous entitlement" 328,220 square feet of future office space in the southeast quadrant of the project (BR1A) has been entitled, and "grandfathered in," under an existing development, but has yet to be constructed.

The proposed office development in the southeast quadrant of the project (BR 1A) consists of 681,769 square feet. BR2, consisting of 194,652 square feet, currently exists and its traffic generation is included in the existing traffic volumes. BR2 will be torn down. Since its traffic generation is already in existing traffic volume, 194,652 square feet of trip generation was applied as a deduct against the proposed square footage of office development in BR1A of

681,769 square feet, leaving a net increase of 487,117 square feet of office for the project. The increase of an additional 487,117 square feet is used in the Existing Plus Project Condition Analysis for this traffic study. Table 3-4 shows the traffic volumes from the existing office space to be deducted from the roadway network. Table 3-5 shows the resulting trip generation for the existing condition with the removal of the existing office space.

The second trip generation credit relates to existing entitlement on the southeast quadrant land use that has been incorporated into the City's General Plan 2020. When Sunset obtained the southeast quadrant property from Chevron that purchase also included the right and entitlement to construct 1,056,311 square feet of office development. The traffic associated with the development of 1,056,311 square feet was included in the build-out traffic analysis prepared for the General Plan 2020 Environmental Impact Report. Of the 1,056,311 square feet, Sunset Development subsequently developed 728,091 square feet of office development, BR1, and retained the right to build the remaining 328,220 square feet of office space in the future. This right and entitlement is memorialized in the Second Amendment, dated May 28, 2002, to the assumed Chevron Development Agreement. Since the 328,220 square feet of office trip generation was already planned for in the General Plan 2020 trip generation analysis, this amount of credit was taken in the 2020 Level of Service plus project condition analysis leaving a net increase of 353,550 square feet. Removing the existing BR2 office space reduces the net increase further to 158,898 square feet. Table 3-6 illustrates the traffic volumes generated by the entitled office development. Table 3-7 shows the resulting trip generation for the project condition with both the existing office space and the entitled office space subtracted.

3.3 Trip Distribution

Trip distribution is the pattern of travel to and from the project during the peak hours. Since the project has land uses that attract traffic both locally and regionally, the traffic analysis uses three distribution patterns. The office component would generally attract regional travel from the surrounding Tri-Valley community. The retail component would attract travel from the surrounding office park and residents living in the area. Other retail trips would be from the Tri-Valley regional area and would travel longer distances to the site. The residential component would produce regional travel destined to and from the freeways for the surrounding Tri-Valley community. The library component would have locally generated traffic, and the civic center would attract trips regionally. Table 3-8 summarizes the distribution patterns used in the analysis. TRAFFIX software has been utilized to assign the project traffic to the study area intersections. The resultant project trips for the Flex Retail project conditions are shown in Figures 9A and 9B. Some movements noted on Figures 9a and 9B are negative. Negative trips are the result of demolishing the existing BR 2 office space. The trip distribution patterns shown in Table 3-8 were developed from the CCTA's Regional Travel Demand Forecasting Model.

Table 3-4 Traffic Forecast for the Demolition of the Existing Office Uses

Description	ITE Code	Size	Units	Trip Generation Rates																	
				AM						PM						Daily					
				In		Out		Total		In		Out		Total		In		Out		Total	
				In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Existing Office Park	750	194.6	KSF	1.73	0.21	1.95	0.25	1.51	1.76	12.52	337	42	379	48	294	342	2,437				
Red. TDM (15%)											-51	-6	-57	-7	-44	-51	-366				
TC Red. (2%)											-7	-1	-8	-1	-6	-7	-49				
Existing Office Park Trips Removed											280	35	315	40	244	284	2,023				

Table 3-5 Flex Retail Project Traffic Existing Analysis Summary

Description	AM						PM						Daily
	In		Out		Total		In		Out		Total		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Adjusted New Project Trips	1,261	407	1,668	1,161	1,834	2,995	30,127						
Existing Office Removed	-280	-35	-315	-40	-244	-284	-2,023						
Net New Project Trips (Existing)	981	372	1,353	1,121	1,590	2,711	28,105						

Table 3-6 Current Office Park Entitlement

Description	ITE Code	Size	Units	Trip Generation Rates																	
				AM						PM						Daily					
				In		Out		Total		In		Out		Total		In		Out		Total	
				In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Office Park	750	328.2	KSF	1.59	0.20	1.79	0.21	1.32	1.53	11.67	523	65	588	70	433	503	3,829				
Red. TDM (15%)											-78	-10	-88	-10	-65	-75	-574				
TC Red. (2%)											-10	-1	-12	-1	-9	-10	-77				
Office Park Trips removed in 2020											434	54	488	59	359	418	3,178				

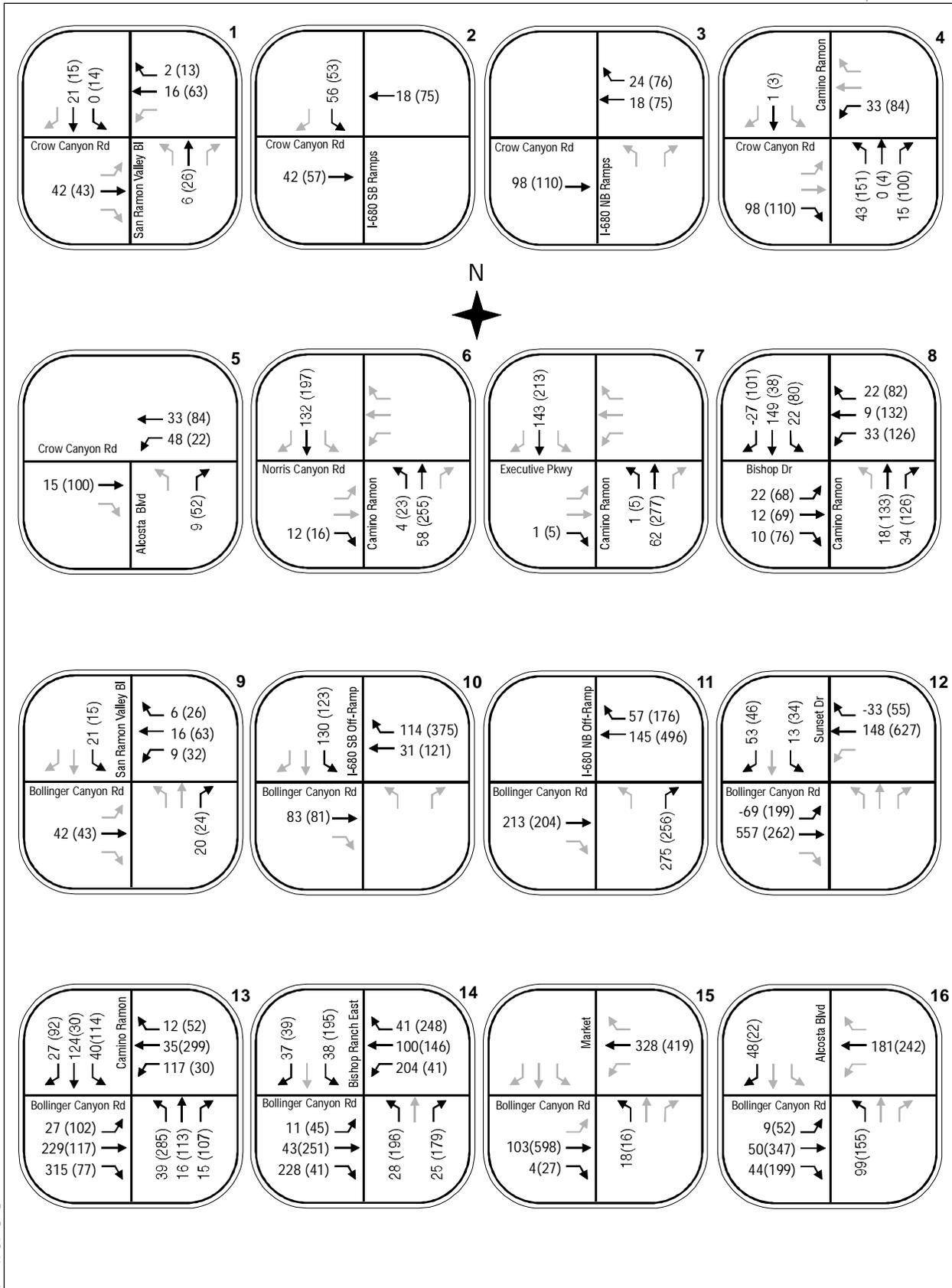
Table 3-7 Flex Retail Project Traffic 2020 Analysis Summary

Description	AM						PM						Daily
	In		Out		Total		In		Out		Total		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Adjusted New Project Trips	1,261	407	1,668	1,161	1,834	2,995	30,127						
Minus Office Entitlement	-434	-54	-488	-59	-359	-418	-3,178						
Subtotal (New Project Trips - Entitlement)	827	353	1,180	1,102	1,475	2,577	26,949						
Existing Office Removed	-280	-35	-315	-40	-244	-284	-2,023						
Net New Project Trips Above Current Entitlement	547	318	865	1,062	1,231	2,293	24,926						

KSF = 1,000 square feet
TC = transit center
TDM = transportation demand management

Table 3-8 Trip Distribution Assumptions

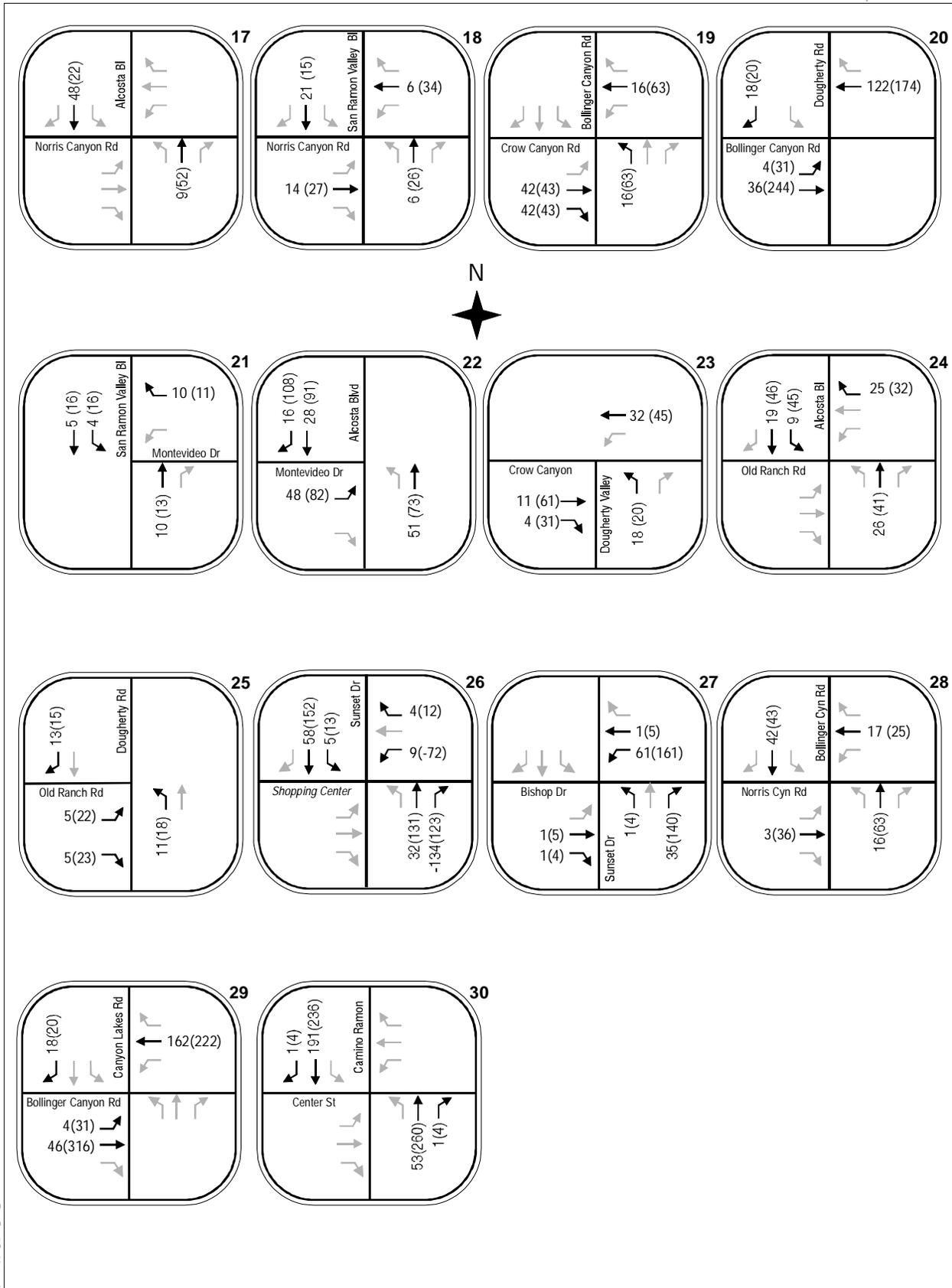
Gateway	Local Distribution Pattern (Applies to Library & 40% of Retail)	Regional Distribution Pattern (Applies to Civic Center, Office and 60% of Retail)	Regional Distribution Pattern (Applies to Residential)
I-680 North	0%	20%	30%
I-680 South	0%	30%	40%
San Ramon Valley Boulevard S	2%	2%	3%
Crow Canyon Road West	4%	9%	9%
Bollinger Canyon Road East	31%	18%	2%
San Ramon Valley Boulevard N.	4%	2%	2%
Fostoria Way	1%	0%	0%
Bishop Ranch East	1%	0%	0%
Bishop Ranch West	1%	0%	0%
Neighborhoods West of I-680 north of Bollinger	5%	1%	1%
Neighborhoods West of I-680 south of Bollinger	6%	1%	1%
Chevron Park	0%	0%	0%
Market Place	1%	2%	0%
Crow Canyon Road East	7%	5%	2%
Canyon Lakes North	5%	2%	0%
Canyon Lakes South	5%	0%	0%
Alcosta Road South	27%	8%	10%



Flex Retail Proj Vols.dwg

SAN RAMON CITY CENTER PROJECT

Figure 9A
FLEX RETAIL PROJECT TRAFFIC VOLUMES
AM (PM) Peak Hour



Flex Retail Proj Vols.cdr

Figure 9B
FLEX RETAIL PROJECT TRAFFIC VOLUMES
 AM (PM) Peak Hour

4.0 PROJECT EVALUATION

4.1 Project Traffic Operations

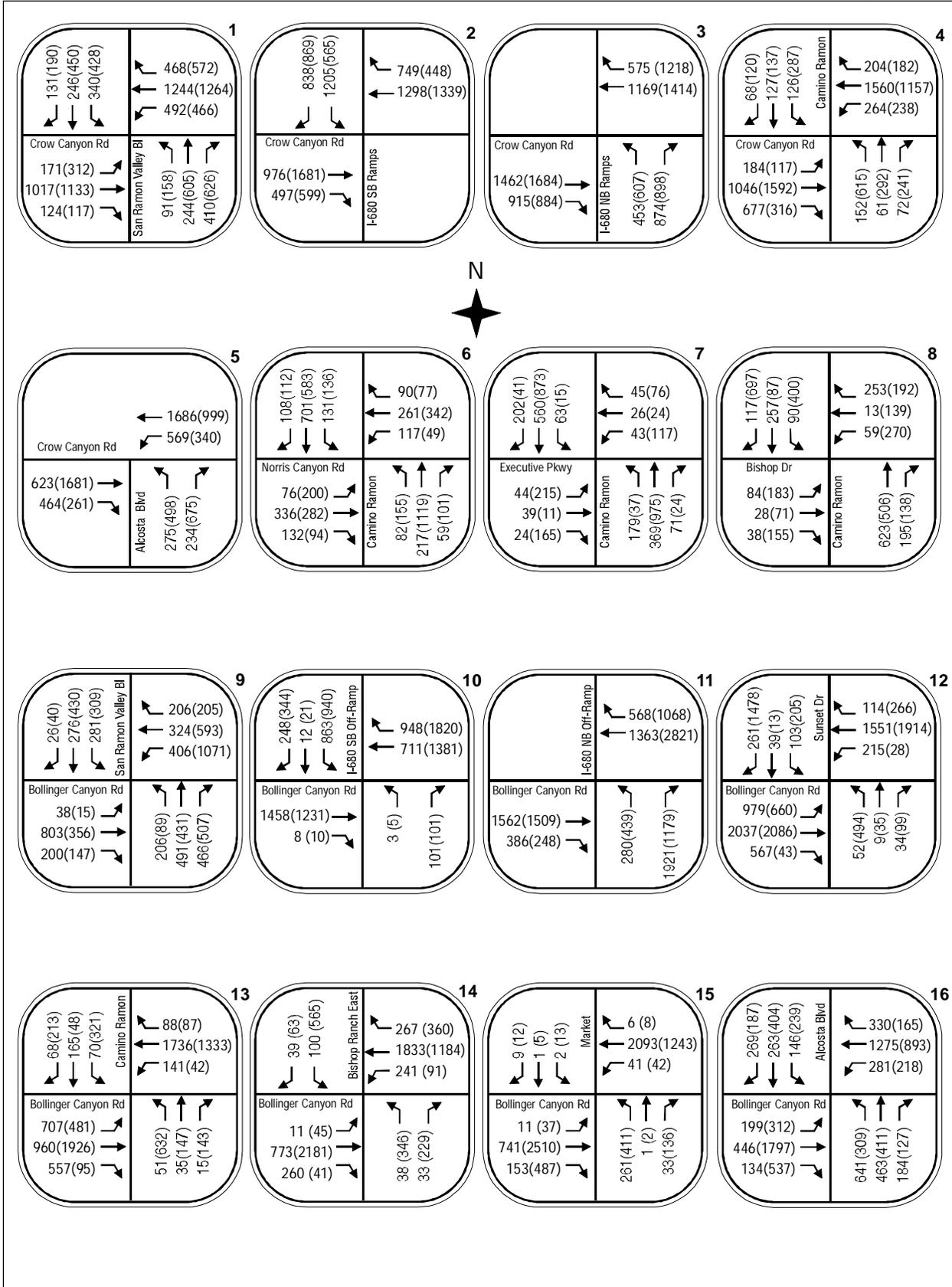
4.1.1 Existing Plus Project Peak Hour Traffic Operations

The trip generation for the Flex Retail project condition was added to the surrounding roadway network according to the trip distribution patterns. These new trips were then added to the existing traffic volumes to arrive at the Existing Plus Project traffic volumes. In the trip generation a reduction for pass-by trips was assumed for the retail project. These trips were not assigned to the external network. However, they were accounted for at the immediate project accesses. A figure showing how the pass-by trips were accounted for is included in the appendix. Adjustments were also made to the traffic distribution to reflect improvements associated with the project. These volume adjustments are presented in the appendix. The CCTALOS methodology was used to evaluate the Existing Plus Project conditions. Figures 10A and 10B show the Existing Plus Project traffic volumes for the Flex Retail project conditions.

Table 4-1 summarizes the expected traffic operations when the Flex Retail traffic is added to existing traffic volumes. For comparison purposes, the table also includes the traffic operations based on existing traffic volumes only and the anticipated change in the volume to capacity ratio (V/C) with the addition of project traffic. As noted in the table most intersections would continue to operate at level of service C or better. Several intersections are projected to operate at a level of service D. The intersections of Bollinger Canyon Road/San Ramon Valley Boulevard and Bollinger Canyon Road/Alcosta Boulevard are anticipated to operate at a level of service E during the PM peak hour. However, the volume to capacity ratio would remain below 0.94. The implementation of a portion of the planned improvements on Bollinger Canyon Road and intersecting roads would improve the service level from level of service E to level of service C as noted in the footnotes in Table 4-1. At Alcosta / Bollinger three through lanes in each direction on Bollinger Canyon Road are needed. The City will advertise a construction project in summer 2007 to make this improvement. At Bollinger/San Ramon Valley a northbound right turn lane is required as called for in the Bollinger Canyon Road Plan Line study. The Bollinger Canyon Road / Sunset / Chevron Park West intersection is forecast to deteriorate to level of service F during the PM peak hour with the addition of project traffic. The addition of a free southbound right turn lane on Sunset will improve the operation to level of service D. The free southbound right turn lane would be signed and physically restricted to access northbound I-680 only. Right turning traffic to other destinations would use the right turn lane under signal control.

4.1.2 2020 Peak Hour Traffic Operations

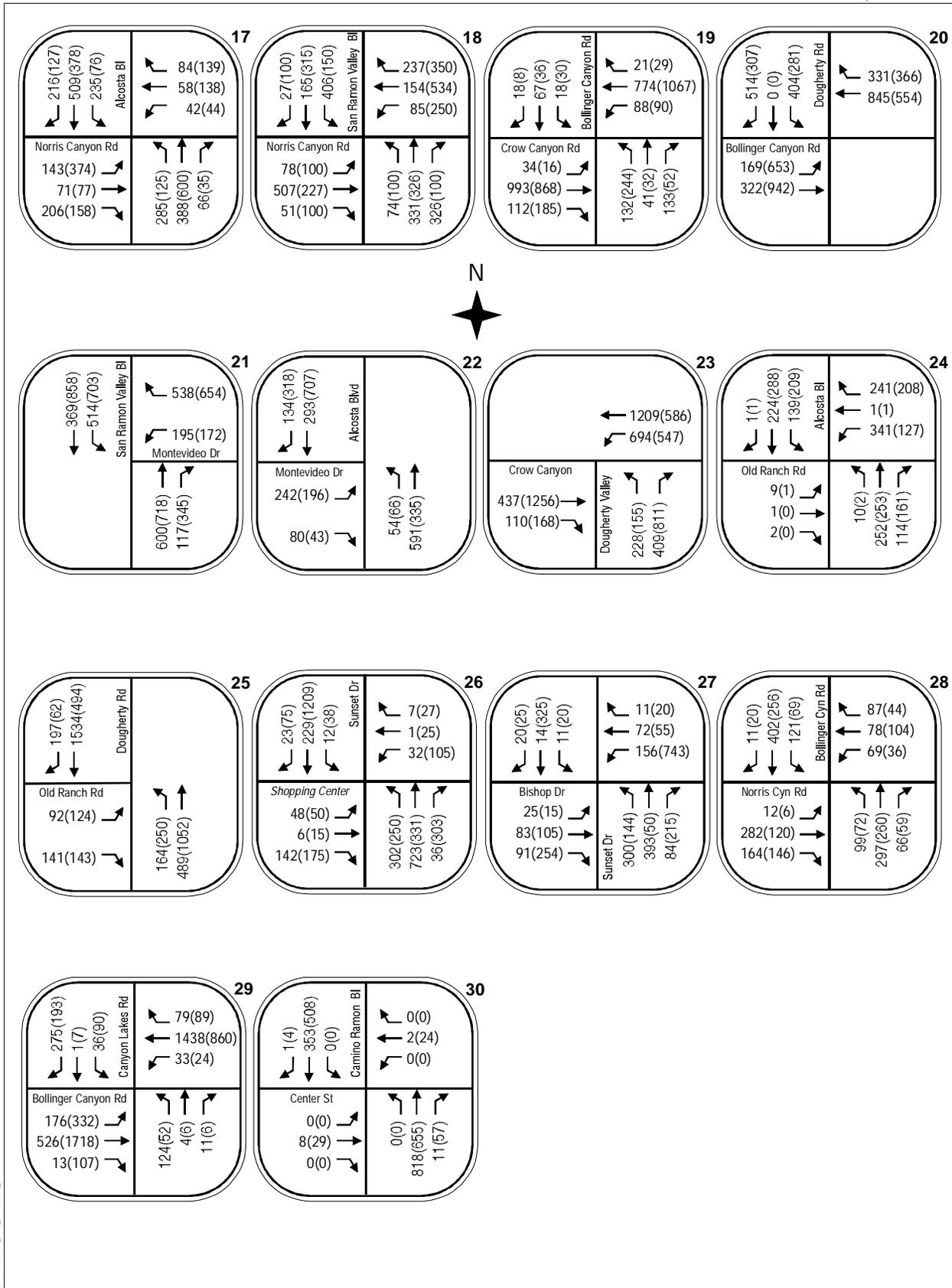
The 2020 background projections were derived from the most recent version of the Contra Costa County Travel Demand Model and are consistent with San Ramon's General Plan 2020. Figures 11A and 11B shows the peak hour 2020 background traffic volumes. The volumes from the model incorporated into this analysis were without the City Center mixed use project. The appendix contains a section on modeling procedures which documents the population and employment adjustments made to the model to reflect the No Project condition. The trip



Existing + Flex Retail Vols.cdf

SAN RAMON CITY CENTER PROJECT

Figure 10A
EXISTING + FLEX RETAIL PROJECT TRAFFIC VOLUMES
AM (PM) Peak Hour



Example + Flex Retail Vols.cdr

Figure 10B
EXISTING + FLEX RETAIL PROJECT TRAFFIC VOLUMES
AM (PM) Peak Hour

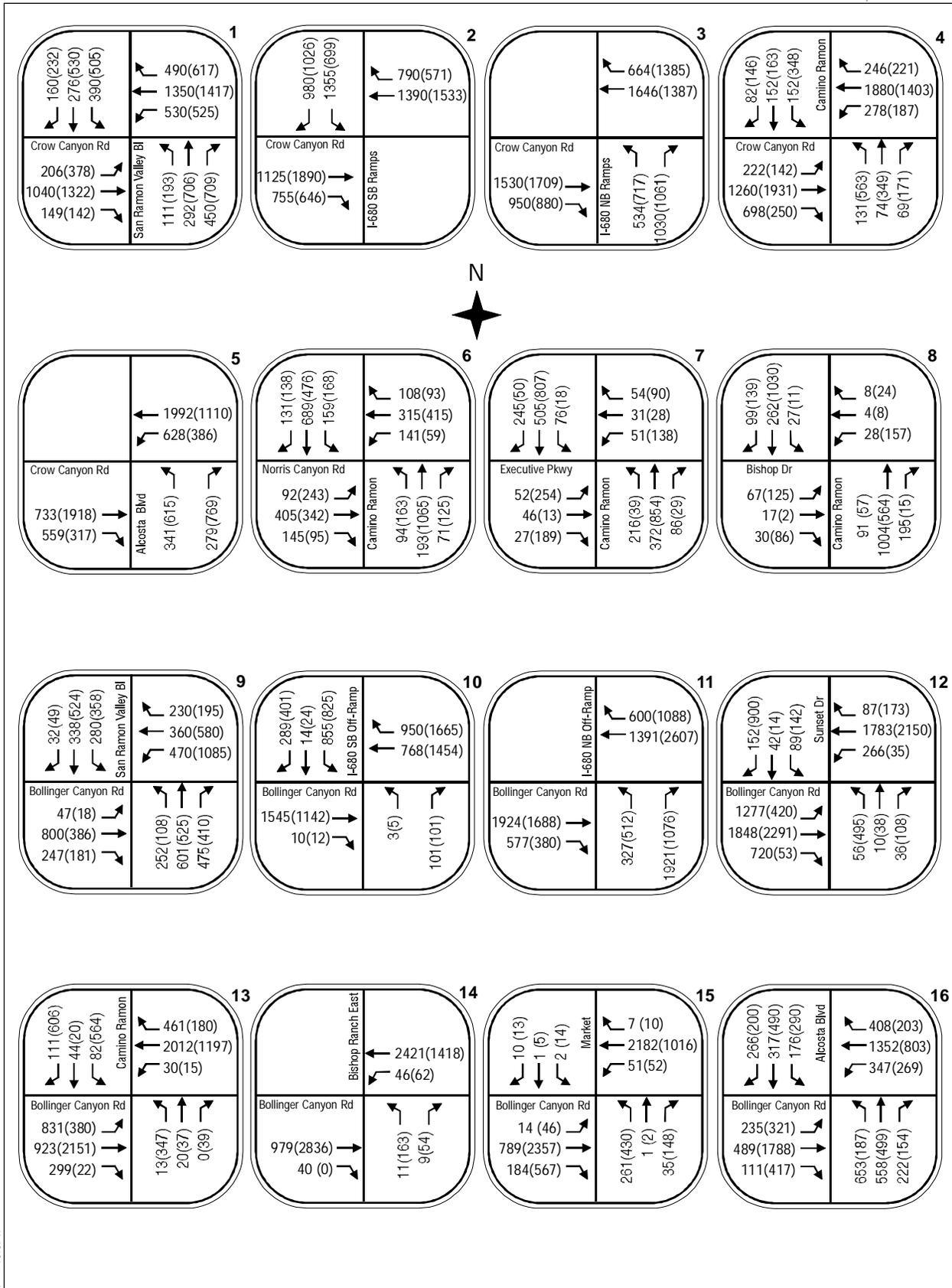
Table 4-1 Existing Level of Service Plus Flex Retail Project Condition

Intersection	Existing (Ext Geometry)				Ext + Flex Retail Project Condition				V/C Ratio Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS		
1. Crow Canyon Rd./San Ramon Valley Blvd.	0.56	A	0.74	C	0.57	A	0.75	C	0.01	0.01
2. Crow Canyon Rd./I-680 SB Ramps	0.59	A	0.57	A	0.61	B	0.58	A	0.02	0.01
3. Crow Canyon Rd./I-680 NB Ramps	0.52	A	0.60	A	0.54	A	0.62	A	0.02	0.02
4. Crow Canyon Rd./Camino Ramon	0.57	A	0.76	C	0.63	B	0.82	D	0.06	0.06
5. Crow Canyon Rd./Alcosta Blvd.	0.44	A	0.67	B	0.45	A	0.72	C	0.01	0.05
6. Camino Ramon /Norris Canyon Rd.	0.46	A	0.59	A	0.51	A	0.67	B	0.05	0.08
7. Camino Ramon/Executive Parkway	0.36	A	0.43	A	0.40	A	0.51	A	0.04	0.08
8. Camino Ramon/Bishop Drive	0.36	A	0.46	A	0.45	A	0.59	A	0.09	0.13
9. Bollinger Canyon Rd./ San Ramon Valley Blvd.	0.79	C	0.88	D	0.82 (0.68) ¹	D (B) ¹	0.92 (0.74) ¹	E (C) ¹	0.03 (-0.11)	0.04 (-0.14)
10. Bollinger Canyon Rd./I-680 SB Ramps	0.50	A	0.57	A	0.55	A	0.64	B	0.05	0.07
11. Bollinger Canyon Rd./I-680 NB Ramps	0.75	C	0.71	C	0.88	D	0.88	D	0.13	0.17
12. Bollinger Canyon Rd./ Sunset/Chevron Park W.	0.66	B	0.68	B	0.67 (0.67) ²	B (B) ²	1.06 (0.87) ²	F D ²	0.01 (0.01)	0.38 (0.19)
13. Bollinger Canyon Rd./Camino Ramon	0.56	A	0.74	C	0.63	B	0.70	B	0.07	-0.04
14. Bollinger Canyon Rd./Bishop Ranch 1 E	0.39	A	0.56	A	0.43	A	0.83	D	0.04	0.27
15. Bollinger Canyon Rd./Market Place	0.45	A	0.54	A	0.52	A	0.67	B	0.07	0.13
16. Bollinger Canyon Rd./Alcosta Blvd.	0.71	C	0.81	D	0.80 (0.80) ³	D (D) ³	0.92 (0.74) ³	E (C) ³	0.09 (0.09)	0.11 (-0.07)
17. Alcosta Blvd./Norris Canyon Rd.	0.40	A	0.43	A	0.41	A	0.45	A	0.01	0.02
18. San Ramon Valley Blvd./Norris Canyon Rd.	0.55	A	0.55	A	0.56	A	0.57	A	0.01	0.02
19. Bollinger Canyon Rd./Crow Canyon Rd.	0.46	A	0.45	A	0.48	A	0.50	A	0.02	0.05
20. Bollinger Canyon Rd./Dougherty Valley Rd.	0.50	A	0.47	A	0.54	A	0.53	A	0.04	0.06
21. San Ramon Valley Blvd./Montevideo Dr.	0.62	B	0.81	D	0.62	B	0.82	D	0.00	0.01
22. Alcosta Blvd./Montevideo Drive	0.27	A	0.28	A	0.31	A	0.36	A	0.04	0.08
23. Crow Canyon Rd./Dougherty Valley Rd.	0.41	A	0.57	A	0.42	A	0.58	B	0.01	0.01
24. Alcosta Blvd./Old Ranch Rd.	0.30	A	0.26	A	0.32	A	0.30	A	0.02	0.04
25. Old Ranch Rd./Dougherty Valley Rd.	0.64	B	0.37	A	0.65	B	0.38	A	0.01	0.01
26. Sunset Drive/Shopping C.	0.30	A	0.38	A	0.27	A	0.65	B	0.03	0.27
27. Bishop Drive/Sunset Drive	0.36	A	0.47	A	0.41	A	0.67	B	0.05	0.20
28. Bollinger Canyon Road/Norris Canyon Road	0.86*	C*	0.37*	B*	0.90*	C*	0.45*	B*	0.04*	0.08*
29. Bollinger Canyon Road/Canyon Lakes Dr.	0.59	A	0.54	A	0.65	B	0.63	B	0.06	0.09
30. Camino Ramon/Center Street	--	--	--	--	0.26	A	0.23	A	NA	NA

1 – Values with addition of a northbound right turn lane.

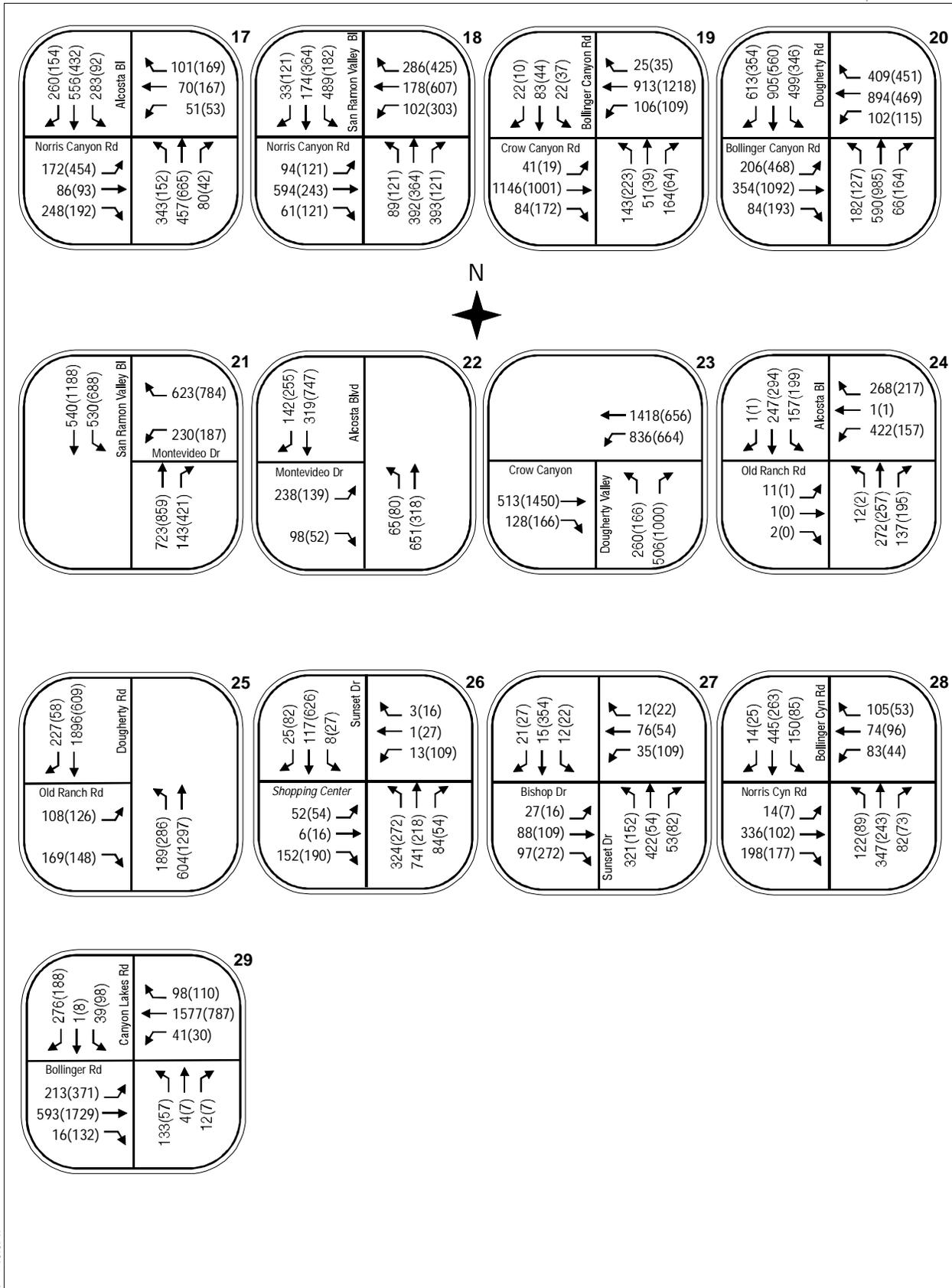
2 – Values with one free southbound right turn lane.

3 – Values with addition of eastbound and westbound through lanes, to be advertised in Summer 2007.



APP-SPV-0102-1A

Figure 11A
YEAR 2020 BACKGROUND TRAFFIC VOLUMES
AM (PM) Peak Hour



APP:SPV_0102_1A

Figure 11B
YEAR 2020 BACKGROUND TRAFFIC VOLUMES
AM (PM) Peak Hour

generation and trip distribution used in the Existing Plus Project analyses were also used in the 2020 analyses with the exception of the entitled office space already included in the 2020 traffic volumes. Figures 12A and 12B illustrate the peak hour 2020 Plus Flex Retail traffic volumes. Figures 13A and Figure 13B show the CIP geometrics, noting the improvements from existing conditions to build out of the CIP. Most of the CIP improvements are along Crow Canyon Road and Bollinger Canyon Road. The improvements to Crow Canyon Road and Bollinger Canyon Road are included in the City of San Ramon's 2020 Capital Improvement Program. The 2020 traffic analysis assumes that the CIP improvements identified in Figures 13A and 13B are completed.

Table 4-2 summarizes the 2020 traffic operations with and without the project traffic. As noted in Table 4-2, for 2020 without the project, four intersections would operate at level of service D, Crow Canyon/San Ramon Valley, San Ramon Valley/Bollinger Canyon, Bollinger Canyon/Sunset/Chevron Park West and San Ramon Valley/Montevideo, during the PM peak hour. The Bollinger Canyon/Sunset/Chevron Park West intersection is also forecast to operate at level of service D during the AM peak hour.

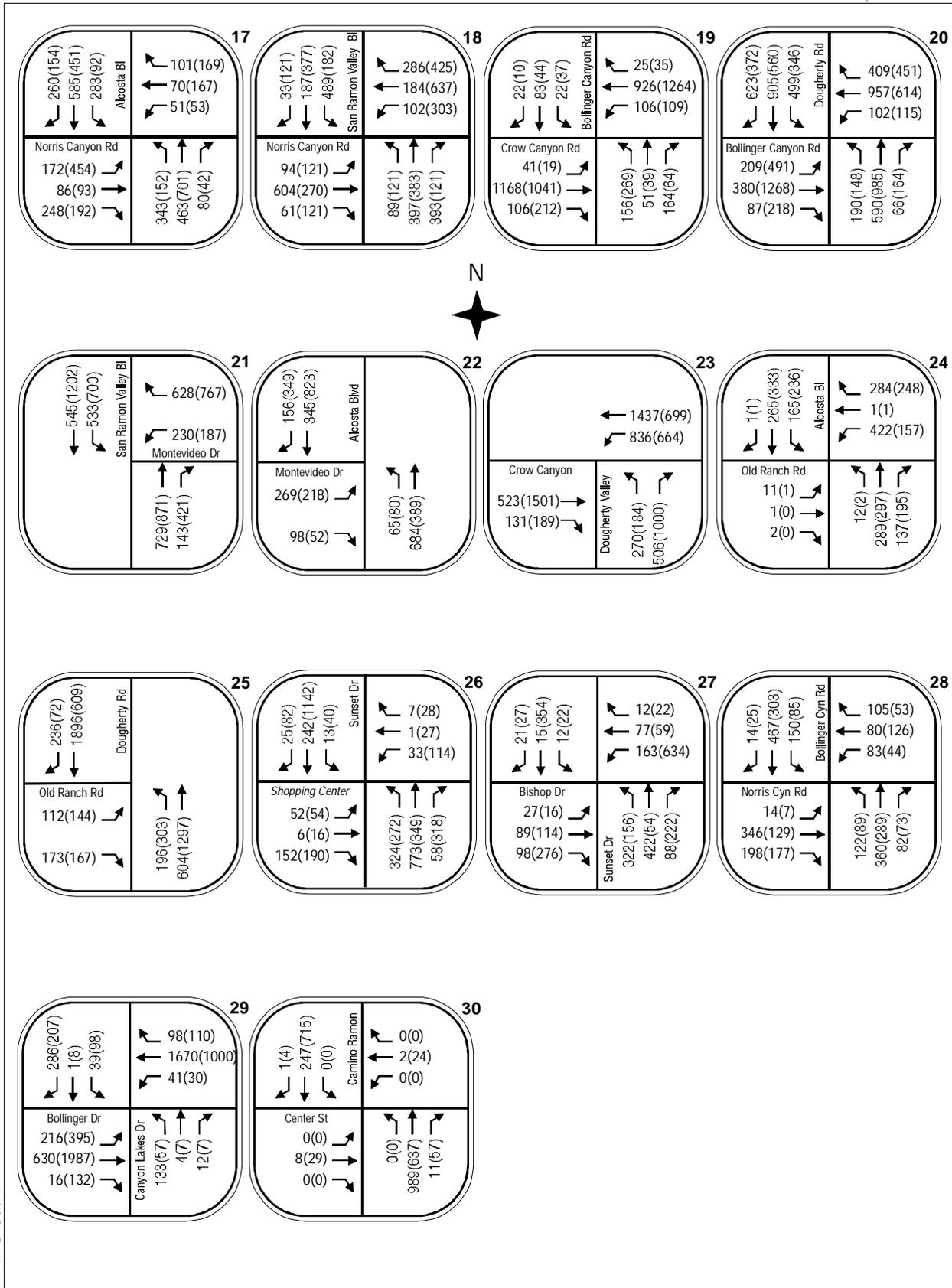
Bollinger Canyon Road/Norris Canyon Road would operate at level of service E in the AM peak without project traffic as an unsignalized intersection. All other intersections are projected to operate at level of service C or better for the 2020 No Project condition.

For the 2020 Plus Project condition two intersections are forecast to operate at an unacceptable level of service (level of service E or F). The Bollinger Canyon Road/Sunset/Chevron Park intersection is forecast to operate at level of service F during the PM peak hour and Bollinger Canyon Road/Norris Canyon Road is forecast to operate at level of service E during the AM peak hour. The addition of a free southbound right turn lane on Sunset at Bollinger Canyon will improve the level of service during the PM peak hour to level of service D, and the installation of a traffic signal at the Bollinger Canyon Road/Norris Canyon Road intersection will improve conditions to level of service C or better. The need for this signal is caused by the build-out of the 2020 General Plan, not the City Center project. A traffic signal at the intersection of Bollinger Canyon Road and Norris Canyon Road is planned in the City Capital Improvement Program and will be installed when warranted. The traffic signal warrant sheets for the Bollinger Canyon Road/Norris Canyon Road intersection are included in the appendix.

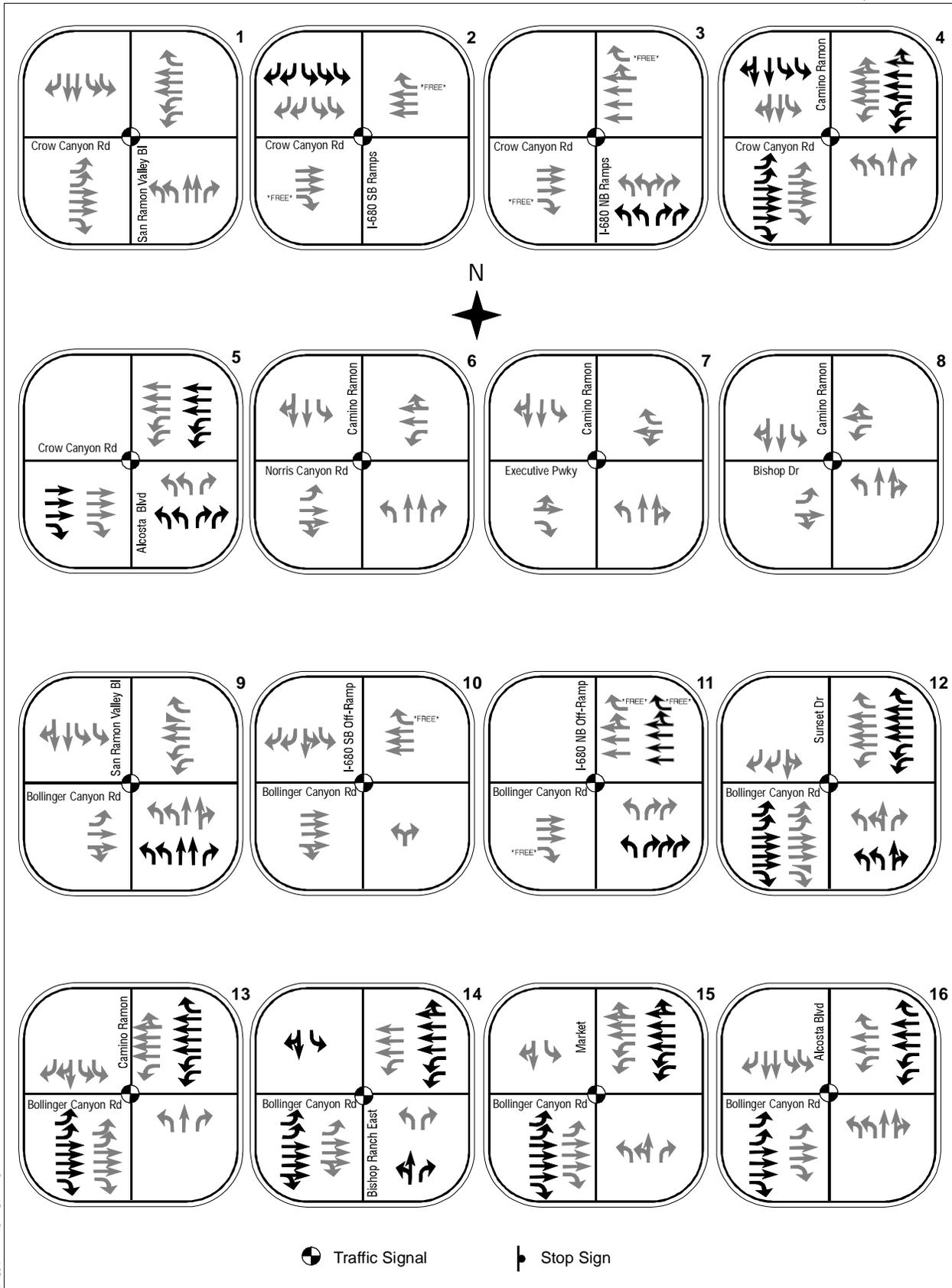
In the 2020 horizon, three intersections were assessed qualitatively. Crow Canyon Road/Crow Canyon Place would be expected to operate at the same level or better as Crow Canyon Road/Camino Ramon. Crow Canyon Road/Twin Creeks Drive would be expected to operate at the same level or better as Crow Canyon Road/San Ramon Valley Boulevard. The new HOV off-ramp intersection with Norris Canyon Road would be expected to operate at the same level or better as San Ramon Valley Boulevard/Norris Canyon Road.

4.1.3 Daily Traffic Volumes

Existing and 2020 daily traffic volumes were calculated based on AM and PM peak hour volumes. The average of the AM and PM peak hour volumes were summed and multiplied by 10 to obtain a daily two-way count for each leg of each intersection. The peak hour is typically 8 to 12 percent of daily traffic volumes. The daily project traffic forecast was distributed in the Traffix model using the same distribution used for the peak hour analyses. These volumes were



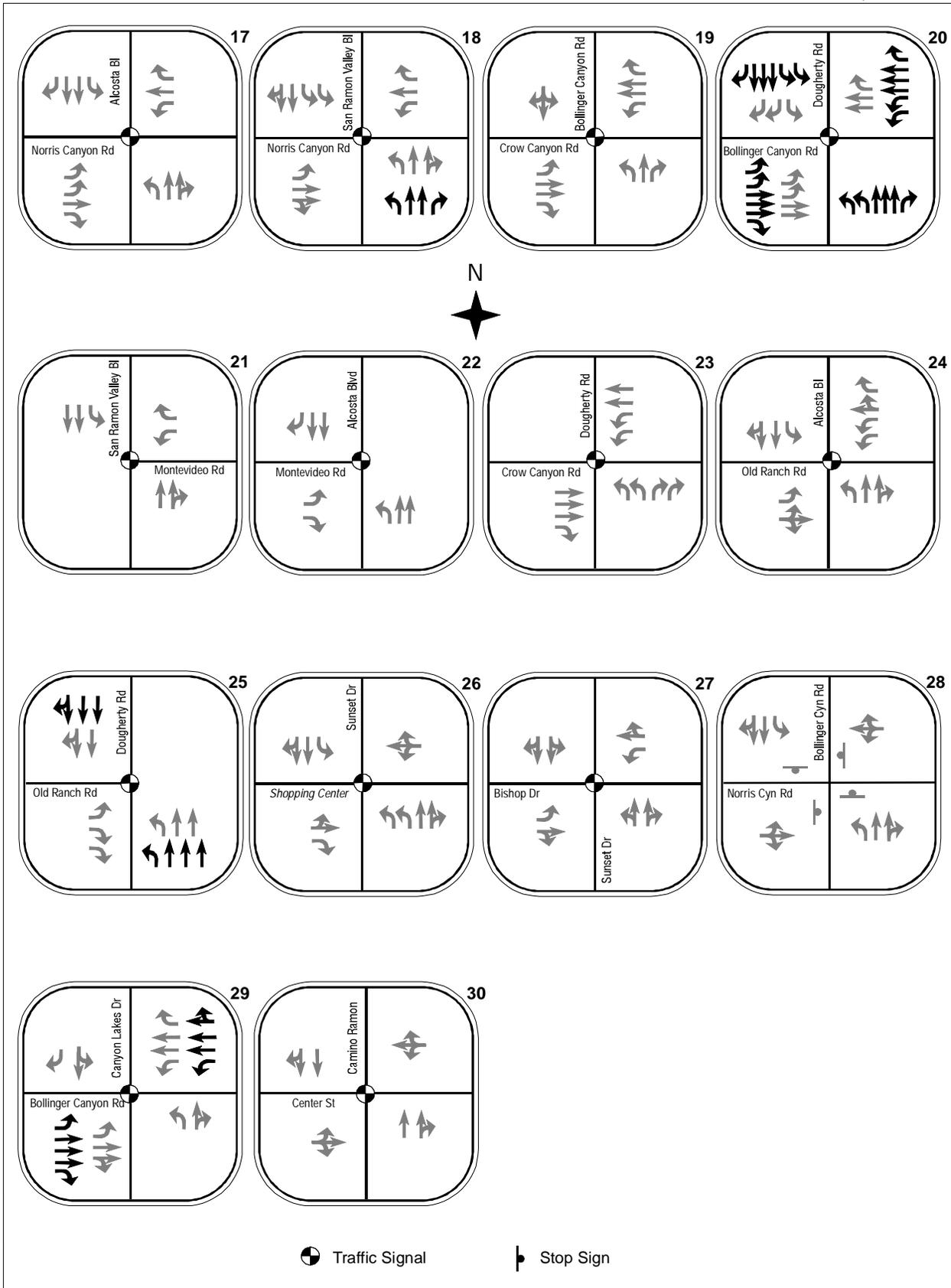
40131611 Rev. 10/11/2017



General Plan Geometry / I-680.Cdr

➔ CIP Geometry
➔ Existing Geometry

SAN RAMON CITY CENTER PROJECT
Figure 13A
CIP GEOMETRY



General Plan Geometry.cdr

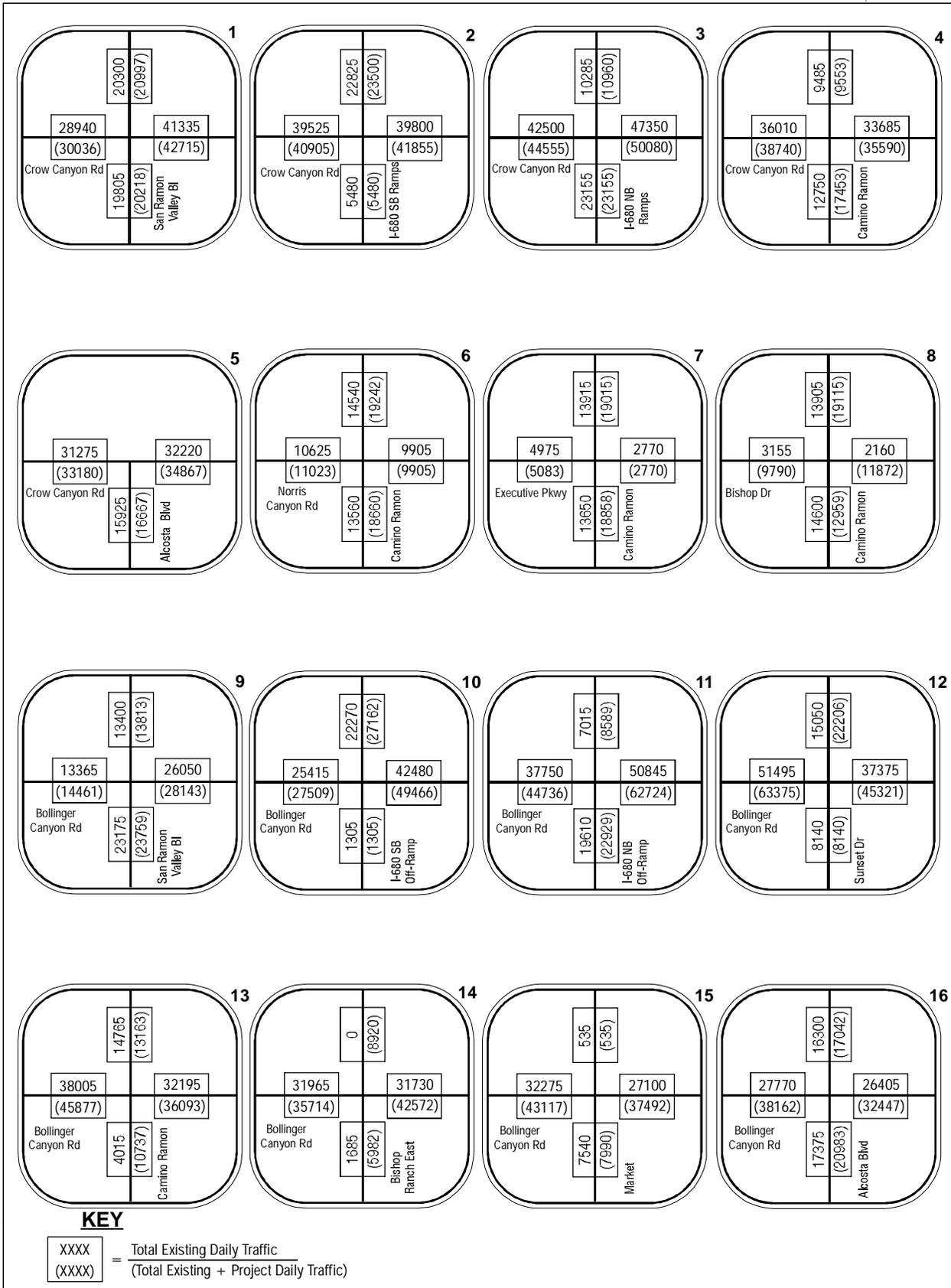
Table 4-2 2020 Level of Service Plus Flex Retail Project Condition

Intersection	2020 (CIP Geometry)				2020 + Flex Retail Project Condition (CIP Geo + Project Mitigation)				V/C Ratio Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS		
1. Crow Canyon Rd./San Ramon Valley Blvd.	0.61	B	0.87	D	0.62	B	0.88	D	0.01	0.01
2. Crow Canyon Rd./I-680 SB Ramps	0.56	A	0.66	B	0.56	A	0.67	B	0.00	0.01
3. Crow Canyon Rd./I-680 NB Ramps	0.60	B	0.64	B	0.61	B	0.66	B	0.01	0.02
4. Crow Canyon Rd./Camino Ramon	0.59	A	0.68	B	0.62	B	0.71	C	0.03	0.03
5. Crow Canyon Rd./Alcosta Blvd.	0.53	A	0.69	B	0.54	A	0.72	C	0.01	0.03
6. Norris Canyon Rd./Camino Ramon	0.56	A	0.73	C	0.58	A	0.79	C	0.02	0.06
7. Camino Ramon/Executive Parkway	0.43	A	0.52	A	0.45	A	0.58	A	0.02	0.06
8. Camino Ramon/Bishop Drive	0.43	A	0.54	A	0.53	A	0.62	B	0.10	0.08
9. San Ramon Valley Blvd./ Bollinger Canyon Rd.	0.75	C	0.81	D	0.76	C	0.84	D	0.01	0.03
10. Bollinger Canyon Rd./I-680 SB Ramps	0.56	A	0.62	B	0.59	A	0.67	B	0.03	0.05
11. Bollinger Canyon Rd./I-680 NB Ramps	0.77	C	0.70	C	0.82	D	0.75	C	0.05	0.05
12. Bollinger Canyon Rd./Sunset/Chevron Park W.	0.80	D	0.85	D	0.80 (0.80) ¹	D (D) ¹	1.05 (0.87) ¹	F (D) ¹	(0.0) (0.0)	(0.20) (0.02)
13. Bollinger Canyon Rd./Camino Ramon	0.62	B	0.68	B	0.69	B	0.66	B	0.07	-0.02
14. Bollinger Canyon Rd./Bishop Ranch 1 E	0.36	A	0.53	A	0.39	A	0.80	C	0.03	0.27
15. Bollinger Canyon Rd./Market Place	0.43	A	0.53	A	0.46	A	0.61	B	0.03	0.08
16. Bollinger Canyon Rd./Alcosta Blvd.	0.67	B	0.75	C	0.71	C	0.80	D	0.04	0.05
17. Norris Canyon Rd./Alcosta Blvd.	0.48	A	0.52	A	0.49	A	0.53	A	0.01	0.01
18. San Ramon Valley Blvd./Norris Canyon Rd.	0.60	A	0.66	B	0.60	B	0.68	B	0.00	0.02
19. Crow Canyon Rd./Bollinger Canyon Rd.	0.55	A	0.55	A	0.57	A	0.59	A	0.02	0.04
20. Bollinger Canyon Rd./Dougherty Valley Rd.	0.61	B	0.63	B	0.63	B	0.64	B	0.02	0.01
21. San Ramon Valley Blvd./Montevideo Dr.	0.69	B	0.88	D	0.70	B	0.89	D	0.01	0.01
22. Alcosta Blvd./Montevideo Drive	0.33	A	0.35	A	0.36	A	0.41	A	0.03	0.06
23. Crow Canyon Rd./Dougherty Valley Rd.	0.50	A	0.55	A	0.50	A	0.56	A	0.00	0.01
24. Alcosta Blvd./Old Ranch Rd.	0.37	A	0.31	A	0.38	A	0.35	A	0.01	0.04
25. Dougherty Valley Rd./Old Ranch Rd.	0.58	A	0.37	A	0.59	A	0.39	A	0.01	0.02
26. Sunset Drive/Shopping C.	0.28	A	0.41	A	0.23	A	0.55	A	-0.05	0.14
27. Bishop Drive/Sunset Drive	0.39	A	0.51	A	0.44	A	0.66	B	0.05	0.15
28. Bollinger Canyon Road/Norris Canyon Road	1.13*	E*	0.49*	B*	1.17* (0.72) ²	E* (C) ²	0.57* (0.49) ²	B* (A) ²	0.04 (N/A)	0.08 (N/A)
29. Bollinger Canyon Road/Canyon Lakes Road	0.59	A	0.50	A	0.61	B	0.56	A	0.02	0.06
30. Camino Ramon Blvd/Center Street	--	--	--	--	0.31	A	0.24	A	N/A	N/A

1 – Values with one free southbound right turn lane.

2 – Values with addition of signalized intersection control.

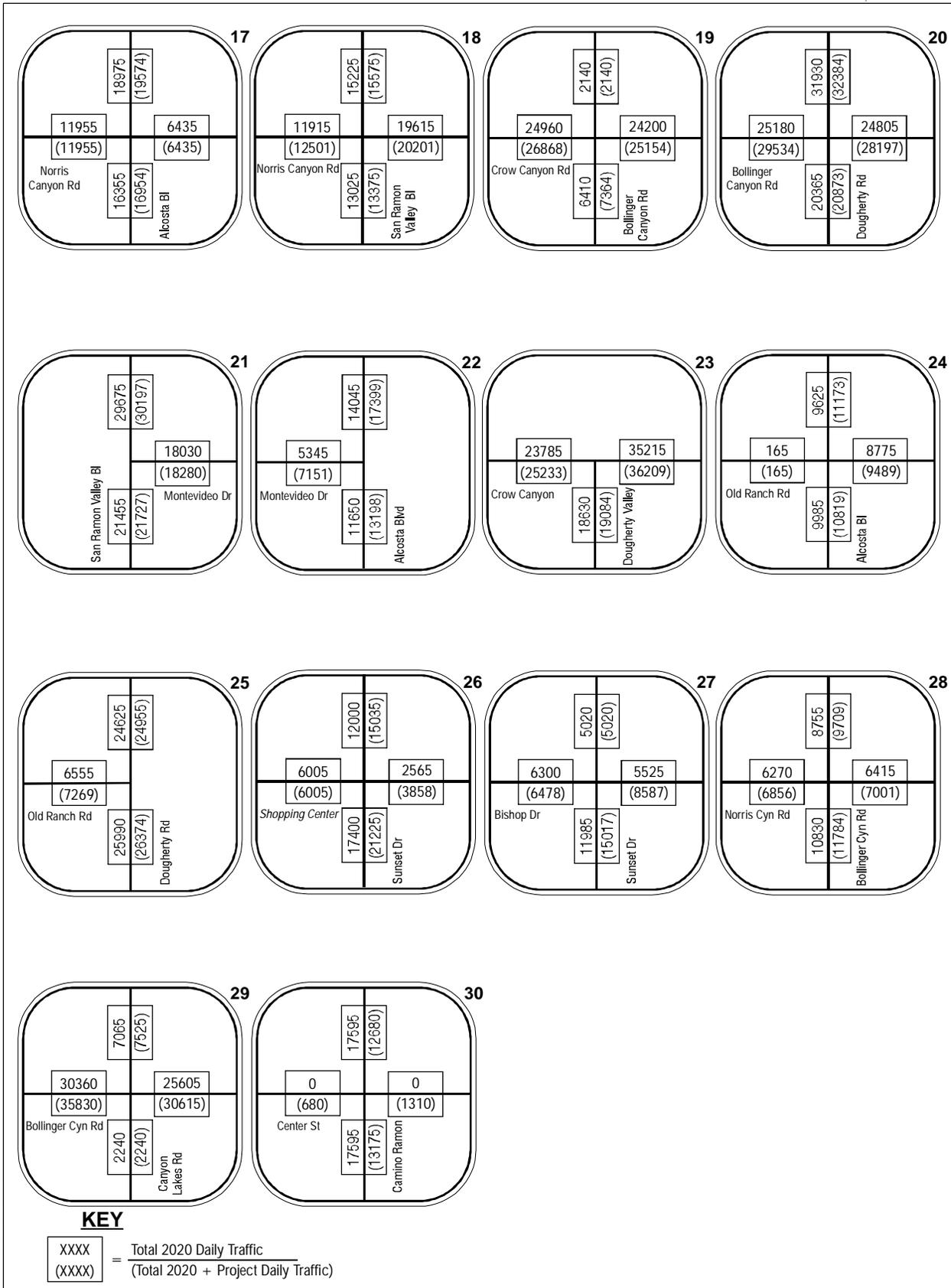
* - Highway Capacity Manual (HCM) unsignalized intersection analysis.



SAN RAMON CITY CENTER PROJECT

Figure 14A
EXISTING & EXISTING PLUS PROJECT DAILY TRAFFIC VOLUMES

4/20/2018 10:45 AM 10/10/2018 10:45 AM 10/10/2018 10:45 AM



APP: 20180111, 10:44:58 AM, 8/18/2018

Figure 15B
2020 & 2020 PLUS PROJECT DAILY TRAFFIC VOLUMES

then added to the corresponding scenarios to obtain existing plus project and 2020 plus project daily traffic values. The daily project traffic was determined based on trip generation data. Figures 14A and 14B illustrate the existing and existing plus project daily traffic volumes, and Figures 15A and 15B show the 2020 and 2020 plus project daily traffic volumes.

4.2 Queuing Analysis

A queuing analysis was performed, using Synchro software, at intersections surrounding the project site. The locations analyzed include:

<ul style="list-style-type: none"> • Bishop Drive/Camino Ramon, • Bollinger Canyon Road/Sunset Drive, • Bollinger Canyon Road/Camino Ramon, 	<ul style="list-style-type: none"> • Bollinger Canyon Road/ Bishop Drive, • Sunset Drive/Center Street, and • Sunset Drive/Bishop Drive.
--	---

The results of the queuing analysis are provided in Table 4-3. The analysis was completed for the 2020 Background Plus Project scenario during the AM and PM peak hours. The 95th percentile queue lengths were determined and are displayed along side the available storage lengths. In most cases the storage length is adequate to accommodate the 95th percentile queue; however, some intersections do not currently have sufficient storage length. The lengths presented in bold indicate when the storage length is exceeded by the calculated 95th percentile queue. The Synchro worksheets are included in Appendix H: Queuing Analysis.

The available storage at these six key intersections near the project is also illustrated graphically in Figure 17 which is discussed later in this report. Some of the existing left turn pockets on Bollinger Canyon are expected to be modified with future planned improvements. These improvements include lengthening the eastbound left turn lane on Bollinger Canyon at Camino Ramon from 300 feet to 500 feet by removing the existing landscaped median and adding a second westbound left turn lane at Sunset Drive and decreasing the westbound left turn pocket at Sunset from 360 feet to 250 feet.

The available storage accommodates the 95th percentile queue at all locations for the 2020 AM plus project scenario except for the southbound through/left and eastbound left at the Bollinger Canyon/Sunset Drive intersection. As shown in Table 4-3 the addition of a separate southbound left turn lane would mitigate this potential queuing problem during the peak periods. The existing 600 foot eastbound left turn lanes at this intersection can be extended up to 1,100 feet by removing the existing landscaped median if additional storage is required in the future.

The available storage accommodates the anticipated 95th percentile queue in 2020 at full build out of the project during the PM peak hour at each location except at the Bollinger Canyon Road/Camino Ramon southbound left, discussed above, and the westbound left on Bishop Drive at Sunset Drive. As shown in Figure 17, one of the westbound through lanes on Bishop Drive becomes a westbound left turn lane at Sunset Drive so additional storage above the 230 feet presented in Table 4-3 is available without significantly impacting traffic operations. Based on this 2020 Synchro analysis no significant queuing problems are anticipated with full build out of the project and the implementation of the following two improvements: 1) add a southbound left turn lane on Sunset Drive at Bollinger Canyon Road, and 2) when required extend the length of the dual eastbound left turn lanes on Bollinger Canyon Road at Sunset Drive.

Table 4-3 AM and PM Peak Hour 2020 Plus Project Queuing Analysis

#	Intersection	Movement	2020 AM + Project		2020 PM + Project	
			95 th (ft)	Available (ft)	95 th (ft)	Available (ft)
8	Bishop Drive @ Camino Ramon	Southbound Left	30	180	#147	180
		Westbound Left	25	200	98	200
		Eastbound Left	33	180	67	180
12	Bollinger Canyon Road @ Sunset Drive	Southbound Through-Left	#247 (132) ¹	170	* (117) ¹	170
		Eastbound Left	#883	600	#581	600
		Westbound Left	169	250	38	250
13	Bollinger Canyon Road @ Camino Ramon	Southbound Left	#113	490	#338	490
		Northbound Left	27	445	217	445
		Westbound Left	57	225	28	225
		Eastbound Left	#416	500	#278	500
14	Bollinger Canyon Road @ Bishop Drive	Southbound Left	27	175	#173	175
		Northbound Left	20	325	#156	325
		Westbound Left	52	150	35	150
		Eastbound Left	6	200	15	200
26	Sunset Drive @ Center Street	Southbound Left	*20	80	*30	80
		Northbound Left	*122	150	*92	150
		Westbound Left-	35	100	93	100
27	Sunset Drive @ Bishop Drive	Northbound Left	44	280	212	280
		Westbound Left	110	230	348	230

#95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

*Volume for 95th percentile queue is metered by upstream signal.

¹ Assumes the addition of a southbound left turn lane.

4.3 Freeway Analysis

4.3.1 Existing Plus Project Analysis

The freeway analysis for the I-680 mainline, north and south of the Bollinger Canyon Road interchange, and the Bollinger Canyon Road interchange ramps was conducted for the Existing and Existing plus Project conditions. Table 4-4 shows the freeway mainline analysis for Existing and for Existing plus project. While there is a slight increase in density and decrease in speed for the project condition, the only change in level of service occurs for northbound I-680 south of Bollinger Canyon Road in the AM peak hour and southbound I-680 north of Bollinger Canyon Road in the PM peak hour.

Table 4-5 shows the ramp analysis for Existing and Existing Plus Project Conditions. While there is a slight increase in density for the Project Condition, there is not a change in level of service.

Table 4-4 HCS Freeway Section Level of Service Analysis Results

Freeway Section Peak Hour		NB South of Bollinger Interchange		SB South of Bollinger Interchange		NB North of Bollinger Interchange		SB North of Bollinger Interchange	
		AM	PM	AM	PM	AM	PM	AM	PM
2006 Existing	LOS	E	E	F	F	C	C	D	D
	Density (pc/mi/ln)	44.7	36.0	*	*	23.1	23.7	30.5	34.1
	Avg. Speed (mph)	52.4	59.0	*	*	65.0	65.0	62.7	60.4
2006 Existing Plus Project	LOS	F	E	F	F	C	C	D	E
	Density (pc/mi/ln)	*	38.9	*	*	23.3	24.4	31.2	35.0
	Avg. Speed (mph)	*	56.8	*	*	65.0	64.9	62.3	59.7

*Density and average speed are not determined if LOS F.
pc/mi/ln = passenger cars/mile/lane
HCS = Highway Capacity Software

NB = Northbound
SB = Southbound

Table 4-5 HCS Ramp LOS Analysis Results

I-680 Bollinger Canyon Road Interchange	2006 Existing				Existing Plus Project			
	AM		PM		AM		PM	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Northbound Off-Ramp	F	*	C	20.4	F	*	C	22.9
Southbound Off-Ramp	F	*	F	*	F	*	F	*
Southbound On-Ramp	F	*	F	*	F	*	F	*
Southbound On-Ramp (loop)	F	*	F	*	F	*	F	*
Northbound On-Ramp (loop)	F	27.9	C	26.3	C	27.9	C	26.3
Northbound On-Ramp**	A	v/c = 0.26	B	v/c = 0.45	A	v/c = 0.28	B	v/c = 0.53

* Density not determined for LOS F.

**Only the volume capacity ratio of the ramp is provided due to the auxiliary lane configuration.
pc/mi/ln = passenger cars/mile/lane.

HCS = Highway Capacity Software
NB = Northbound
SB = Southbound

4.3.2 2020 Freeway Analysis

The freeway analysis for the I-680 mainline, north and south of the Bollinger Canyon Road interchange, and the Bollinger Canyon Road interchange ramps was conducted for the 2020 Background condition and for the 2020 plus Project condition. Table 4-6 shows the freeway mainline analysis for 2020 and for 2020 plus project. While there is a slight increase in density and decrease in speed for the project condition, the level of service does not change.

Table 4-7 shows the ramp analysis for 2020 Background and for 2020 Background plus project. While there is a slight increase in density for the Project condition, the level of services does not change.

Table 4-6 HCS Freeway Section Level of Service Analysis Results

Freeway Section Peak Hour		NB South of Bollinger Interchange		SB South of Bollinger Interchange		NB North of Bollinger Interchange		SB North of Bollinger Interchange	
		AM	PM	AM	PM	AM	PM	AM	PM
2020 Background	LOS	F	F	F	F	D	D	F	F
	Density (pc/mi/ln)	*	*	*	*	29.1	30.0	*	*
	Avg. Speed (mph)	*	*	*	*	63.5	63.0	*	*
2020 Background Plus Project	LOS	F	F	F	F	D	D	F	F
	Density (pc/mi/ln)	*	*	*	*	29.9	30.8	*	*
	Avg. Speed (mph)	*	*	*	*	63.1	62.6	*	*

*Density and average speed are not determined if LOS F. NB = Northbound
 pc/mi/ln = passenger cars/mile/lane SB = Southbound
 HCS = Highway Capacity Software

Table 4-7 HCS Ramp LOS Analysis Results

I-680 Bollinger Canyon Road Interchange	2020 Background				2020 Background Plus Project			
	AM		PM		AM		PM	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/hr)	LOS	Density (pc/mi/hr)	LOS	Density (pc/mi/ln)
Northbound Off-Ramp	F	*	F	*	F	*	F	*
Southbound Off-Ramp	F	*	F	*	F	*	F	*
Southbound On-Ramp	F	*	F	*	F	*	F	*
Southbound On-Ramp (loop)	F	*	F	*	F	*	F	*
Northbound On-Ramp (loop)	D	34.2	D	32.5	D	34.2	D	32.5
Northbound On-Ramp	A	v/c = 0.30	B	v/c = 0.54	A	v/c = 0.32	B	v/c = 0.61

* Density not determined for LOS F. HCS = Highway Capacity Software
 **Only the volume capacity ratio of the ramp is provided due to the
 auxiliary lane configuration. NB = Northbound
 pc/mi/ln = passenger cars/mile/lane. SB = Southbound

4.4 Project Parking Analysis

4.4.1 Parking Demand

Table 4-8 shows the parking demand for the various components of the project. Parking demand is calculated separately for the uses on the north side of Bollinger Canyon Road and for the uses on the south side of Bollinger Canyon Road. The parking rates for specific land use categories were obtained from the City’s Zoning Ordinance. Two adjustments to the rates are included in Table 4-8. Parking for multi-family residential is based on the number of bedrooms. One parking space is required for studios and 1 bedroom units and 2 spaces are required for 2 or 3 bedroom units. The exact bedroom mix has not been determined. A weighted average of 1.8 parking spaces per unit has been used. The office parking rate is also adjusted from 4.0 spaces per 1,000 square feet to 3.5 spaces per 1,000 square feet. This adjustment reflects the effective transportation demand management program in place in Bishop Ranch.

Table 4-8 City Center Parking Analysis Parking Demand

Locaton ¹	Land Use	Size	Parking Rate ²	Parking Demand
Retail Complex (north side of Bollinger)	Retail	613,197 s.f.	1 space/250 s.f.	2,453
	Theater	250 seats ³	1 space/4 seats	63
	Multi-Family Residential	488 units	1.8 spaces ⁴ /unit	878
	Hotel	169 rooms	1.2 spaces/room	203
	Office	50,142 s.f.	3.5 spaces ⁵ /1,000 s.f.	175
Subtotal North side				3,772
Office/Civic Center (south side of Bollinger)	Office	681,769 s.f.	3.5 spaces ⁵ /1,000 s.f.	2386
	Civic Center	75,150 s.f.	3.5 spaces ⁵ /1,000 s.f.	263
	Library	35,340 s.f.	3.0 spaces/1,000 s.f.	106
Subtotal South side				2,755

¹) Parking is aggregated by the north side of Bollinger and by the south side of Bollinger.

²) Parking rate is according to the City of San Ramon Zoning Ordinance unless otherwise noted.

³) The size of the theater is 21,945 s.f. and 6 screens. The City bases parking on spaces per seat. The project architect estimates the total seats at 250.

⁴) City zoning ordinance requires 1 space per 1 bedroom units and 2 spaces for 2 and 3-bedroom units. Weighted average of 1.8 spaces per total units used.

⁵) City zoning ordinance requires 4.0 spaces per 1,000 s.f. This requirement has been adjusted to 3.5 spaces per 1,000 s.f. for Bishop Ranch to reflect the successful TDM program.

As noted on Table 4-8 the total parking demand on the north side of Bollinger Canyon Road is 3,772 parking spaces. The total parking demand on the south side of Bollinger Canyon Road is 2,755 parking spaces.

4.4.2 Parking Supply

Table 4-9 shows the parking supply as currently proposed. Parking supply is also calculated separately for the uses on the north side of Bollinger Canyon Road and for the uses on the south side of Bollinger Canyon Road. Total parking on the north side of Bollinger Canyon Road is 4,124 spaces. These spaces are allocated between the various land uses. It is expected that the residential parking and the hotel parking will be specifically designated for those uses. The 4,124 spaces are allocated into 3,068 spaces for retail and office uses, 896 spaces for residential uses, and 160 spaces for hotel uses.

Total parking on the south side of Bollinger Canyon Road is 2,786 spaces. All of the spaces are associated with the office, city hall, and library uses proposed on the south side. The area on the south side is separated in BR1A and BR1B. BR1A is the office space proposed for in the southeast quadrant of Bollinger Canyon Road and Camino Ramon. Between the parking structure and the surface lot, a total of 2,390 parking spaces are proposed (2,119 in the structure and 271 on the surface). BR1B represents the city hall and library in the southwest quadrant of Bollinger Canyon Road and Camino Ramon. Parking supply for BR1B is 396 total spaces (387 in the structure and 9 on the surface).

Table 4-9 City Center Parking Analysis Parking Supply

Location	Parking Facility	Total Parking	Parking Allocation		
			Retail/Office	Residential	Hotel
Retail Complex (north side of Bollinger)	Structure A	1,471	1,322	149	
	Structure B	171		171	
	Structure C	160			160
	Structure D	542	377	165	
	On-Street-west side	79	79		
	Structure E	1,069	930	139	
	Structure F	282	125	157	
	Structure G	289	174	115	
	On-Street east side	61	61		
Subtotal North Side		4,124	3,068	896	160
Office/Civic Center (south side of Bollinger)	BR 1A Structure	2,119	2,119		
	BR 1A Surface	271	271		
	BR 1B Structure	387	387		
	BR 1B Surface	9	9		
Subtotal South Side		2,786	2,786		

4.4.3 Bicycle Parking

Within the City of San Ramon each multi-family and non-residential project shall provide the following bicycle parking:

- The number of spaces for bicycle parking shall equal to a minimum of one bicycle space for every 10 motor vehicles spaces, with a minimum of two bicycle spaces.
- Bicycle parking shall be located near the primary entrance of each structure they are intended to service.
- Each bicycle parking space shall include a stationary parking device to adequately secure the bicycle, shall be a minimum of two feet in width and six feet in length, installed and maintained in compliance with City standards. Overhead clearance shall be a minimum of seven feet.

Bicycle parking for the City Center project shall total 412 spaces for the north side of Bollinger Canyon Road and 279 spaces for the south side of Bollinger Canyon Road.

4.4.4 Motorcycle Parking

The City of San Ramon Zoning Ordinance also requires motorcycle parking. Each parking lot with 50 or more motor vehicle parking spaces shall provide motorcycle parking spaces conveniently located near the primary entrance of a structure, accessed by the same aisles that provide access to the motor vehicle parking spaces in the parking lot.

- A minimum of one motorcycle parking space for each 50 motor vehicle spaces.
- A motorcycle parking space shall have minimum dimensions of four feet by seven feet.

Motorcycle parking for the City Center project shall total 83 spaces for the north side of Bollinger Canyon Road and 56 spaces for the south side of Bollinger Canyon Road.

4.4.5 Conclusions of Parking Analysis

There is adequate parking proposed to serve the proposed development. On the north side of Bollinger Canyon Road the total demand is 3,772 spaces and the total supply is 4,124 spaces. The parking on the north side of Bollinger Canyon Road is distributed throughout six parking structures and also includes limited on-street parking. Parking will be convenient to all uses. The parking allocated to the hotel is slightly less than required by the Zoning Ordinance. Hotel parking in Structure D must be expanded to meet the demand, approximately 43 spaces.

On the south side of Bollinger Canyon Road the parking demand is 2,755 spaces and the parking supply is 2,786 spaces. The parking supply on each side of Camino Ramon also meets demand. BR1A has a demand for 2,386 spaces and a supply of 2,390 spaces. BR1B has a demand of 369 spaces and a supply of 396 spaces. Additional parking may be constructed in the future on the surface lot immediately south of the proposed transit center.

4.5 Intersections and Roadways Modification

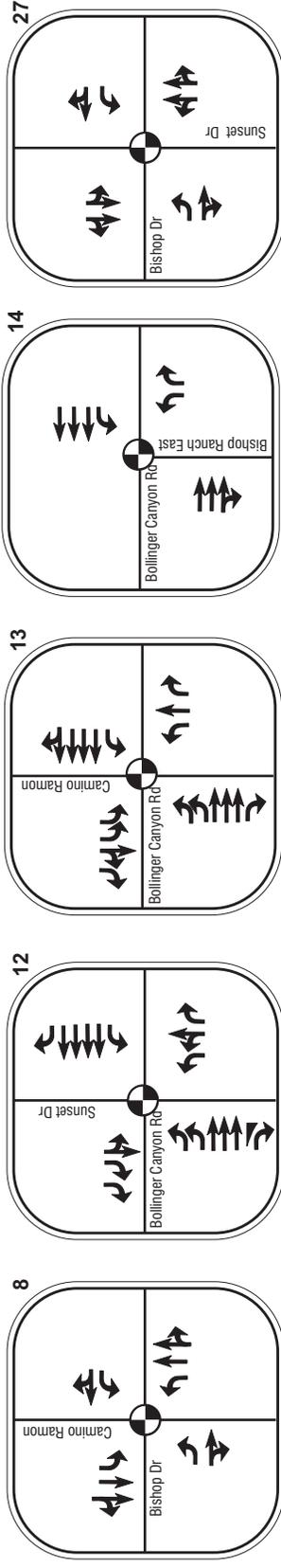
The 2020 horizon year with the San Ramon City Center Project is anticipated to modify the roadway network to improve traffic operations and improve pedestrian and vehicle circulation. The roadway modifications have been designed to avoid widening Camino Ramon within the retail site boundary. Project retail would span both sides of Camino Ramon. Maintaining the existing roadway section would allow pedestrians easier access across the street. The improvements required to maintain acceptable level of service, other than the CIP improvements, will be funded by the project applicant.

Table 4-10 summarizes the modified roadway geometry. The existing, 2020 CIP, and project intersection roadway geometry is illustrated in Figure 16. The following is a summary of proposed project intersection improvements by each approach.

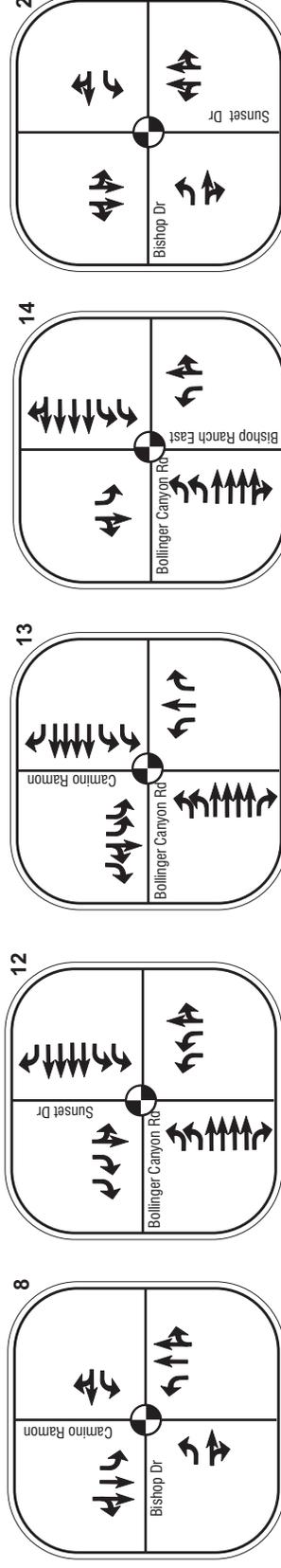
Table 4-10 Modified Intersection Geometry

Intersection	Existing Geometry				2020 CIP Geometry				Modified Geometry			
	East-Bound	West-Bound	North-Bound	South-Bound	East-Bound	West-Bound	North-Bound	South-Bound	East-Bound	West-Bound	North-Bound	South-Bound
Camino Ramon/ Bishop Drive	1L & 1T-R	1L & 1T-R	1L, 1T & 1T-R	1L, 1T & 1T-R	Same as ext	Same as ext	Same as ext	Same as ext	1L, 1T & 1R	1L & 1T & 1R	1T & 1T-R	2L, 1T & 1R
Bollinger Canyon Rd./ Sunset Drive	2L, 3T, & 1R	1L, 4T, & 1R	1L, 1L-T, & 1R	1L-T, & 2R	2L, 4T, & 1R	2L, 4T, & 1R	2L, 1T-R	Same as ext	Same as 2020	Same as 2020	Same as 2020	Same as ext
Bollinger Canyon Rd./ Camino Ramon	2L, 3T & 1R	1L, 3T & 1T-R	1L, 1T & 1R	2L, 1T-R & 1R	2L, 4T & 1R	2L, 4T & 1R	Same as ext	Same as ext.	Same as 2020	Same as 2020	2L, 1T, & 1R	1L, 1T & 1R
Bollinger Canyon Road/ Bishop Ranch 1 East	2T, & 1T-R	1L, & 3T	1L & 1R	N/A	2L, 3T, 1T-R	2L, 3T, 1T-R	1L, 1T-R	1L, 1T-R	Same as 2020	2L, 4T, & 1R	Same as 2020	2L & 1T-R
Bishop Drive/ Sunset	1L & 1T-R	1L & 1T-R	1L-T & 1T-R	1L-T & 1T-R	Same as ext	Same as ext	Same as ext	Same as ext	Widen by 12 feet for alignment	2L & 1T-R	1L, 1T-R, & 1R	Same as ext

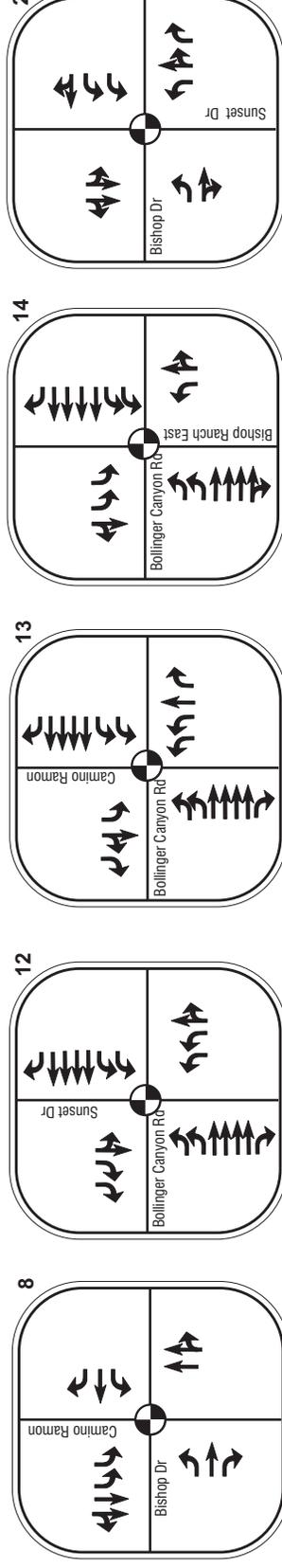
EXISTING GEOMETRY



CIP GEOMETRY



INTERSECTION MODIFICATIONS



Camino Ramon/Bishop Drive

The proposed intersection geometry for Camino Ramon/Bishop Drive is noted on Figure 16 and Figure 17. The following is a description of the recommended geometry.

Northbound Approach: The existing northbound left turn lane would be removed. Traffic turning left at this intersection can instead turn right at Bollinger Canyon/Bishop Ranch 1 East and then travel through in a westbound direction at Camino Ramon/Bishop. The reduced roadway width will facilitate pedestrians crossing this intersection on the south leg.

Southbound Approach: The southbound approach would require dual left turn lanes to route traffic off Camino Ramon and around the BR2 site. Widening would be required to the west, approximately 12 feet wide for a distance of 200 feet plus a 90-foot taper. The curb lane would be a right turn only lane onto Bishop Drive. The capacity of the right turn lane would be maximized by overlapping with the east/west left turns. Eastbound U-turns would not be allowed. Sufficient green time would need to be given to the dual southbound left turns to divert traffic off Camino Ramon.

Eastbound Approach: The eastbound approach would be a left, a through and a right turn. Widening approximately 24 feet into the BR2 site would be required to achieve the necessary alignment through the intersection.

Westbound Approach: The westbound approach would be widened to include a right turn lane, a through, and a left turn lane. All widening is assumed to be toward the south. Dual eastbound lanes will also be required to receive the dual southbound left turn lanes.

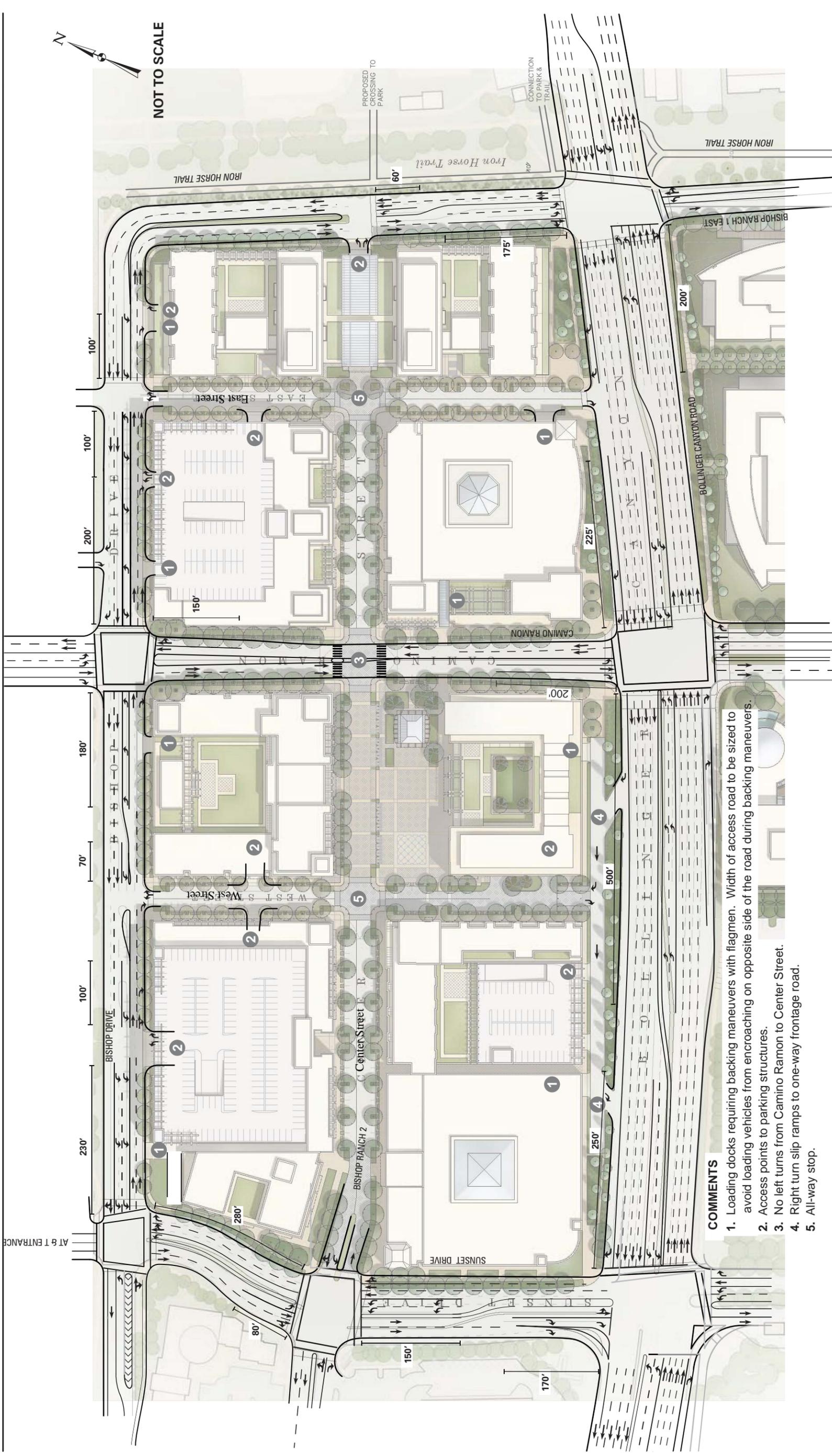
The proposed geometry at Camino Ramon/Bishop Drive would enable Camino Ramon between Bishop Drive and Bollinger Canyon Road to remain at its current configuration. With the geometric improvements noted above, the project impact at this intersection would be less than significant.

Bishop Drive/Sunset Drive

Because additional right turn traffic would be added from southbound Camino Ramon to westbound Bishop Drive, dual left turns would be needed from Bishop Drive to southbound Sunset Drive. These intersection geometrics are shown on Figure 16 and Figure 17. The following is the specific geometry for Bishop Drive/Sunset Drive.

Northbound Approach: A third through lane is proposed from Bollinger Canyon Road to Bishop Drive. This widening would take place to the east into the BR2 site. The purpose of this lane is to provide additional capacity through the Sunset Drive/BR2 intersection. The added northbound lane would be right turn only at Bishop Drive.

Southbound Approach: No changes are proposed for the AT&T driveway.



COMMENTS

1. Loading docks requiring backing maneuvers with flagmen. Width of access road to be sized to avoid loading vehicles from encroaching on opposite side of the road during backing maneuvers.
2. Access points to parking structures.
3. No left turns from Camino Ramon to Center Street.
4. Right turn slip ramps to one-way frontage road.
5. All-way stop.