

APPENDIX H

Traffic Impact Analysis



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Morgan Hill Technology Center

Traffic Impact Analysis

Prepared for:

City of Morgan Hill

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Executive Summary

This report presents the results of the traffic impact analysis conducted for the proposed Morgan Hill Technology Center project in Morgan Hill, California.

Project Description

The 89.3-acre project site is located along the east side of US 101 between Cochrane Road and Half Road. The site is mostly vacant. As proposed, the project would consist of up to 1,089,600 square feet (s.f.) of general light industrial space, 50,000 s.f. of commercial space, and 319 residential units. The commercial and light industrial components of the project are currently configured in six parcels totaling approximately 61 acres, with Commercial and Commercial/Industrial General Plan designations, and located within three zoning districts: PUD Highway Commercial (CH), Administrative Office (CO), and PUD Light Industrial (IL). The applicant proposes to reconfigure the property into five legal lots (one commercial, three commercial/light industrial parcels controlled by the applicant, and one existing commercial/light industrial parcel not controlled by the applicant); reduce the Commercial General Plan designation area and increase the Commercial/Industrial General Plan designation area through a General Plan Amendment (File No. GPA2019-0002); and establish a Planned Development (PD) Combining District over the commercial and light-industrial project area through a Zoning Amendment (File No. ZA2019-0005).

Commercial Component

The proposed rezoning will reduce the existing commercial zoned acreage from +/-30 acres to 2.92 acres fronting Cochrane Road for uses consistent with the traditional CH - Highway Commercial Zoning District, allowing a range of retail, administrative, professional services and functions supporting freeway access at major intersections. The anticipated likely development on the site, given parking, landscaping, and stormwater treatment requirements would be approximately 50,000 square feet. Access off Cochrane Road would be provided via a right-turn in only driveway, with a full access driveway entry/exit at the southwest corner of the property off DePaul Drive.

Light Industrial Component

A total of 1,089,600 square feet of various industrial uses, including advanced manufacturing and general light industrial space, will be constructed on 59 acres. A 2.18-acre parcel that is depicted as 'Not a Part' on the Trammell Crow conceptual site plan is evaluated for up to 45,000 square feet of future light-industrial uses, although no specific development application is proposed at this time. Access to the industrial zoned property would be provided exclusively via full-access driveways off the west side of DePaul Drive.

Residential Component

Although no formal land use entitlement applications are currently on file, this traffic study evaluates a maximum residential scenario of up to 319 residential units located between DePaul Drive and Mission View Drive, north of Half Road. The residential units are preliminarily comprised of 60 courtyard homes, 115 townhomes, and 72 duet units. Each duet unit is presumed to equate to two residential units.

Warehouse Project Alternative

The industrial component of the project is proposed to consist of six buildings that would provide a total of 1,089,600 square feet of light industrial space. However, the site zoning could ultimately allow various industrial land uses on the site including advanced manufacturing, warehouse distribution, supporting office, and other similar uses. In terms of trip generation, warehouse and manufacturing space generally generates much less auto trips than light-industrial space. However, the composition of truck traffic tends to be greater for warehouse uses when compared to manufacturing and light-industrial space. Therefore, the City requested that an alternative project scenario, consisting of warehouse uses on the entirety of the industrial portion of the site, be evaluated to reflect the potential for the project site uses to generate a fewer number of vehicular trips and typical truck trips for warehouse uses than estimated for the light industrial uses for the site. The warehouse project alternative was analyzed to the same level as the proposed light industrial uses under each of the same study scenarios.

The study includes an analysis of AM and PM peak-hour traffic conditions for 28 signalized intersections, nine unsignalized intersections, two planned future intersections, and 14 directional freeway segments.

Scope of Study

The purpose of the study is to identify the potential traffic impacts related to the proposed project. The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Morgan Hill and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the County Congestion Management Program (CMP).

Traffic conditions at all of the study intersections were analyzed for the weekday AM and PM peak hours. The weekday AM peak hour of traffic is generally between 7:00 AM and 9:00 AM and the weekday PM peak hour is typically between 4:00 PM and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday. Traffic conditions were evaluated for the conditions described below and the following two development scenarios:

Light Industrial & Commercial Components Only - The light-industrial/commercial component of the project is evaluated independently for the Existing plus Project and Year 2030 scenarios since there is a current plan for its development.

Project Buildout - There is no specific development plan for the residential component of the project, therefore the residential is evaluated only in combination with the light industrial & commercial components for each scenario, with the exception of the Year 2030 scenario.

Scenario 1: *Existing Conditions*. Existing conditions represent existing peak-hour traffic volumes on the existing roadway network. Existing peak-hour traffic volumes were obtained from recently completed traffic studies and supplemented with new manual turning-movement counts at study intersections for which recent counts, less than two years old, were unavailable.

- Scenario 2: *Existing Plus Project Conditions.* Project-generated traffic volumes were added to existing traffic volumes to estimate existing plus project conditions. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts.
- Scenario 3: *Year 2030 Cumulative Conditions.* Year 2030 Cumulative conditions represents traffic growth projected to occur in the Year 2030 without the proposed project on the existing transportation network. Projected 2030 traffic growth was developed by interpolating the projected Year 2035 traffic growth.
- Scenario 4: *Year 2030 Cumulative with Project Conditions.* Year 2030 with project conditions consist of Year 2030 cumulative conditions with the addition of project traffic associated with an anticipated 10-year build plan for only the light industrial/commercial component of the site. This scenario does not include the proposed residential units since there is not a development plan available.
- Scenario 5: *Year 2035 General Plan No Project Conditions.* Year 2035 General Plan No Project conditions represent future traffic volumes on the future transportation network. Year 2035 General Plan No Project conditions includes land use growth and transportation improvements associated with buildout of the City's General Plan.
- Scenario 6: *Year 2035 General Plan with Project Conditions.* Year 2035 General Plan with Project conditions consist of Year 2035 General Plan No Project traffic conditions with the addition of traffic due to the proposed project and its associated land use amendment for the project site.

Project Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. Hexagon prepared trip estimates for each component of the proposed project based on trip generation rates obtained from the Institute of Transportation Engineers' (ITE's) *Trip Generation Manual*, Tenth Edition, 2017.

Industrial/Commercial Components

Based on the recommended rates for general light industrial (Land Use #110) and the size of the proposed general light industrial space of the project, it is estimated that the light-industrial uses of the project would generate 5,404 daily trips, with 763 trips (671 inbound and 92 outbound) occurring during the AM peak hour and 686 trips (89 inbound and 597 outbound) occurring during the PM peak hour.

Truck Trips

It is anticipated that the proposed light industrial uses would primarily consist of light industrial/manufacturing space, which has the potential to generate a considerable number of truck trips. ITE's *Trip Generation Manual*, Tenth Edition does not provide data in regard to the composition of truck trips for general light industrial land use. Therefore, it is estimated that the proposed light industrial space would generate 248 daily truck trips, based on the assumption that each of the 124 dock doors would turn over at an average of once per day. The estimated 248 daily truck trips equates to approximately five percent of the total estimated daily trips for the light industrial uses. It also was assumed that five percent of the total estimated peak-hour trips would be comprised of trucks. Note that

the estimated truck trips are included within and are not in addition to the vehicular trips described above.

Commercial (Retail) Trips

Trip generation for retail uses are typically adjusted to account for pass-by-trips. Pass-by-trips are trips that would already be on the adjacent roadways (and are therefore already counted in the existing traffic) but would turn into the site while passing by. Justification for applying the pass-by-trip reduction is founded on the observation that a portion of retail traffic is not actually generated by the retail use but is already part of the ambient traffic levels. Pass-by-trips are therefore excluded from the traffic projections (although pass-by traffic is accounted for at the site entrances). A typical pass-by trip reduction of 20% was applied to the retail/commercial component of the proposed project. Based on the ITE trip generation rates and reductions for pass-by-trips, it is estimated that the proposed commercial/retail component of the project would generate 1,850 daily trips, with 47 trips (29 inbound and 18 outbound) occurring during the AM peak hour and 153 trips (74 inbound and 79 outbound) occurring during the PM peak hour.

Based on the ITE trip generation rates and reductions for pass-by-trips, it is estimated that the proposed light industrial and commercial components of the project would generate a total of 7,254 daily trips, with 810 trips (700 inbound and 110 outbound) occurring during the AM peak hour and 839 trips (163 inbound and 676 outbound) occurring during the PM peak hour.

Residential Component

Although no formal land use entitlement applications are currently on file, a maximum residential development scenario of up to 319 residential units is evaluated within this study. The residential units are preliminarily anticipated to be comprised of 60 courtyard homes, 115 townhomes, and 72 duet units. Each duet unit is presumed to equate to two residential units. Therefore, trip estimates for a total of 319 residential units were evaluated. Based on the ITE trip generation rates, it is estimated that the proposed residential component of the project would generate 3,011 daily trips, with 236 trips (59 inbound and 177 outbound) occurring during the AM peak hour and 316 trips (199 inbound and 117 outbound) occurring during the PM peak hour.

Combined Total

Based on the ITE trip generation rates and reductions, it is estimated that the proposed project would generate a total of 10,265 daily trips, with 1,046 trips (759 inbound and 287 outbound) occurring during the AM peak hour and 1,155 trips (362 inbound and 793 outbound) occurring during the PM peak hour.

Existing Plus Project Intersection Levels of Service Analysis

The intersection level of service is summarized in Table ES-1. The results show that two study intersections would be significantly impacted by the commercial and industrial components only and three study intersections would be significantly impacted by buildout of the project under Existing Plus Project conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impacts are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of an exclusive northbound left-turn lane and a separate eastbound right-turn lane. The addition of the northbound left-turn lane will require a signal modification (with split-phasing on the north and south approaches) and widening

of the south approach (De Paul Drive) of the intersection by removing and reconstructing the curb and gutter along the project's frontage. The eastbound right-turn lane will require striping of the lane to the right of the existing bike lane along Cochrane Road. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under existing plus project buildout conditions.

29. Cochrane Road and Mission View Drive

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of a second northbound left-turn lane on Mission View Drive and a cycle length adjustment. The addition of the second northbound left-turn lane will require lane striping and signal modification, but will fit within the existing curb-to-curb pavement width on Mission View Drive. Implementation of this improvement would improve the intersection's level of service to LOS B during the AM peak hour under existing plus project conditions for both development scenarios.

31. Mission View Drive and Half Road

Mitigation: The necessary improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. Implementation of a traffic signal at this location would improve the level of service to LOS B during both peak hours under existing plus project conditions for both development scenarios. The Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under existing plus project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Freeway Segment Levels of Service Analysis

The results of the CMP freeway level of service analysis under existing plus commercial and general light industrial components conditions and existing plus project buildout conditions are summarized in Table ES-2.

The results show that the same ten directional mixed-flow lanes and one directional HOV lane on the freeway segments analyzed that were shown to operate at an unacceptable LOS F during at least one peak hour under existing conditions would continue to operate at LOS F conditions with the addition of traffic due to both development scenarios.

Traffic associated with the light industrial and commercial components and the development of all proposed land uses of the project would result in an increase in traffic volumes of more than one percent of freeway capacity on six and ten of the directional mixed-flow lanes, respectively, and one directional HOV lane freeway segments currently operating at an unacceptable LOS F:

Mixed-Flow Freeway Segment Unacceptable LOS

- 2. US 101, Northbound from San Martin Avenue to Tennant Avenue (AM Peak Hour) – Impact under both development scenarios**
- 3. US 101, Northbound from Tennant Avenue to East Dunne Avenue (AM Peak Hour) – Impact under both development scenarios**

- 4. US 101, Northbound from East Dunne Avenue to Cochrane Road (AM Peak Hour) – Impact under both development scenarios**
- 5. US 101, Northbound from Cochrane Road to Coyote Creek Golf Drive (AM Peak Hour) – Impact under project buildout scenario only**
- 8. US 101, Southbound from SR 85 to Bailey Avenue (PM Peak Hour) – Impact under project buildout scenario only**
- 9. US 101, Southbound from Bailey Avenue to Coyote Creek Golf Drive (PM Peak Hour) – Impact under project buildout scenario only**
- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only**
- 11. US 101, Southbound from Cochrane Road to East Dunne Avenue (PM Peak Hour) – Impact under both development scenarios**
- 12. US 101, Southbound from East Dunne Avenue to Tennant Avenue (PM Peak Hour) – Impact under both development scenarios**
- 13. US 101, Southbound from Tennant Avenue to San Martin Avenue (PM Peak Hour) – Impact under both development scenarios**

HOV Freeway Segment Unacceptable LOS

- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only**

Therefore, based on CMP impact criteria, the general light industrial/commercial components and buildout of all proposed land use components of the project would have a significant impact on six and ten study freeway segments, respectively.

Full mitigation of significant project impacts on freeway segments would require freeway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

Year 2030 Intersection Levels of Service Analysis

The intersection level of service is summarized in Table ES-1. The results show that eight study intersections would be significantly impacted by the commercial and general light industrial components only under Year 2030 Cumulative conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impact are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of the improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project.

29. Cochrane Road and Mission View Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project.

30. Mission View Drive and Avenida De Los Padres

Mitigation: Implementation of a traffic signal at this location would improve the level of service to LOS B during the AM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

31. Mission View Drive and Half Road

Mitigation: As discussed under existing plus project conditions, the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under Year 2030 conditions. Implementation of a traffic signal at this location would improve the level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road and an exclusive eastbound right-turn lane on Main Avenue. The addition of the right-turn lanes will require signal modifications and lane striping on the southbound and eastbound approaches. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

36. Condit Road and Diana Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the AM peak hour under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at

this location, the level of service would operate at LOS C conditions during the PM peak hour under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS C during the peak hours under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Year 2035 General Plan Intersection Levels of Service Analysis

The intersection level of service is summarized in Table ES-1. The results show that seven study intersections would be significantly impacted by the project buildout under Year 2035 General Plan conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impact are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under Year 2035 General Plan with the project buildout conditions.

32. Half Road and De Paul Drive

Mitigation: It was presumed that a full access intersection would be provided at the De Paul Drive and Half Road intersection under Year 2035 General Plan with project conditions. Though peak-hour traffic signal warrant checks indicate that the traffic volumes at the intersection are projected to meet thresholds that warrant signalization, signalization of the intersection is not recommended. Since the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network, it is recommended that turn movements at the De Paul Drive and Half Road intersection be restricted to right-turns only. The turn restriction will restrict the use of De Paul Drive and Condit Road as cut-through routes. Implementation of the turn restrictions at the De Paul Drive and Half Road intersection along with a traffic signal at Mission View Drive and Half Road would result in LOS B conditions during the PM peak hour at the Mission View Drive and Half Road intersection the under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road. Implementation of this improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2035 General Plan with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

34. Main Avenue and Murphy Avenue

Mitigation: The signalization of the future intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS D and C during the AM and PM peak hours, respectively, under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

37. Murphy Avenue and Diana Avenue

Mitigation: The signalization of the intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS C during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the PM peak hour under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS D during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Year 2035 Vehicle Miles Traveled Analysis

A comparison of Vehicle Miles Traveled (VMT) for the Year 2035 General Plan no project conditions versus the Year 2035 General Plan with the proposed project was made to determine the effects of the proposed project on traffic patterns within the City.

The VMT results show that the proposed project would result in a significant increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/industrial development uses on the project site. However, the VMT per trip is shown to only minimally increase.

Project Alternative Evaluation

The industrial component of the project was presumed to consist of six buildings that would provide a total of 1,089,600 square feet of light industrial space. However, the site zoning could ultimately allow for various industrial land uses on the site including advanced manufacturing, warehouse distribution, supporting office, and other similar uses. In terms of trip generation, warehouse and manufacturing space generally generates much less auto trips than light-industrial space. However, the composition of truck traffic tends to be greater for warehouse uses when compared to light-industrial space. Therefore, the City requested that an alternative project scenario, consisting of warehouse uses on the entirety of the industrial portion of the site, be evaluated to reflect the potential for the project site uses to generate a fewer number of vehicular trips and typical truck trips for warehouse uses than estimated for the light industrial uses for the site.

For the purpose of completing the requested project alternative evaluation, the project applicant developed a conceptual development plan for the industrial portion of the site that would consist of three buildings that could provide up to 1,105,000 s.f. of warehouse space along with the same 50,000 s.f. of commercial space and 319 residential units. The warehouse project alternative was analyzed to the same level as was completed for the proposed light industrial uses under each of the same study scenarios. The following development scenarios were evaluated:

Warehouse & Commercial Components Only - The warehouse/commercial component of the project is evaluated independently for each of the scenarios since there is a current plan for its development.

Project Alternative Buildout - There is no specific development plan for the residential component of the project, therefore the residential is evaluated only in combination with the warehouse & commercial components for each scenario.

The analysis of each of the scenarios includes an evaluation of intersection and freeway levels of service, roadway segments and queuing as was completed and presented in previous chapters for the proposed light industrial use. The same methodology and standards of evaluation were used for the evaluation of the warehouse project alternative. The intersection levels of service are shown in Table ES-3 and the freeway levels of service are shown in Table ES-4.

Table ES-5 presents a tabular summary of intersection impacts for both the proposed light-industrial uses and warehouse project alternative under each of the study scenarios. The results of the analysis indicated that the warehouse project alternative will result in impacts at a total of 9 of the 39 study intersections during at least one of the scenarios studied. The proposed light industrial use was shown to result in impacts at a total of 11 intersections. The required mitigation at each of the intersections that were shown to be impacted by both the proposed light-industrial use and warehouse project alternative was the same at all impacted intersections however an additional intersection improvement would be required to mitigate the light-industrial project alternative. The intersection level of service results indicate that despite the fewer number of trips that would be generated when compared to the light industrial proposed project, the warehouse project alternative would result in impacts to only two fewer intersections.

Year 2035 Vehicle Miles Traveled Analysis (Project Alternative)

The VMT results show that the warehouse project alternative would result in an increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/warehouse development uses on the project site. Additionally, the VMT per trip is shown to increase, representing longer trips associated with the proposed land use amendment for the site.

Other Transportation Issues

Truck Traffic

It is estimated that up to 248 and 385 daily truck trips may be generated by the proposed general light industrial and warehouse uses on the project site, respectively. Presuming operations at the manufacturing buildings could occur between 6:00 AM and 12:00 AM (18 hours of operation), it is estimated that an average of 14 and 21 truck trips per hour will be generated by the proposed general light industrial and warehouse uses on the project site, respectively.

It is expected that all truck traffic would originate from and be bound for US 101. Trucks will utilize the Cochrane Road freeway ramps and Cochrane Road to access the project driveways along DePaul Drive. Trucks will not use other interchanges at Dunne Avenue or Tennant Avenue. The project does not propose to locate driveways that would serve truck traffic along Cochrane Road. Based on the identified truck route, the additional truck traffic estimated to be generated by the proposed general light industrial and warehouse uses on the project site will only result in an increase in truck traffic along Cochrane Road and DePaul Drive. Table 24 provides an estimate of the projected increase in truck traffic on surrounding streets.

Intersection Operations Analysis

The queuing analysis indicates that the maximum vehicle queues for the northbound approach at the Cochrane Road and DePaul Drive intersection are projected to be less than the existing/planned storage capacities provided. However, to ensure efficient operations, it is recommended that a separate eastbound right-turn lane be provided at the Cochrane Road and DePaul Drive intersection. The separate eastbound right-turn lane should extend from DePaul Drive to approximately 150 feet west of the commercial driveway on Cochrane Road.

Additionally, the queuing analysis indicates that the maximum vehicle queue for westbound left-turn movement at the Cochrane Road and De Paul Drive intersection is projected to be 200 feet long and would exceed the provided turn pocket storage space by 100 feet during the AM peak hour under existing plus commercial/light industrial components only and project buildout conditions. It is recommended that this turn pocket be lengthened by 100 feet to accommodate the projected queue.

The queuing analysis also indicates that the maximum vehicle queue for northbound left-turn movement at the Cochrane Road and Mission View Drive intersection currently exceeds the provided turn pocket storage space during the AM and PM peak hours under existing conditions. The addition of traffic from the commercial/light-industrial components and buildout of all land uses on the project site would lengthen the northbound queue by 100 feet and 150 feet, respectively, during the AM peak-hour under the existing plus project conditions. The extension of the northbound left-turn pocket at the Cochrane Road and Mission View Drive intersection by 400 feet would provide the necessary storage

space. However, a second northbound left-turn lane is recommended to improve intersection operations.

Transit, Pedestrian, and Bicycle Analysis

The project site is served by one bus route, Local Route 87. In addition, three express lines provide service from the project area (Cochrane Road west of US 101) to the Morgan Hill Caltrain Station during PM commute periods. A typical mode split in Morgan Hill would be a three percent transit share. Assuming up to three percent transit mode share for the project equates to no more than 31 transit riders during the AM peak hour and 35 riders during the PM peak hour.

Sidewalks are provided along the north side of Cochrane Road in the immediate project area. However, sidewalks along the south side of Cochrane Road are intermittent, with no sidewalk currently provided between the US 101 northbound ramps and De Paul Drive (the north project frontage), and a short segment west of Mission View Drive. The project would provide a sidewalk along its entire frontage and result in a continuous connection to the existing sidewalk along the southside of Cochrane Road to provide a safe connection between the project site and other surrounding land uses in the area. The project also will provide a sidewalk along its frontage along De Paul Drive. A controlled crossing of Cochrane Road is provided at the signalized De Paul Drive and Cochrane Road intersection that will provide a connection between the project site and retail uses on the north side of Cochrane Road.

Bike lanes are currently provided along the length of Cochrane Road, including along the north project frontage. There also are bike lanes along Main Avenue beginning at Live Oak High School and continuing west across US-101 to Peak Avenue. An unpaved bike path, the Madrone Channel Trail, along the east side of US 101, between Tennant Avenue and Cochrane Road runs along the west project frontage of the proposed commercial/industrial use of the project. It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could potentially generate no more than 12 new bicycle trips during each of the peak hours. The demand generated by the proposed project could be accommodated by the existing bicycle facilities in the vicinity of the project site.

Table ES 1
Intersection Level of Service Summary

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing			Existing + Project (Commercial & Light Industrial Components Only)					Existing + Project (Project Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Avg. Delay	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	D	AM	03/28/19	--	15.0	B	--	14.9	B	0.0	0.001	--	14.9	B	-0.1	0.004
				PM	03/28/19	--	9.7	A	--	9.8	A	0.0	0.002	--	9.8	A	0.1	0.005
2	Monterey Road and Madrone Parkway	Signal	D	AM	02/28/19	--	9.4	A	--	9.4	A	0.0	0.001	--	9.4	A	0.0	0.004
				PM	02/28/19	--	9.8	A	--	9.9	A	0.1	0.002	--	10.0	B	0.2	0.006
3	Monterey Road and Cochrane Road	Signal	E	AM	05/08/18	--	28.1	C	--	28.4	C	0.4	0.013	--	28.5	C	0.5	0.014
				PM	05/08/18	--	24.0	C	--	24.7	C	0.8	0.013	--	24.7	C	0.8	0.017
4	Monterey Road and Old Monterey Road	Signal	D	AM	05/08/18	--	10.4	B	--	10.9	B	0.3	0.012	--	10.9	B	0.3	0.012
				PM	05/08/18	--	13.0	B	--	13.0	B	0.1	0.003	--	13.0	B	0.1	0.003
5	Monterey Road and Wright Avenue	Signal	D	AM	03/28/19	--	19.1	B	--	19.1	B	0.0	0.000	--	19.1	B	0.0	0.000
				PM	03/28/19	--	20.4	C	--	20.4	C	0.0	0.000	--	20.4	C	0.0	0.000
6	Monterey Road and Central Avenue	TWSC	D	AM	03/28/19	No	19.5	C	No	19.5	C	N/A	N/A	No	19.5	C	N/A	N/A
				PM	03/28/19	No	15.7	C	No	15.7	C	N/A	N/A	No	15.7	C	N/A	N/A
7	Monterey Road and Main Avenue	Signal	F	AM	05/08/18	--	44.2	D	--	45.1	D	1.0	0.024	--	45.5	D	1.5	0.036
				PM	05/08/18	--	45.1	D	--	46.5	D	1.7	0.028	--	47.0	D	2.4	0.040
8	Monterey Road and Second Street	Signal	F	AM	03/28/19	--	10.6	B	--	10.6	B	0.0	0.001	--	10.7	B	0.1	0.003
				PM	03/28/19	--	12.6	B	--	12.6	B	0.0	0.000	--	12.7	B	0.0	0.000
9	Monterey Road and East Dunne Avenue	Signal	E	AM	05/08/18	--	28.9	C	--	29.0	C	0.1	0.002	--	29.1	C	0.1	0.003
				PM	05/08/18	--	31.4	C	--	31.9	C	0.6	0.011	--	31.9	C	0.7	0.014
10	East Dunne Avenue and Church Street	Signal	E	AM	06/06/18	--	17.8	B	--	17.7	B	-0.1	0.022	--	17.8	B	-0.1	0.024
				PM	06/06/18	--	19.9	B	--	19.3	B	-0.5	0.020	--	19.2	B	-0.6	0.022
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM	05/08/18	--	35.5	D	--	36.3	D	1.4	0.029	--	36.5	D	1.6	0.032
				PM	05/08/18	--	31.7	C	--	31.9	C	0.3	0.014	--	32.2	C	0.6	0.017
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM	03/28/19	--	18.4	B	--	18.4	B	0.0	0.013	--	18.4	B	0.0	0.015
				PM	03/28/19	--	28.5	C	--	28.3	C	-0.1	0.003	--	28.3	C	-0.1	0.006
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM	05/08/18	--	20.9	C	--	21.2	C	-0.2	-0.003	--	21.2	C	-0.2	0.000
				PM	05/08/18	--	18.8	B	--	18.8	B	0.0	0.000	--	18.8	B	0.1	0.002
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM	05/08/18	--	5.3	A	--	5.2	A	0.0	0.001	--	5.2	A	-0.1	0.006
				PM	05/08/18	--	11.8	B	--	11.5	B	-0.1	0.011	--	11.5	B	-0.1	0.014
15	East Dunne Avenue and Condit Road	Signal	E	AM	03/28/19	--	42.4	D	--	44.8	D	3.0	0.039	--	46.0	D	4.4	0.054
				PM	03/28/19	--	28.2	C	--	28.5	C	0.4	0.035	--	28.6	C	0.7	0.052
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM	03/28/19	--	18.9	B	--	19.1	B	0.3	0.014	--	19.1	B	0.3	0.015
				PM	03/28/19	--	11.8	B	--	11.7	B	-0.1	0.013	--	11.7	B	-0.1	0.015
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM	05/08/18	--	21.3	C	--	22.2	C	1.3	0.019	--	22.3	C	1.4	0.021
				PM	05/08/18	--	20.4	C	--	21.1	C	1.0	0.019	--	21.1	C	1.1	0.021
18	Butterfield Boulevard and Main Avenue	Signal	D	AM	05/08/18	--	27.6	C	--	28.3	C	1.2	0.032	--	28.8	C	2.0	0.045
				PM	05/08/18	--	29.8	C	--	31.2	C	1.7	0.034	--	31.8	C	2.7	0.049
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM	05/08/18	--	17.1	B	--	17.2	B	0.2	0.020	--	17.2	B	0.1	0.022
				PM	05/08/18	--	11.0	B	--	11.1	B	0.1	0.017	--	11.1	B	0.2	0.018
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM	05/08/18	--	11.7	B	--	12.1	B	0.5	0.019	--	12.2	B	0.6	0.022
				PM	05/08/18	--	12.8	B	--	12.9	B	0.1	0.020	--	12.9	B	0.2	0.022
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM	05/08/18	--	6.7	A	--	6.7	A	0.1	0.012	--	6.7	A	0.1	0.013
				PM	05/08/18	--	15.6	B	--	16.3	B	0.8	0.030	--	16.4	B	0.9	0.032
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM	05/08/18	--	12.3	B	--	12.5	B	0.1	0.015	--	12.5	B	0.2	0.016
				PM	05/08/18	--	12.0	B	--	12.1	B	0.3	0.011	--	12.1	B	0.3	0.011
23	Cochrane Road and Cochrane Circle	Signal	D	AM	05/08/18	--	10.5	B	--	10.4	B	0.0	0.003	--	10.4	B	0.0	0.006
				PM	05/08/18	--	10.9	B	--	11.1	B	0.1	0.005	--	11.1	B	0.1	0.008
24	Cochrane Road and Sutter Boulevard	Signal	D	AM	05/08/18	--	17.2	B	--	17.3	B	-0.1	0.022	--	17.3	B	0.0	0.026
				PM	05/08/18	--	17.9	B	--	18.1	B	0.4	0.018	--	16.9	B	-2.0	-0.044
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM	05/08/18	--	19.1	B	--	19.0	B	-3.0	-0.002	--	18.9	B	-3.1	0.005
				PM	05/08/18	--	31.4	C	--	30.9	C	-0.2	0.006	--	30.8	C	-0.2	0.012
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM	05/08/18	--	12.8	B	--	14.3	B	2.4	0.139	--	14.7	B	2.9	0.163
				PM	05/08/18	--	16.5	B	--	17.2	B	0.6	0.030	--	18.6	B	2.2	0.093

Table ES 1(Continued)
Intersection Level of Service Summary

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing			Existing + Project (Commercial & Light Industrial Components Only)					Existing + Project (Project Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Avg. Delay	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM	05/08/18	--	8.6	A	--	10.8	B	2.0	0.161	--	10.7	B	2.9	0.221
				PM	05/08/18	--	11.3	B	--	12.0	B	0.5	0.044	--	11.9	B	0.8	0.086
28	Cochrane Road and De Paul Drive	Signal	E	AM	05/08/18	--	17.7	B	--	25.9	C	17.4	0.288	--	28.2	C	22.2	0.366
				PM	05/08/18	--	18.7	B	--	78.0	E	69.7	0.502	--	101.0	F	117.7	0.588
29	Cochrane Road and Mission View Drive	Signal	D	AM	05/08/18	--	23.0	C	--	69.1	E	72.8	0.160	--	94.6	F	112.6	0.212
				PM	05/08/18	--	15.7	B	--	22.8	C	11.8	0.159	--	30.0	C	22.2	0.209
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	03/28/19	No	13.5	B	No	17.7	C	N/A	N/A	No	19.8	C	N/A	N/A
				PM	03/28/19	No	12.5	B	No	15.3	C	N/A	N/A	No	17.0	C	N/A	N/A
31	Mission View Drive and Half Road	OWSC	D	AM	03/28/19	No	13.6	B	No	27.7	D	N/A	N/A	No	33.3	D	N/A	N/A
				PM	03/28/19	No	22.6	C	Yes	73.2	F	N/A	N/A	Yes	136.9	F	N/A	N/A
32	Half Road and De Paul Drive Extension	Future	D	AM	--	No	0.0	A	--	--	--	--	--	--	--	--	--	--
				PM	--	No	0.0	A	--	--	--	--	--	--	--	--	--	--
33	Main Avenue and Condit Road	Signal	D	AM	05/08/18	--	27.6	C	--	31.1	C	3.3	0.074	--	34.2	C	6.6	0.121
				PM	05/08/18	--	26.1	C	--	35.0	D	10.2	0.168	--	39.3	D	15.2	0.205
34	Main Avenue and Murphy Avenue	Future	D	AM	--	No	12.8	B	--	--	--	--	--	--	--	--	--	--
				PM	--	No	8.1	A	--	--	--	--	--	--	--	--	--	--
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	03/28/19	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
				PM	03/28/19	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	D	AM	06/04/19	Yes	14.7	B	Yes	16.9	C	N/A	N/A	Yes	17.5	C	N/A	N/A
				PM	06/04/19	No	13.6	B	No	14.9	B	N/A	N/A	No	15.4	C	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	06/04/19	No	11.4	B	No	11.4	B	N/A	N/A	No	11.4	B	N/A	N/A
				PM	06/04/19	No	9.9	A	No	9.9	A	N/A	N/A	No	9.9	A	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	06/04/19	Yes	14.7	B	Yes	15.2	C	N/A	N/A	Yes	15.7	C	N/A	N/A
				PM	06/04/19	Yes	14.6	B	Yes	15.3	C	N/A	N/A	Yes	15.4	C	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	06/04/19	Yes	21.3	C	Yes	22.5	C	N/A	N/A	Yes	22.8	C	N/A	N/A
				PM	06/04/19	No	11.9	B	No	12.2	B	N/A	N/A	No	12.2	B	N/A	N/A
¹ The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay. Bold indicates unacceptable level of service. Bold and boxed indicate significant impact.																		

Table ES 1(Continued)
Intersection Level of Service Summary

Int. #	Intersection	Year 2030 Control	Year 2035 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Light Industrial Components Only)					Year 2035 No Project			Year 2035 + Project (Project Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	Signal	D	AM	--	16.6	B	--	16.5	B	0.0	0.001	--	16.0	B	--	15.9	B	-0.1	-0.001
					PM	--	13.1	B	--	13.1	B	0.1	0.002	--	25.0	C	--	26.1	C	1.5	0.005
2	Monterey Road and Madrone Parkway	Signal	Signal	D	AM	--	12.2	B	--	12.1	B	0.1	0.002	--	--	--	--	--	--	--	--
					PM	--	15.8	B	--	16.1	B	0.3	0.002	--	--	--	--	--	--	--	--
2a	Monterey Road and Madrone Parkway (N)	Future	Signal	D	AM	--	12.2	B	--	--	--	--	--	--	19.0	B	--	18.7	B	-0.3	-0.001
					PM	--	15.9	B	--	--	--	--	--	--	35.2	D	--	36.7	D	2.1	0.005
2b	Monterey Road and Madrone Parkway (E)	Future	Signal	D	AM	--	10.8	B	--	--	--	--	--	--	14.9	B	--	14.8	B	0.0	-0.003
					PM	--	11.0	B	--	--	--	--	--	--	14.0	B	--	14.0	B	0.0	0.002
3	Monterey Road and Cochrane Road	Signal	Signal	E	AM	--	30.3	C	--	30.6	C	0.5	0.013	--	26.9	C	--	26.8	C	-1.7	-0.014
					PM	--	26.9	C	--	27.7	C	0.9	0.013	--	30.8	C	--	31.2	C	0.5	0.006
4	Monterey Road and Old Monterey Road	Signal	Signal	D	AM	--	9.8	A	--	10.1	B	0.5	0.012	--	14.1	B	--	14.1	B	0.0	0.001
					PM	--	14.8	B	--	14.8	B	0.0	0.000	--	17.7	B	--	17.7	B	0.0	0.004
5	Monterey Road and Wright Avenue	Signal	Signal	D	AM	--	22.4	C	--	22.4	C	0.0	0.000	--	27.6	C	--	27.3	C	-0.4	-0.001
					PM	--	23.0	C	--	23.0	C	0.0	0.000	--	22.3	C	--	22.5	C	0.2	0.004
6	Monterey Road and Central Avenue	TWSC	TWSC	D	AM	Yes	67.0	F	Yes	67.0	F	N/A	N/A	Yes	240.6	F	Yes	227.2	F	N/A	N/A
					PM	No	27.0	D	No	27.0	D	N/A	N/A	No	39.4	E	No	40.3	E	N/A	N/A
7	Monterey Road and Main Avenue	Signal	Signal	F	AM	--	47.8	D	--	49.3	D	1.8	0.026	--	99.7	F	--	99.9	F	0.1	0.000
					PM	--	49.1	D	--	51.2	D	2.5	0.028	--	51.9	D	--	51.9	D	0.1	0.001
8	Monterey Road and Second Street	Signal	Signal	F	AM	--	11.5	B	--	11.5	B	0.0	0.001	--	10.8	B	--	10.8	B	0.0	-0.002
					PM	--	16.7	B	--	16.7	B	0.0	0.000	--	12.5	B	--	12.4	B	0.0	0.004
9	Monterey Road and East Dunne Avenue	Signal	Signal	E	AM	--	29.0	C	--	29.2	C	0.1	0.003	--	30.7	C	--	30.6	C	0.0	-0.001
					PM	--	33.2	C	--	33.7	C	0.7	0.014	--	36.7	D	--	36.6	D	-0.3	-0.004
10	East Dunne Avenue and Church Street	Signal	Signal	E	AM	--	19.5	B	--	19.8	B	0.0	0.004	--	20.8	C	--	20.8	C	0.0	-0.001
					PM	--	25.4	C	--	24.7	C	-0.5	0.020	--	25.1	C	--	25.0	C	-0.1	0.001
11	Butterfield Boulevard and East Dunne Avenue	Signal	Signal	D	AM	--	40.9	D	--	42.5	D	2.5	0.031	--	38.9	D	--	38.9	D	-0.5	-0.007
					PM	--	35.1	D	--	35.5	D	0.8	0.017	--	34.8	C	--	34.7	C	-0.1	0.002
12	East Dunne Avenue and Walnut Grove Drive	Signal	Signal	E	AM	--	18.9	B	--	19.0	B	0.2	0.014	--	20.3	C	--	20.1	C	-0.3	-0.006
					PM	--	27.8	C	--	27.7	C	0.0	0.003	--	28.0	C	--	28.1	C	0.1	0.000
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	Signal	E	AM	--	21.9	C	--	22.0	C	0.0	0.000	--	21.7	C	--	21.7	C	-0.1	-0.004
					PM	--	21.4	C	--	21.3	C	0.0	0.000	--	22.3	C	--	22.8	C	0.8	0.015
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	Signal	E	AM	--	6.2	A	--	6.1	A	0.0	0.002	--	6.8	A	--	7.4	A	0.5	-0.007
					PM	--	11.3	B	--	11.2	B	-0.1	0.007	--	10.8	B	--	10.7	B	-0.1	0.007
15	East Dunne Avenue and Condit Road	Signal	Signal	E	AM	--	64.8	E	--	73.9	E	11.5	0.042	--	48.4	D	--	49.6	D	1.7	0.012
					PM	--	32.8	C	--	33.9	C	1.7	0.035	--	30.5	C	--	30.6	C	0.2	0.012
16	East Dunne Avenue and Murphy Avenue	Signal	Signal	D	AM	--	20.5	C	--	20.8	C	0.4	0.015	--	23.1	C	--	23.7	C	0.8	0.013
					PM	--	14.4	B	--	14.3	B	0.0	0.013	--	16.9	B	--	17.1	B	0.1	0.003
17	Butterfield Boulevard and Diana Avenue	Signal	Signal	D	AM	--	37.5	D	--	44.4	D	9.5	0.020	--	22.7	C	--	23.0	C	0.4	0.002
					PM	--	35.0	D	--	41.1	D	9.1	0.019	--	23.5	C	--	23.9	C	0.6	0.004
18	Butterfield Boulevard and Main Avenue	Signal	Signal	D	AM	--	31.1	C	--	32.5	C	2.5	0.035	--	31.5	C	--	31.6	C	0.3	0.005
					PM	--	36.3	D	--	38.6	D	3.6	0.034	--	35.7	D	--	36.4	D	0.9	0.011
19	Butterfield Boulevard and East Central Avenue	Signal	Signal	D	AM	--	19.3	B	--	19.6	B	0.5	0.021	--	17.5	B	--	17.5	B	0.0	0.000
					PM	--	12.6	B	--	12.8	B	0.3	0.017	--	11.3	B	--	11.3	B	0.0	0.000
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	Signal	D	AM	--	16.0	B	--	17.4	B	2.0	0.020	--	12.1	B	--	12.0	B	0.0	-0.001
					PM	--	17.8	B	--	18.5	B	1.0	0.020	--	13.2	B	--	13.2	B	0.0	0.000
21	Butterfield Boulevard and Sutter Boulevard	Signal	Signal	D	AM	--	7.4	A	--	7.5	A	0.2	0.013	--	16.2	B	--	16.2	B	0.0	-0.003
					PM	--	16.3	B	--	17.4	B	1.4	0.030	--	25.7	C	--	25.8	C	0.0	-0.001
22	Butterfield Boulevard and Cochrane Road	Signal	Signal	D	AM	--	12.8	B	--	13.0	B	0.2	0.016	--	18.8	B	--	18.8	B	0.0	-0.001
					PM	--	14.8	B	--	14.9	B	0.5	0.011	--	23.1	C	--	23.0	C	-0.1	0.003
23	Cochrane Road and Cochrane Circle	Signal	Signal	D	AM	--	10.4	B	--	10.4	B	0.0	0.003	--	10.0	B	--	10.0	B	0.0	-0.003
					PM	--	12.2	B	--	12.2	B	0.2	0.005	--	9.9	A	--	10.0	A	0.0	0.003
24	Cochrane Road and Sutter Boulevard	Signal	Signal	D	AM	--	17.8	B	--	18.0	B	0.1	0.023	--	17.6	B	--	17.6	B	-0.1	0.000
					PM	--	17.9	B	--	18.3	B	0.5	0.032	--	22.0	C	--	22.2	C	0.3	0.006
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	Signal	E	AM	--	19.1	B	--	19.0	B	0.0	0.000	--	18.5	B	--	18.4	B	0.0	-0.004
					PM	--	32.3	C	--	31.9	C	0.4	0.024	--	29.0	C	--	28.8	C	0.0	0.004

Table ES 1(Continued)
Intersection Level of Service Summary

Int. #	Intersection	Year 2030 Control	Year 2035 Control	LOS Standard	Peak Hour	Year 2030 + Project (Commercial & Light Industrial Components Only)															
						Year 2030			Year 2030					Year 2035			Year 2035 + Project (Project Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
26	Cochrane Road and US 101 Southbound Ramps	Signal	Signal	E	AM	--	14.5	B	--	18.5	B	6.8	0.144	--	15.0	B	--	15.3	B	0.6	0.029
					PM	--	22.2	C	--	24.2	C	2.9	0.030	--	20.6	C	--	21.6	C	1.2	0.029
27	Cochrane Road and US 101 Northbound Ramps	Signal	Signal	E	AM	--	7.5	A	--	10.4	B	4.2	0.169	--	9.6	A	--	10.6	B	2.1	0.062
					PM	--	11.6	B	--	12.3	B	0.8	0.038	--	12.1	B	--	12.2	B	0.2	0.019
28	Cochrane Road and De Paul Drive	Signal	Signal	E	AM	--	26.0	C	--	31.4	C	8.0	0.104	--	40.2	D	--	67.7	E	64.0	0.144
					PM	--	23.3	C	--	133.7	F	172.5	0.579	--	68.3	E	--	112.5	F	92.8	0.166
29	Cochrane Road and Mission View Drive	Signal	Signal	D	AM	--	148.0	F	--	243.5	F	143.4	0.168	--	18.4	B	--	18.4	B	0.1	0.004
					PM	--	58.1	E	--	125.3	F	98.4	0.159	--	17.4	B	--	17.2	B	-0.5	-0.013
30	Mission View Drive and Avenida De Los Padres	TWSC	TWSC	D	AM	No	28.6	D	Yes	48.8	E	N/A	N/A	No	17.8	C	No	19.6	C	N/A	N/A
					PM	No	37.6	E	No	68.5	F	N/A	N/A	No	18.4	C	No	18.6	C	N/A	N/A
31	Mission View Drive and Half Road	OWSC	TWSC	D	AM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A	No	28.5	D	No	35.3	E	N/A	N/A
					PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A	Yes	19.3	C	Yes	20.8	C	N/A	N/A
32	Half Road and De Paul Drive Extension	Future	OWSC	D	AM	No	13.6	B	--	--	--	--	--	No	14.9	B	No	16.3	C	N/A	N/A
					PM	No	14.5	B	--	--	--	--	--	Yes	61.7	F	Yes	86.8	F	N/A	N/A
33	Main Avenue and Condit Road	Signal	Signal	D	AM	--	51.5	D	--	75.6	E	21.4	0.081	--	35.5	D	--	38.0	D	5.2	0.034
					PM	--	79.8	E	--	138.8	F	69.7	0.168	--	62.7	E	--	75.8	E	15.9	0.035
34	Main Avenue and Murphy Avenue	Future	AWSC	D	AM	No	16.5	C	--	OVFL	--	--	--	Yes	209.3	F	Yes	222.2	F	N/A	N/A
					PM	No	8.6	A	--	OVFL	--	--	--	Yes	81.5	F	Yes	100.6	F	N/A	N/A
35	Burdett Avenue and Vista De Lomas	OWSC	OWSC	D	AM	No	8.6	A	No	8.6	A	N/A	N/A	No	11.0	B	No	11.1	B	N/A	N/A
					PM	No	8.6	A	No	8.6	A	N/A	N/A	No	9.5	A	No	9.5	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	TWSC	D	AM	Yes	36.8	E	Yes	56.8	F	N/A	N/A	Yes	17.0	C	Yes	17.5	C	N/A	N/A
					PM	Yes	26.9	D	Yes	32.3	D	N/A	N/A	No	15.3	C	No	15.4	C	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	TWSC	D	AM	No	13.5	B	No	13.5	B	N/A	N/A	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
					PM	No	11.0	B	No	11.0	B	N/A	N/A	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	OWSC	E	AM	Yes	30.5	D	Yes	33.1	D	N/A	N/A	Yes	24.3	C	Yes	24.2	C	N/A	N/A
					PM	Yes	89.1	F	Yes	105.7	F	N/A	N/A	Yes	75.1	F	Yes	75.5	F	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	AWSC	D	AM	Yes	127.6	F	Yes	132.8	F	N/A	N/A	Yes	213.7	F	Yes	215.8	F	N/A	N/A
					PM	Yes	117.8	F	Yes	122.9	F	N/A	N/A	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay. Bold indicates unacceptable level of service. Bold and boxed indicate significant impact. OVFL = Overflow (delay is greater than 250 seconds)

Table ES 2
Freeway Segment Levels of Service Summary

Existing Plus Project (Commercial & Light Industrial Components Only)														Project Trips					
														Mixed-Flow Lane				HOV Lane	
#	Freeway Segment	Direction	Peak Hour	Speed ¹	# of	Capacity	Volume	Density	LOS	Speed ¹	Capacity	Volume	Density	LOS	Total Volume	Volume	% of	Volume	% of
				(mi/h)	Lanes	(pc/hr/ln)	(pc/hr/ln)	(pc/hr/ln)		(mi/h)	(vph)	(pc/hr/ln)	(pc/hr/ln)		(pc/hr/ln)	Capacity	(pc/hr/ln)	Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,959	57	E	--	--	--	--	--	155	155	52	2.2	--
		NB	PM	51.80	3	2,300	2,024	39	D	--	--	--	--	--	38	38	13	0.6	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	1,016	98	F	--	--	--	--	--	155	155	52	2.2	--
		NB	PM	60.00	3	2,300	1,820	30	D	--	--	--	--	--	38	38	13	0.6	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	951	101	F	--	--	--	--	--	155	155	52	2.2	--
		NB	PM	59.80	3	2,300	1,831	31	D	--	--	--	--	--	38	38	13	0.6	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,554	74	F	--	--	--	--	--	155	155	52	2.2	--
		NB	PM	61.60	3	2,300	1,712	28	D	--	--	--	--	--	38	38	13	0.6	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,462	66	F	71.41	1,650	816	11.0	B	19	16	5	0.2	3
		NB	PM	64.20	3	2,300	1,489	23	C	72.66	1,650	640	9.0	A	137	119	40	1.7	18
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,776	55	E	75.29	1,650	-- ²	-- ²	-- ²	19	19	6	0.3	0
		NB	PM	64.00	3	2,300	1,539	24	C	76.15	1,650	-- ²	-- ²	-- ²	137	137	46	2.0	0
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,887	50	E	65.21	1,650	1,333	20.0	C	19	15	5	0.2	4
		NB	PM	63.40	3	2,300	1,608	25	C	72.91	1,650	592	8.0	A	137	121	40	1.8	16
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,729	28	D	73.82	1,650	399	5.0	A	138	128	43	1.9	10
		SB	PM	16.00	3	2,300	1,197	75	F	39.99	1,650	1,763	44.0	D	32	21	7	0.3	11
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,528	24	C	73.79	1,650	407	6.0	A	138	126	42	1.8	12
		SB	PM	14.80	3	2,300	1,136	77	F	41.99	1,650	1,759	42.0	D	32	21	7	0.3	11
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,665	27	D	63.14	1,650	1,453	23.0	C	138	106	35	1.5	32
		SB	PM	12.60	3	2,300	1,015	81	F	21.57	1,650	1,665	77.0	F	32	21	7	0.3	11
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,660	27	D	--	--	--	--	--	21	21	7	0.3	--
		SB	PM	25.00	3	2,300	1,703	68	F	--	--	--	--	--	156	156	52	2.3	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,558	25	C	--	--	--	--	--	21	21	7	0.3	--
		SB	PM	27.00	3	2,300	1,768	65	F	--	--	--	--	--	156	156	52	2.3	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,558	25	C	--	--	--	--	--	21	21	7	0.3	--
		SB	PM	25.40	3	2,300	1,717	68	F	--	--	--	--	--	156	156	52	2.3	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,803	30	D	--	--	--	--	--	21	21	7	0.3	--
		SB	PM	37.80	3	2,300	2,032	54	E	--	--	--	--	--	156	156	52	2.3	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS.																			

Table ES 2 (Continued)
Freeway Segment Levels of Service Summary

#	Freeway Segment	Direction	Peak Hour	Existing Plus Project (Project Buildout)										Project Trips						
				Mixed-Flow Lane					HOV Lane					Total Volume	Mixed-Flow Lane			HOV Lane		
				Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)		LOS	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,972	58	E	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	51.80	3	2,300	2,043	39	D	--	--	--	--	--	57	57	19	0.8	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	1,029	99	F	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	60.00	3	2,300	1,839	31	D	--	--	--	--	--	57	57	19	0.8	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	964	103	F	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	59.80	3	2,300	1,850	31	D	--	--	--	--	--	57	57	19	0.8	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,565	75	F	--	--	--	--	--	166	166	55	2.4	--	--
		NB	PM	61.60	3	2,300	1,726	28	D	--	--	--	--	--	52	52	17	0.8	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,532	69	F	71.41	1,650	829	12.0	B	102	86	29	1.2	16	1.0
		NB	PM	64.20	3	2,300	1,535	24	C	72.66	1,650	647	9.0	A	190	165	55	2.4	25	1.5
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,859	58	E	75.29	1,650	-- ²	-- ²	-- ²	102	102	34	1.5	0	0.0
		NB	PM	64.00	3	2,300	1,592	25	C	76.15	1,650	-- ²	-- ²	-- ²	190	190	63	2.8	0	0.0
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,954	52	E	65.21	1,650	1,349	21.0	C	102	82	27	1.2	20	1.2
		NB	PM	63.40	3	2,300	1,655	26	D	72.91	1,650	598	8.0	A	190	168	56	2.4	22	1.3
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,758	28	D	73.82	1,650	402	5.0	A	170	157	52	2.3	13	0.8
		SB	PM	16.00	3	2,300	1,257	79	F	39.99	1,650	1,792	45.0	D	121	81	27	1.2	40	2.4
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,557	24	C	73.79	1,650	410	6.0	A	170	155	52	2.2	15	0.9
		SB	PM	14.80	3	2,300	1,194	81	F	41.99	1,650	1,790	43.0	D	121	79	26	1.1	42	2.5
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,689	27	D	63.14	1,650	1,461	23.0	C	170	130	43	1.9	40	2.4
		SB	PM	12.60	3	2,300	1,072	85	F	21.57	1,650	1,697	79.0	F	121	78	26	1.1	43	2.6
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,678	27	D	--	--	--	--	--	39	39	13	0.6	--	--
		SB	PM	25.00	3	2,300	1,712	68	F	--	--	--	--	--	165	165	55	2.4	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,580	25	C	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	27.00	3	2,300	1,780	66	F	--	--	--	--	--	168	168	56	2.4	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,580	25	C	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	25.40	3	2,300	1,729	68	F	--	--	--	--	--	168	168	56	2.4	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,825	30	D	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	37.80	3	2,300	2,044	54	E	--	--	--	--	--	168	168	56	2.4	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS. Boxed indicates significant impact.																				

Table ES 3
Intersection Level of Service Summary – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing + Project (Commercial & Warehouse Components Only)										Existing + Project (Project Alternative Buildout)							
						Existing								Warrant		Incr. In			Warrant			Incr. In	
						Met?	Delay ¹	LOS	Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C					
1	Monterey Road and Burdett Avenue	Signal	D	AM PM	03/28/19 03/28/19	-- --	15.0 9.7	B A	-- --	15.0 9.7	B A	0.0 0.0	0.001 0.002	-- --	15.0 9.8	B A	-0.1 0.1	0.003 0.005					
2	Monterey Road and Madrone Parkway	Signal	D	AM PM	02/28/19 02/28/19	-- --	9.4 9.8	A A	-- --	9.4 9.9	A A	0.0 0.1	0.001 0.002	-- --	9.4 10.0	A A	0.0 0.1	0.003 0.005					
3	Monterey Road and Cochrane Road	Signal	E	AM PM	05/08/18 05/08/18	-- --	28.1 24.0	C C	-- --	28.2 24.2	C C	0.1 0.3	0.003 0.005	-- --	28.2 24.2	C C	0.2 0.3	0.005 0.009					
4	Monterey Road and Old Monterey Road	Signal	D	AM PM	05/08/18 05/08/18	-- --	10.4 13.0	B B	-- --	10.4 13.0	B B	0.0 0.1	0.003 0.002	-- --	10.4 13.0	B B	0.0 0.1	0.003 0.002					
5	Monterey Road and Wright Avenue	Signal	D	AM PM	03/28/19 03/28/19	-- --	19.1 20.4	B C	-- --	19.1 20.4	B C	0.0 0.0	0.000 0.000	-- --	19.1 20.4	B C	0.0 0.0	0.000 0.000					
6	Monterey Road and Central Avenue	TWSC	D	AM PM	03/28/19 03/28/19	No No	19.5 15.7	C C	No No	19.5 15.7	C C	N/A N/A	N/A N/A	No No	19.5 15.7	C C	N/A N/A	N/A N/A					
7	Monterey Road and Main Avenue	Signal	F	AM PM	05/08/18 05/08/18	-- --	44.2 45.1	D D	-- --	44.5 45.6	D D	0.3 0.7	0.007 0.011	-- --	44.8 46.2	D D	0.7 1.4	0.017 0.023					
8	Monterey Road and Second Street	Signal	F	AM PM	03/28/19 03/28/19	-- --	10.6 12.6	B B	-- --	10.6 12.6	B B	0.0 0.0	0.001 0.000	-- --	10.6 12.6	B B	0.1 0.0	0.003 0.000					
9	Monterey Road and East Dunne Avenue	Signal	E	AM PM	05/08/18 05/08/18	-- --	28.9 31.4	C C	-- --	29.0 31.6	C C	0.1 0.2	0.002 0.004	-- --	29.0 31.6	C C	0.1 0.3	0.002 0.006					
10	East Dunne Avenue and Church Street	Signal	E	AM PM	06/06/18 06/06/18	-- --	17.8 19.9	B B	-- --	17.8 19.7	B B	-0.1 -0.2	0.005 0.006	-- --	17.8 19.6	B B	-0.1 -0.2	0.006 0.008					
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM PM	05/08/18 05/08/18	-- --	35.5 31.7	D C	-- --	35.6 31.8	D C	0.4 0.1	0.011 0.005	-- --	35.8 32.1	D C	0.8 0.4	0.017 0.009					
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM PM	03/28/19 03/28/19	-- --	18.4 28.5	B C	-- --	18.4 28.4	B C	0.0 0.0	0.003 0.002	-- --	18.4 28.4	B C	0.0 -0.1	0.004 0.005					
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM PM	05/08/18 05/08/18	-- --	20.9 18.8	C B	-- --	20.9 18.8	C B	0.0 0.0	0.000 0.000	-- --	21.0 18.9	C B	0.1 0.1	0.003 0.002					
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM PM	05/08/18 05/08/18	-- --	5.3 11.8	A B	-- --	5.3 11.7	A B	0.0 0.0	0.001 0.004	-- --	5.2 11.6	A B	-0.1 0.0	0.005 0.006					
15	East Dunne Avenue and Condit Road	Signal	E	AM PM	03/28/19 03/28/19	-- --	42.4 28.2	D C	-- --	43.0 28.3	D C	0.7 0.1	0.010 0.015	-- --	43.7 28.4	D C	1.6 0.4	0.022 0.032					
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM PM	03/28/19 03/28/19	-- --	18.9 11.8	B B	-- --	18.9 11.8	B B	0.0 0.0	0.003 0.004	-- --	19.0 11.8	B B	0.1 0.0	0.004 0.006					
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM PM	05/08/18 05/08/18	-- --	21.3 20.4	C C	-- --	21.5 20.5	C C	0.3 0.3	0.004 0.006	-- --	21.5 20.6	C C	0.3 0.4	0.005 0.008					
18	Butterfield Boulevard and Main Avenue	Signal	D	AM PM	05/08/18 05/08/18	-- --	27.6 29.8	C C	-- --	27.8 30.3	C C	0.3 0.6	0.009 0.013	-- --	28.2 30.9	C C	0.4 1.6	0.009 0.028					
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM PM	05/08/18 05/08/18	-- --	17.1 11.0	B B	-- --	17.1 11.1	B B	0.0 0.0	0.004 0.005	-- --	17.1 11.1	B B	0.0 0.1	0.006 0.007					
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM PM	05/08/18 05/08/18	-- --	11.7 12.8	B B	-- --	11.8 12.8	B B	0.1 0.0	0.004 0.006	-- --	11.8 12.9	B B	0.1 0.1	0.006 0.008					
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM PM	05/08/18 05/08/18	-- --	6.7 15.6	A B	-- --	6.7 15.8	A B	0.1 0.3	0.004 0.009	-- --	6.7 15.9	A B	0.1 0.3	0.004 0.011					
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM PM	05/08/18 05/08/18	-- --	12.3 12.0	B B	-- --	12.4 12.0	B B	0.1 0.1	0.004 0.003	-- --	12.4 12.0	B B	0.1 0.1	0.004 0.003					
23	Cochrane Road and Cochrane Circle	Signal	D	AM PM	05/08/18 05/08/18	-- --	10.5 10.9	B B	-- --	10.4 11.0	B B	0.0 0.1	0.002 0.004	-- --	10.4 11.0	B B	0.0 0.1	0.004 0.007					
24	Cochrane Road and Sutter Boulevard	Signal	D	AM PM	05/08/18 05/08/18	-- --	17.2 17.9	B B	-- --	17.2 18.1	B B	0.0 0.1	0.006 0.008	-- --	17.3 18.1	B B	0.0 0.1	0.008 0.011					

Table ES 3 (Continued)
Intersection Level of Service Summary – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing			Existing + Project (Commercial & Warehouse Components Only)					Existing + Project (Project Alternative Buildout)				
						Warrant			Warrant			Incr. In		Warrant			Incr. In	
						Met?	Delay ¹	LOS	Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM	05/08/18	--	19.1	B	--	19.1	B	0.0	0.000	--	19.1	B	-3.1	0.001
				PM	05/08/18	--	31.4	C	--	31.2	C	-0.1	0.005	--	31.1	C	-0.2	0.010
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM	05/08/18	--	12.8	B	--	13.3	B	0.7	0.053	--	13.6	B	1.0	0.071
				PM	05/08/18	--	16.5	B	--	17.1	B	0.7	0.030	--	18.4	B	2.2	0.093
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM	05/08/18	--	8.6	A	--	9.1	A	0.9	0.094	--	8.9	A	1.3	0.147
				PM	05/08/18	--	11.3	B	--	11.6	B	0.4	0.039	--	11.6	B	0.7	0.082
28	Cochrane Road and De Paul Drive	Signal	E	AM	05/08/18	--	17.7	B	--	18.2	B	0.3	0.048	--	18.7	B	0.9	0.112
				PM	05/08/18	--	18.7	B	--	22.8	C	2.8	0.188	--	23.7	C	4.6	0.260
29	Cochrane Road and Mission View Drive	Signal	D	AM	05/08/18	--	23.0	C	--	27.3	C	7.1	0.038	--	37.7	D	24.4	0.082
				PM	05/08/18	--	15.7	B	--	17.2	B	2.2	0.049	--	19.1	B	5.1	0.099
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	03/28/19	No	13.5	B	No	14.3	B	N/A	N/A	No	15.5	C	N/A	N/A
				PM	03/28/19	No	12.5	B	No	13.6	B	N/A	N/A	No	14.8	B	N/A	N/A
31	Mission View Drive and Half Road	OWSC	D	AM	03/28/19	No	13.6	B	No	14.9	B	N/A	N/A	No	15.4	C	N/A	N/A
				PM	03/28/19	No	22.6	C	Yes	35.9	E	N/A	N/A	Yes	73.7	F	N/A	N/A
32	Half Road and De Paul Drive Extension	Future	D	AM	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33	Main Avenue and Condit Road	Signal	D	AM	05/08/18	--	27.6	C	--	28.5	C	1.1	0.025	--	30.4	C	3.4	0.064
				PM	05/08/18	--	26.1	C	--	28.4	C	2.5	0.058	--	30.3	C	4.7	0.096
34	Main Avenue and Murphy Avenue	Future	D	AM	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	03/28/19	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
				PM	03/28/19	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	D	AM	06/04/19	Yes	14.7	B	Yes	15.2	C	N/A	N/A	Yes	15.5	C	N/A	N/A
				PM	06/04/19	No	13.6	B	No	14.2	B	N/A	N/A	No	14.6	B	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	06/04/19	No	11.4	B	No	11.4	B	N/A	N/A	No	11.4	B	N/A	N/A
				PM	06/04/19	No	9.9	A	No	9.9	A	N/A	N/A	No	9.9	A	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	06/04/19	Yes	14.7	B	Yes	15.2	C	N/A	N/A	Yes	15.2	C	N/A	N/A
				PM	06/04/19	Yes	14.6	B	Yes	14.8	B	N/A	N/A	Yes	15.0	B	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	06/04/19	Yes	21.3	C	Yes	21.5	C	N/A	N/A	Yes	21.7	C	N/A	N/A
				PM	06/04/19	No	11.9	B	No	12.0	B	N/A	N/A	No	12.1	B	N/A	N/A

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay. Bold indicates unacceptable level of service. Bold and boxed indicate significant impact.

Table ES 3 (Continued)
Intersection Level of Service Summary – Warehouse Project Alternative

Int. #	Intersection	Year 2030 Control	Year 2035 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Warehouse Components Only)					Year 2035 No Project			Year 2035 + Project (Project Alternative Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	Signal	D	AM PM	--	16.6 B	B	--	16.6 B	B	0.0 0.001	0.002	--	16.0 B	B	--	15.9 B	B	-0.1 0.001	-0.003
2	Monterey Road and Madrone Parkway	Signal	Signal	D	AM PM	--	12.2 B	B	--	12.2 B	B	0.0 0.001	0.002	--	--	--	--	--	--	--	--
2a	Monterey Road and Madrone Parkway (N)	Future	Signal	D	AM PM	--	--	--	--	--	--	--	--	--	19.0 B	B	--	18.5 B	B	-0.6 0.001	-0.004
2b	Monterey Road and Madrone Parkway (E)	Future	Signal	D	AM PM	--	--	--	--	--	--	--	--	--	35.2 D	D	--	35.6 D	D	0.6 0.001	0.002
3	Monterey Road and Cochrane Road	Signal	Signal	E	AM PM	--	30.3 C	C	--	30.4 C	C	0.1 0.003	0.005	--	26.9 C	C	--	27.0 C	C	-1.9 0.001	-0.016
4	Monterey Road and Old Monterey Road	Signal	Signal	D	AM PM	--	9.8 A	A	--	9.8 A	A	0.1 0.003	0.000	--	14.1 B	B	--	14.1 B	B	0.0 0.002	-0.002
5	Monterey Road and Wright Avenue	Signal	Signal	D	AM PM	--	22.4 C	C	--	22.4 C	C	0.0 0.000	0.000	--	27.6 C	C	--	27.3 C	C	-0.4 0.002	-0.001
6	Monterey Road and Central Avenue	TWSC	TWSC	D	AM PM	Yes No	67.0 F	F	Yes No	67.0 F	F	N/A N/A	N/A N/A	Yes No	240.6 F	F	Yes No	229.4 F	F	N/A N/A	N/A N/A
7	Monterey Road and Main Avenue	Signal	Signal	F	AM PM	--	47.8 D	D	--	48.2 D	D	0.5 0.007	0.011	--	99.7 F	F	--	99.2 F	F	-0.8 0.000	-0.002
8	Monterey Road and Second Street	Signal	Signal	F	AM PM	--	11.5 B	B	--	11.5 B	B	0.0 0.001	0.000	--	10.8 B	B	--	10.8 B	B	0.0 0.002	-0.002
9	Monterey Road and East Dunne Avenue	Signal	Signal	E	AM PM	--	29.0 C	C	--	29.1 C	C	0.1 0.002	0.005	--	30.7 C	C	--	30.7 C	C	0.0 -0.001	-0.004
10	East Dunne Avenue and Church Street	Signal	Signal	E	AM PM	--	19.5 B	B	--	19.5 B	B	0.0 0.002	0.006	--	20.8 C	C	--	20.8 C	C	0.0 -0.001	-0.001
11	Butterfield Boulevard and East Dunne Avenue	Signal	Signal	D	AM PM	--	40.9 D	D	--	41.2 D	D	0.6 0.007	0.008	--	38.9 D	D	--	38.9 D	D	-0.1 0.001	-0.002
12	East Dunne Avenue and Walnut Grove Drive	Signal	Signal	E	AM PM	--	18.9 B	B	--	18.9 B	B	0.0 0.003	0.002	--	20.3 C	C	--	20.2 C	C	0.0 0.001	-0.001
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	Signal	E	AM PM	--	21.9 C	C	--	21.9 C	C	0.0 0.000	0.000	--	21.7 C	C	--	21.7 C	C	-0.1 0.007	-0.001
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	Signal	E	AM PM	--	6.2 A	A	--	6.2 A	A	0.0 0.001	0.001	--	6.8 A	A	--	7.0 A	A	0.2 -0.002	-0.003
15	East Dunne Avenue and Condit Road	Signal	Signal	E	AM PM	--	64.8 E	E	--	67.0 E	E	2.8 0.010	0.015	--	48.4 D	D	--	48.4 D	D	0.1 -0.001	0.001
16	East Dunne Avenue and Murphy Avenue	Signal	Signal	D	AM PM	--	20.5 C	C	--	20.5 C	C	0.1 0.003	0.004	--	23.1 C	C	--	23.3 C	C	0.3 -0.002	0.005
17	Butterfield Boulevard and Diana Avenue	Signal	Signal	D	AM PM	--	37.5 D	D	--	38.8 D	D	1.8 0.004	0.006	--	22.7 C	C	--	22.7 C	C	0.0 0.002	0.000
18	Butterfield Boulevard and Main Avenue	Signal	Signal	D	AM PM	--	31.1 C	C	--	31.5 C	C	0.6 0.009	0.013	--	31.5 C	C	--	31.5 C	C	0.1 0.003	0.001
19	Butterfield Boulevard and East Central Avenue	Signal	Signal	D	AM PM	--	19.3 B	B	--	19.4 B	B	0.1 0.004	0.006	--	17.5 B	B	--	17.5 B	B	0.0 0.000	0.000
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	Signal	D	AM PM	--	16.0 B	B	--	16.2 B	B	0.4 0.004	0.006	--	12.1 B	B	--	12.1 B	B	0.0 0.001	0.000
21	Butterfield Boulevard and Sutter Boulevard	Signal	Signal	D	AM PM	--	7.4 A	A	--	7.5 A	A	0.1 0.004	0.009	--	16.2 B	B	--	16.2 B	B	0.0 0.000	-0.001
22	Butterfield Boulevard and Cochrane Road	Signal	Signal	D	AM PM	--	12.8 B	B	--	12.9 B	B	0.1 0.004	0.003	--	18.8 B	B	--	18.8 B	B	0.0 0.002	0.000
23	Cochrane Road and Cochrane Circle	Signal	Signal	D	AM PM	--	10.4 B	B	--	10.4 B	B	0.0 0.002	0.004	--	10.0 B	B	--	10.0 B	B	0.0 -0.003	0.001
24	Cochrane Road and Sutter Boulevard	Signal	Signal	D	AM PM	--	17.8 B	B	--	17.8 B	B	0.0 0.006	0.010	--	17.6 B	B	--	17.6 B	B	0.0 0.005	-0.001
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	Signal	E	AM PM	--	19.1 B	B	--	19.1 B	B	0.0 0.000	0.005	--	18.5 B	B	--	18.5 B	B	0.0 -0.002	0.003

Table ES 3 (Continued)
Intersection Level of Service Summary – Warehouse Project Alternative

Int. #	Intersection	Year 2030 Control	Year 2035 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Warehouse Components Only)					Year 2035 No Project			Year 2035 + Project (Project Alternative Buildout)				
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
26	Cochrane Road and US 101 Southbound Ramps	Signal	Signal	E	AM PM	-- --	14.5 22.2	B C	-- --	15.5 24.1	B C	1.6 2.9	0.053 0.030	-- --	15.0 20.6	B C	-- --	15.1 21.1	B C	0.2 0.6	0.009 0.014
27	Cochrane Road and US 101 Northbound Ramps	Signal	Signal	E	AM PM	-- --	7.5 11.6	A B	-- --	8.3 12.2	A B	1.8 0.8	0.096 0.039	-- --	9.6 12.1	A B	-- --	10.0 12.2	A B	0.8 0.2	0.027 0.013
28	Cochrane Road and De Paul Drive	Signal	Signal	E	AM PM	-- --	26.0 23.3	C C	-- --	25.8 30.7	C C	-0.3 13.0	0.048 0.251	-- --	40.2 68.3	D E	-- --	50.4 80.2	D F	23.5 25.9	0.059 0.052
29	Cochrane Road and Mission View Drive	Signal	Signal	D	AM PM	-- --	148.0 58.1	F E	-- --	167.1 77.5	F E	30.1 28.3	0.038 0.049	-- --	18.4 17.4	B B	-- --	18.5 17.4	B B	0.1 -0.1	0.007 -0.003
30	Mission View Drive and Avenida De Los Padres	TWSC	TWSC	D	AM PM	No No	28.6 37.6	D E	No No	31.9 46.8	D E	N/A N/A	N/A N/A	No No	17.8 18.4	C C	No No	18.7 18.3	C C	N/A N/A	N/A N/A
31	Mission View Drive and Half Road	OWSC	TWSC	D	AM PM	Yes Yes	OVFL OVFL	F F	Yes Yes	OVFL OVFL	F F	N/A N/A	N/A N/A	No No	28.5 19.3	D C	No Yes	29.2 19.7	D C	N/A N/A	N/A N/A
32	Half Road and De Paul Drive Extension	Future	OWSC	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	No Yes	14.9 61.7	B F	No Yes	14.1 41.9	B E	N/A N/A	N/A N/A
33	Main Avenue and Condit Road	Signal	Signal	D	AM PM	-- --	51.5 79.8	D E	-- --	56.8 98.5	E F	6.4 22.6	0.025 0.058	-- --	35.5 62.7	D E	-- --	35.6 65.7	D E	1.3 3.5	0.004 0.002
34	Main Avenue and Murphy Avenue	Future	AWSC	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	Yes Yes	209.3 81.5	F F	Yes Yes	218.0 93.6	F F	N/A N/A	N/A N/A
35	Burdett Avenue and Vista De Lomas	OWSC	OWSC	D	AM PM	No No	8.6 8.6	A A	No No	8.6 8.6	A A	N/A N/A	N/A N/A	No No	11.0 9.5	B A	No No	11.0 9.5	B A	N/A N/A	N/A N/A
36	Condit Road and Diana Avenue	TWSC	TWSC	D	AM PM	Yes Yes	36.8 26.9	E D	Yes Yes	40.5 29.0	E D	N/A N/A	N/A N/A	Yes No	17.0 15.3	C C	Yes No	17.0 14.9	C B	N/A N/A	N/A N/A
37	Murphy Avenue and Diana Avenue	OWSC	TWSC	D	AM PM	No No	13.5 11.0	B B	No No	13.5 11.0	B B	N/A N/A	N/A N/A	Yes Yes	OVFL OVFL	F F	Yes Yes	OVFL OVFL	F F	N/A N/A	N/A N/A
38	Tennant Avenue and Condit Road	OWSC	OWSC	E	AM PM	Yes Yes	30.5 89.1	D F	Yes Yes	32.9 94.5	D F	N/A N/A	N/A N/A	Yes Yes	24.3 75.1	C F	Yes Yes	24.4 75.8	C F	N/A N/A	N/A N/A
39	Tennant Avenue and Murphy Avenue	AWSC	AWSC	D	AM PM	Yes Yes	127.6 117.8	F F	Yes Yes	128.8 119.6	F F	N/A N/A	N/A N/A	Yes Yes	213.7 OVFL	F F	Yes Yes	214.7 OVFL	F F	N/A N/A	N/A N/A

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection.
The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
Bold indicates unacceptable level of service.
Bold and boxed indicate significant impact.
OVFL = Overflow (delay is greater than 250 seconds)

Table ES 4
Freeway Segment Levels of Service Summary – Warehouse Project Alternative

#	Freeway Segment	Direction	Existing Plus Project (Commercial & Warehouse Components Only)										Project Trips							
			Peak Hour	Mixed-Flow Lane					HOV Lane					Total Volume	Mixed-Flow Lane			HOV Lane		
				Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)		LOS	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,845	54	E	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	51.80	3	2,300	2,016	39	D	--	--	--	--	--	30	30	10	0.4	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	902	87	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	60.00	3	2,300	1,812	30	D	--	--	--	--	--	30	30	10	0.4	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	837	89	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	59.80	3	2,300	1,823	30	D	--	--	--	--	--	30	30	10	0.4	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,440	69	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	61.60	3	2,300	1,704	28	D	--	--	--	--	--	30	30	10	0.4	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,459	66	F	71.41	1,650	816	11.0	B	16	13	4	0.2	3	0.2
		NB	PM	64.20	3	2,300	1,421	22	C	72.66	1,650	630	9.0	A	59	51	17	0.7	8	0.5
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,773	55	E	75.29	1,650	-- ²	-- ²	-- ²	16	16	5	0.2	0	0.0
		NB	PM	64.00	3	2,300	1,461	23	C	76.15	1,650	-- ²	-- ²	-- ²	59	59	20	0.9	0	0.0
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,885	50	E	65.21	1,650	1,332	20.0	C	16	13	4	0.2	3	0.2
		NB	PM	63.40	3	2,300	1,539	24	C	72.91	1,650	583	8.0	A	59	52	17	0.8	7	0.4
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,645	26	D	73.82	1,650	393	5.0	A	48	44	15	0.6	4	0.2
		SB	PM	16.00	3	2,300	1,196	75	F	39.99	1,650	1,762	44.0	D	30	20	7	0.3	10	0.6
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,446	23	C	73.79	1,650	399	5.0	A	48	44	15	0.6	4	0.2
		SB	PM	14.80	3	2,300	1,135	77	F	41.99	1,650	1,758	42.0	D	30	20	7	0.3	10	0.6
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,596	25	C	63.14	1,650	1,432	23.0	C	48	37	12	0.5	11	0.7
		SB	PM	12.60	3	2,300	1,013	80	F	21.57	1,650	1,665	77.0	F	30	19	6	0.3	11	0.7
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,653	27	D	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	25.00	3	2,300	1,601	64	F	--	--	--	--	--	54	54	18	0.8	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,551	25	C	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	27.00	3	2,300	1,666	62	F	--	--	--	--	--	54	54	18	0.8	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,551	25	C	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	25.40	3	2,300	1,615	64	F	--	--	--	--	--	54	54	18	0.8	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,796	30	D	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	37.80	3	2,300	1,930	51	E	--	--	--	--	--	54	54	18	0.8	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS.																				

Table ES 4 (Continued)
Freeway Segment Levels of Service Summary – Warehouse Project Alternative

#	Freeway Segment	Direction	Peak Hour	Existing Plus Project (Project Alternative Buildout)										Project Trips						
				Mixed-Flow Lane					HOV Lane					Total Volume	Mixed-Flow Lane			HOV Lane		
				Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)		LOS	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,851	54	E	--	--	--	--	--	47	47	16	0.7	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	PM	51.80	3	2,300	2,036	39	D	--	--	--	--	--	50	50	17	0.7	--	--
		NB	AM	10.40	3	2,300	908	87	F	--	--	--	--	--	47	47	16	0.7	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	PM	60.00	3	2,300	1,832	31	D	--	--	--	--	--	50	50	17	0.7	--	--
		NB	AM	9.40	3	2,300	843	90	F	--	--	--	--	--	47	47	16	0.7	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	PM	59.80	3	2,300	1,843	31	D	--	--	--	--	--	50	50	17	0.7	--	--
		NB	AM	21.00	3	2,300	1,444	69	F	--	--	--	--	--	45	45	15	0.7	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	PM	61.60	3	2,300	1,719	28	D	--	--	--	--	--	45	45	15	0.7	--	--
		NB	AM	22.20	3	2,300	1,527	69	F	71.41	1,650	828	12.0	B	96	81	27	1.2	15	0.9
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	PM	64.20	3	2,300	1,467	23	C	72.66	1,650	637	9.0	A	112	97	32	1.4	15	0.9
		NB	AM	32.20	3	2,300	1,853	58	E	75.29	1,650	-- ²	-- ²	-- ²	96	96	32	1.4	0	0.0
7	US 101 from Bailey Avenue to SR 85	NB	PM	64.00	3	2,300	1,514	24	C	76.15	1,650	-- ²	-- ²	-- ²	112	112	37	1.6	0	0.0
		NB	AM	37.60	3	2,300	1,950	52	E	65.21	1,650	1,347	21.0	C	96	78	26	1.1	18	1.1
8	US 101 from SR 85 to Bailey Avenue	NB	PM	63.40	3	2,300	1,586	25	C	72.91	1,650	589	8.0	A	112	99	33	1.4	13	0.8
		SB	AM	62.40	3	2,300	1,669	27	D	73.82	1,650	395	5.0	A	74	68	23	1.0	6	0.4
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	PM	16.00	3	2,300	1,256	79	F	39.99	1,650	1,791	45.0	D	119	80	27	1.2	39	2.4
		SB	AM	64.00	3	2,300	1,470	23	C	73.79	1,650	401	5.0	A	74	68	23	1.0	6	0.4
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	PM	14.80	3	2,300	1,193	81	F	41.99	1,650	1,789	43.0	D	119	78	26	1.1	41	2.5
		SB	AM	62.80	3	2,300	1,616	26	D	63.14	1,650	1,438	23.0	C	74	57	19	0.8	17	1.0
11	US 101 from Cochrane Road to East Dunne Avenue	SB	PM	12.60	3	2,300	1,071	85	F	21.57	1,650	1,696	79.0	F	119	77	26	1.1	42	2.5
		SB	AM	62.00	3	2,300	1,666	27	D	--	--	--	--	--	27	27	9	0.4	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	PM	25.00	3	2,300	1,610	64	F	--	--	--	--	--	63	63	21	0.9	--	--
		SB	AM	63.00	3	2,300	1,569	25	C	--	--	--	--	--	32	32	11	0.5	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	PM	27.00	3	2,300	1,678	62	F	--	--	--	--	--	66	66	22	1.0	--	--
		SB	AM	63.00	3	2,300	1,569	25	C	--	--	--	--	--	32	32	11	0.5	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	PM	25.40	3	2,300	1,627	64	F	--	--	--	--	--	66	66	22	1.0	--	--
		SB	AM	60.00	3	2,300	1,814	30	D	--	--	--	--	--	32	32	11	0.5	--	--
		SB	PM	37.80	3	2,300	1,942	51	E	--	--	--	--	--	66	66	22	1.0	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS. Boxed indicates significant impact.																				

Table ES 5
Intersection Impact Comparison

#	Intersection	Existing + Commercial & Light Industrial	Existing + Project Buildout	Year 2030 Cumulative + Commercial & Light Industrial	Year 2035 + Project Buildout	Existing + Commercial & Warehouse	Existing + Project Alternative Buildout	Year 2030 Cumulative + Commercial & Warehouse	Year 2035 + Project Alternative Buildout
28	Cochrane Road and De Paul Drive		Impact	Impact	Impact				Impact
	<i>Impact mitigated by providing a second northbound left-turn lane and an exclusive eastbound right-turn lane</i>		Yes	Yes	Yes				Yes
29	Cochrane Road and Mission View Drive	Impact	Impact	Impact				Impact	
	<i>Impact mitigated by providing a second northbound left-turn lane and cycle length adjustment</i>	Yes	Yes	Yes				Yes	
30	Mission View Drive and Avenida De Los Padres			Impact					
	<i>Impact mitigated by installation of a traffic signal</i>			Yes					
31	Mission View Drive and Half Road	Impact	Impact	Impact		Impact	Impact	Impact	
	<i>Impact mitigated by installation of a traffic signal</i>	Yes	Yes	Yes		Yes	Yes	Yes	
32	Half Road and De Paul Drive Extension				Impact				
	<i>Impact mitigated by restricting left turns</i>				Yes				
33	Main Avenue and Condit Road			Impact	Impact			Impact	
	<i>Impact mitigated by providing an exclusive southbound right-turn lane</i>				Yes			Yes	
	<i>Impact mitigated by providing exclusive southbound right-turn and eastbound right-turn lanes</i>			Yes					
34	Main Avenue and Murphy Avenue				Impact				Impact
	<i>Impact mitigated by installation of a traffic signal</i>				Yes				Yes
36	Condit Road and Diana Avenue			Impact				Impact	
	<i>Impact mitigated by installation of a traffic signal</i>			Yes				Yes	
37	Murphy Avenue and Diana Avenue				Impact				Impact
	<i>Impact mitigated by installation of a traffic signal</i>				Yes				Yes
38	Tennant Avenue and Condit Road			Impact	Impact			Impact	Impact
	<i>Impact mitigated by installation of a traffic signal</i>			Yes	Yes			Yes	Yes
39	Tennant Avenue and Murphy Avenue			Impact	Impact			Impact	Impact
	<i>Impact mitigated by installation of a traffic signal</i>			Yes	Yes			Yes	Yes

1.

Introduction

This report presents the results of the traffic impact analysis conducted for the proposed Morgan Hill Technology Center project in Morgan Hill, California.

Project Description

The 89.3-acre project site is located along the east side of US 101 between Cochrane Road and Half Road. The site is mostly vacant. As proposed, the project would consist of up to 1,089,600 square feet (s.f.) of general light industrial space, 50,000 s.f. of commercial space, and 319 residential units. The commercial and light industrial components of the project are currently configured in six parcels totaling approximately 61 acres, with Commercial and Commercial/Industrial General Plan designations, and located within three zoning districts: PUD Highway Commercial (CH), Administrative Office (CO), and PUD Light Industrial (IL). The applicant proposes to reconfigure the property into five legal lots (one commercial, three commercial/light industrial parcels controlled by the applicant, and one existing commercial/light industrial parcel not controlled by the applicant); reduce the Commercial General Plan designation area and increase the Commercial/Industrial General Plan designation area through a General Plan Amendment (File No. GPA2019-0002); and establish a Planned Development (PD) Combining District over the commercial and light-industrial project area through a Zoning Amendment (File No. ZA2019-0005).

The project site location and the surrounding study area are shown on Figure 1. The site boundaries are shown on Figure 2. The site plan for the proposed light industrial/commercial development is shown on Figure 3. As discussed below, the proposed residential component east of DePaul Drive is being evaluated at a programmatic level and does not currently have a site plan available.

Commercial Component

The proposed rezoning will reduce the existing commercial zoned acreage from +/-30 acres to 2.92 acres fronting Cochrane Road for uses consistent with the traditional CH - Highway Commercial Zoning District, allowing a range of retail, administrative, professional services and functions supporting freeway access at major intersections. The anticipated likely development on the site, given parking, landscaping, and stormwater treatment requirements would be approximately 50,000 square feet. Access off Cochrane Road would be provided via a right-turn in only driveway, with a full access driveway entry/exit at the southwest corner of the property off DePaul Drive.

Figure 1
Site Location and Study Intersections

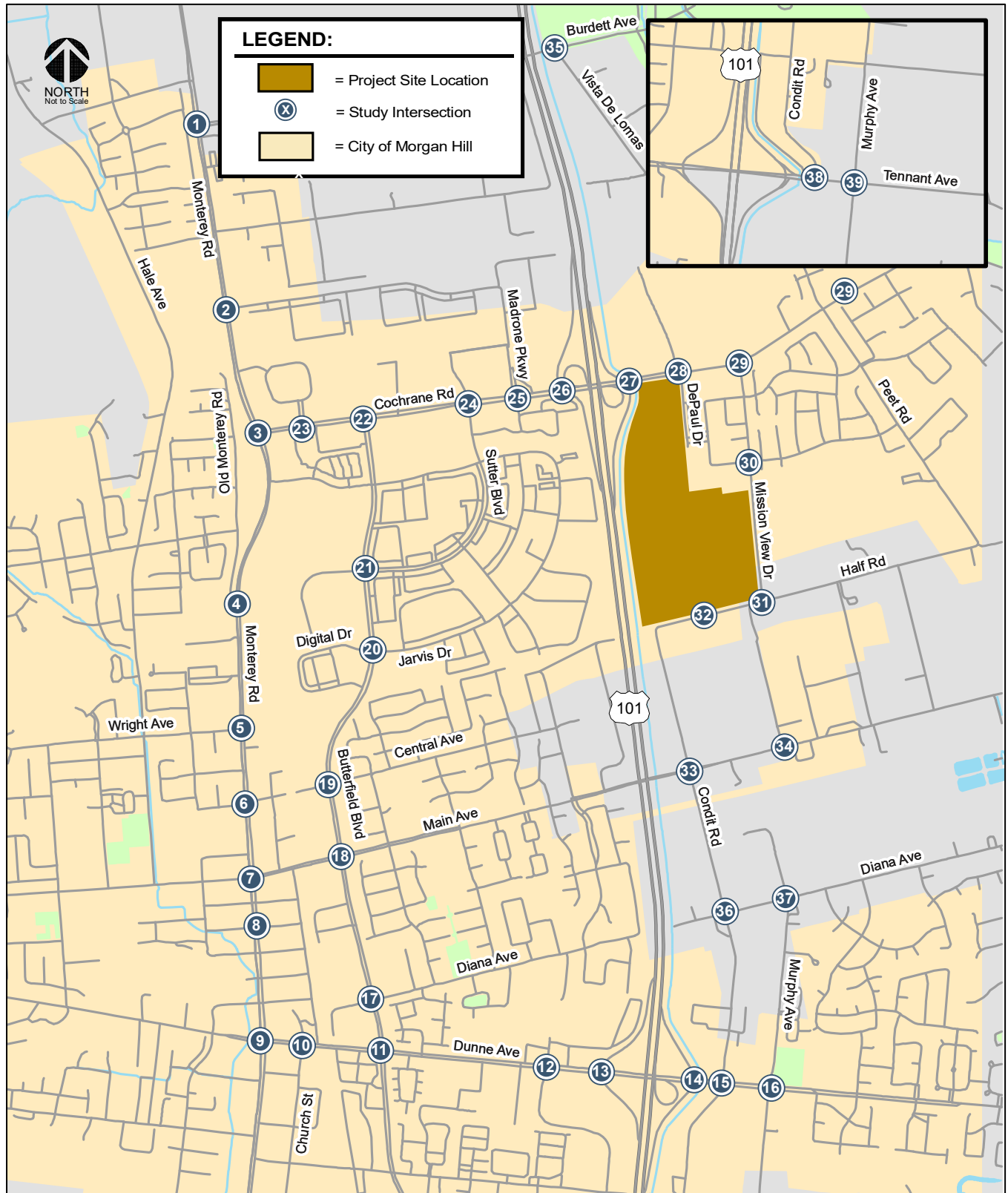


Figure 2
Site Boundaries

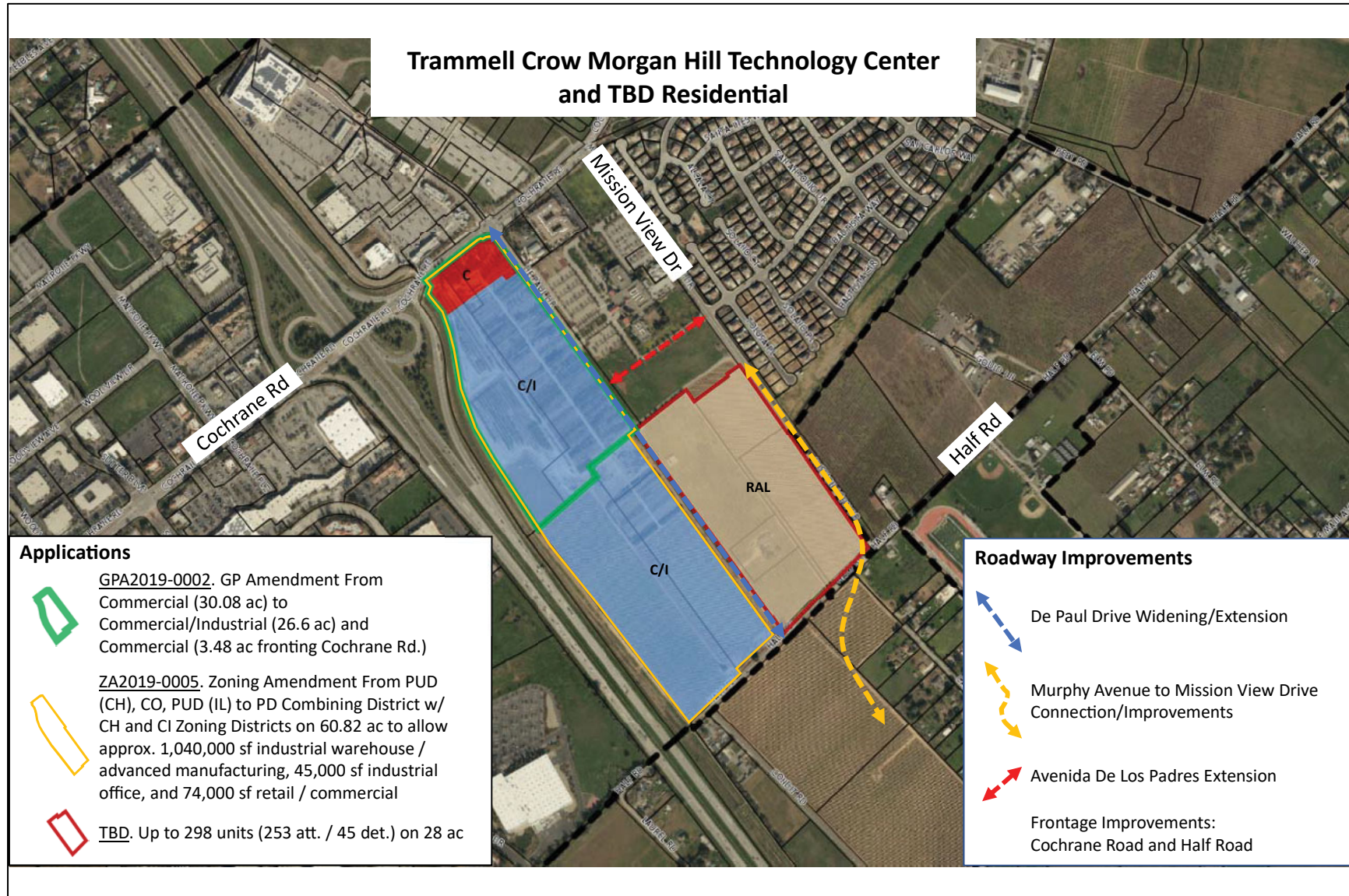
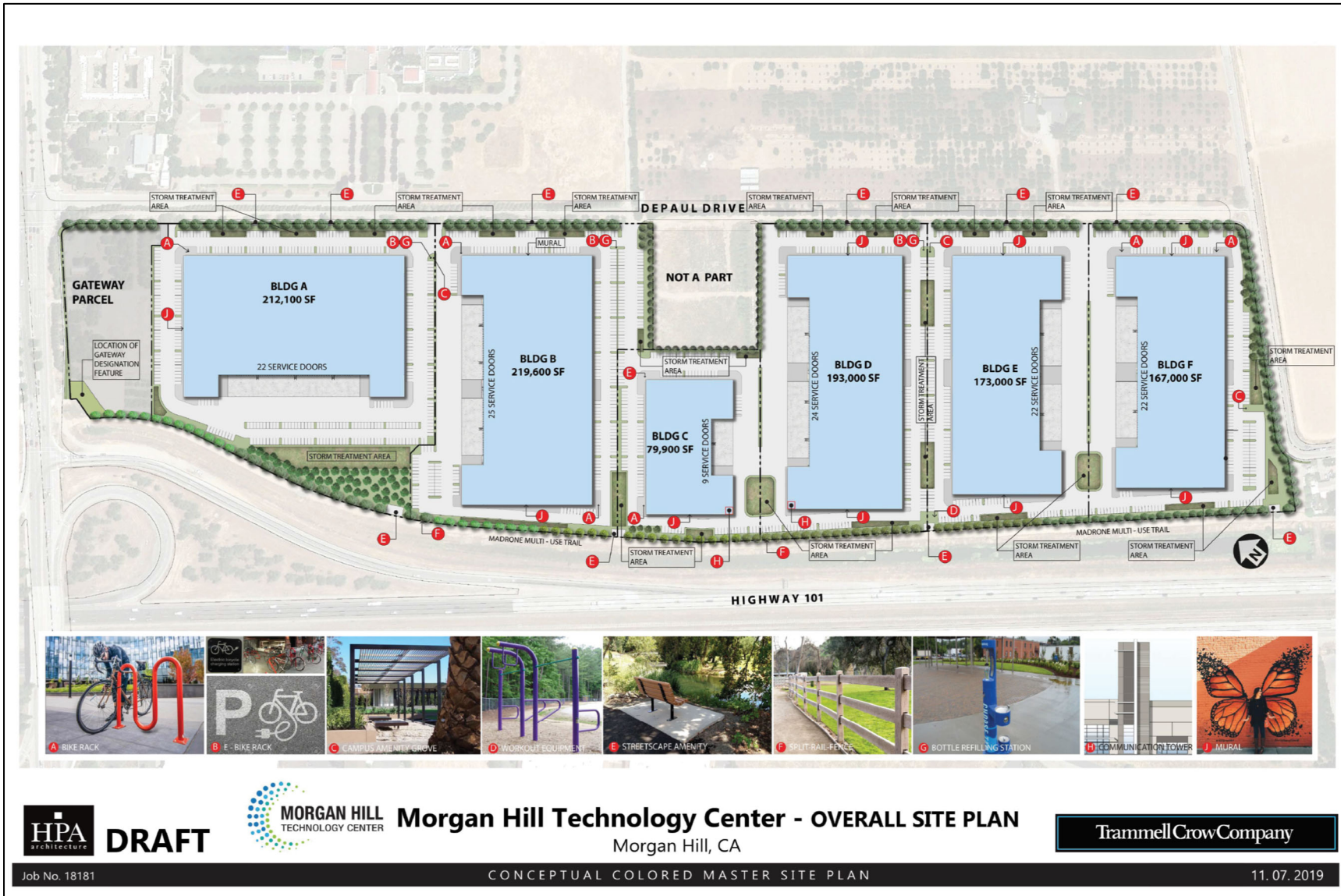


Figure 3
Light Industrial/Commercial Component Site Plan



Light Industrial Component

A total of 1,089,600 square feet of various industrial uses, including advanced manufacturing and general light industrial space, will be constructed on 59 acres. A 2.18-acre parcel that is depicted as 'Not a Part' on the Trammell Crow conceptual site plan is evaluated for up to 45,000 square feet of future light-industrial uses, although no specific development application is proposed at this time. Access to the industrial zoned property would be provided exclusively via full-access driveways off the west side of DePaul Drive.

Residential Component

Although no formal land use entitlement applications are currently on file, this traffic study evaluates a maximum residential scenario of up to 319 residential units located between DePaul Drive and Mission View Drive, north of Half Road. The residential units are preliminarily comprised of 60 courtyard homes, 115 townhomes, and 72 duet units. Each duet unit is presumed to equate to two residential units.

Warehouse Project Alternative

The industrial component of the project is proposed to consist of six buildings that would provide a total of 1,089,600 square feet of light industrial space. However, the site zoning could ultimately allow various industrial land uses on the site including advanced manufacturing, warehouse distribution, supporting office, and other similar uses. In terms of trip generation, warehouse and manufacturing space generally generates much less auto trips than light-industrial space. However, the composition of truck traffic tends to be greater for warehouse uses when compared to manufacturing and light-industrial space. Therefore, the City requested that an alternative project scenario, consisting of warehouse uses on the entirety of the industrial portion of the site, be evaluated to reflect the potential for the project site uses to generate a fewer number of vehicular trips and typical truck trips for warehouse uses than estimated for the light industrial uses for the site. The warehouse project alternative was analyzed to the same level as the proposed light industrial uses under each of the same study scenarios.

Scope of Study

The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Morgan Hill and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the County Congestion Management Program (CMP). The study includes an analysis of AM and PM peak-hour traffic conditions for 28 signalized intersections, nine unsignalized intersections, two planned future intersections, and 14 directional freeway segments. The study intersections and freeway segments are identified below.

Study Intersections

1. Monterey Road and Burdett Avenue
2. Monterey Road and Madrone Parkway
3. Monterey Road and Cochrane Road
4. Monterey Road and Old Monterey Road
5. Monterey Road and Wright Avenue
6. Monterey Road and Central Avenue
7. Monterey Road and Main Avenue
8. Monterey Road and Second Street
9. Monterey Road and East Dunne Avenue
10. East Dunne Avenue and Church Street

11. Butterfield Boulevard and East Dunne Avenue
12. East Dunne Avenue and Walnut Grove Drive
13. US 101 Southbound Ramps and East Dunne Avenue
14. US 101 Northbound Ramps and East Dunne Avenue
15. East Dunne Avenue and Condit Road
16. East Dunne Avenue and Murphy Avenue
17. Butterfield Boulevard and Diana Avenue
18. Butterfield Boulevard and Main Avenue
19. Butterfield Boulevard and East Central Avenue
20. Butterfield Boulevard and Jarvis Drive (S)/Digital Drive
21. Butterfield Boulevard and Sutter Boulevard
22. Butterfield Boulevard and Cochrane Road
23. Cochrane Road and Cochrane Circle
24. Cochrane Road and Sutter Boulevard
25. Cochrane Road and Madrone Parkway/Cochrane Plaza
26. Cochrane Road and US 101 Southbound Ramps
27. Cochrane Road and US 101 Northbound Ramps
28. Cochrane Road and De Paul Drive
29. Cochrane Road and Mission View Drive
30. Mission View Drive and Avenida De Los Padres
31. Mission View Drive and Half Road
32. Half Road and De Paul Drive Extension
33. Main Avenue and Condit Road
34. Main Avenue and Murphy Avenue
35. Burdett Avenue and Vista De Lomas
36. Condit Road and Diana Avenue
37. Murphy Avenue and Diana Avenue
38. Tennant Avenue and Condit Road
39. Tennant Avenue and Murphy Avenue

Study Freeway Segments

1. US 101 between SR-85 and Bailey Avenue
2. US 101 between Bailey Avenue and Coyote Creek Golf Drive
3. US 101 between Coyote Creek Golf Drive and Cochrane Road
4. US 101 between Cochrane Road and Dunne Avenue
5. US 101 between Dunne Avenue and Tennant Avenue
6. US 101 between Tennant Avenue and San Martin Avenue
7. US 101 between San Martin Avenue and Masten Avenue

Traffic conditions at all of the study intersections were analyzed for the weekday AM and PM peak hours. The weekday AM peak hour of traffic is generally between 7:00 AM and 9:00 AM and the weekday PM peak hour is typically between 4:00 PM and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday. Traffic conditions were evaluated for the conditions described below and the following two development scenarios:

Light Industrial & Commercial Components Only - The light-industrial/commercial component of the project is evaluated independently for the Existing plus Project and Year 2030 scenarios since there is a current plan for its development.

Project Buildout - There is no specific development plan for the residential component of the project, therefore the residential is evaluated only in combination with the light industrial & commercial components for each scenario, with the exception of the Year 2030 scenario.

- Scenario 1: *Existing Conditions*. Existing conditions represent existing peak-hour traffic volumes on the existing roadway network. Existing peak-hour traffic volumes were obtained from recently completed traffic studies and supplemented with new manual turning-movement counts at study intersections for which recent counts, less than two years old, were unavailable.
- Scenario 2: *Existing Plus Project Conditions*. Project-generated traffic volumes were added to existing traffic volumes to estimate existing plus project conditions. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts.
- Scenario 3: *Year 2030 Cumulative Conditions*. Year 2030 Cumulative conditions represents traffic growth projected to occur in the Year 2030 without the proposed project on the existing transportation network. Projected 2030 traffic growth was developed by interpolating the projected Year 2035 traffic growth.
- Scenario 4: *Year 2030 Cumulative with Project Conditions*. Year 2030 with project conditions consist of Year 2030 cumulative conditions with the addition of project traffic associated with an anticipated 10-year build plan for only the light industrial/commercial component of the site. This scenario does not include the proposed residential units since there is not a development plan available.
- Scenario 5: *Year 2035 General Plan No Project Conditions*. Year 2035 General Plan No Project conditions represent future traffic volumes on the future transportation network. Year 2035 General Plan No Project conditions includes land use growth and transportation improvements associated with buildout of the City's General Plan.
- Scenario 6: *Year 2035 General Plan with Project Conditions*. Year 2035 General Plan with Project conditions consist of Year 2035 General Plan No Project traffic conditions with the addition of traffic due to the proposed project and its associated land use amendment for the project site.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new peak hour intersection turn-movement counts, previous traffic studies, the City of Morgan Hill, the 2018 CMP Monitoring and Conformance Report, and field observations. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing
- average speeds on freeway segments
- Year 2035 traffic forecasts

Analysis Methodologies and Level of Service Standards

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The analysis methods are described below.

Signalized Intersections

Signalized study intersections are subject to the City of Morgan Hill level of service standards. The City of Morgan Hill level of service methodology is TRAFFIX, which is based on the 2000 *Highway Capacity Manual* (HCM) method for signalized intersections. TRAFFIX evaluates signalized intersections operations based on average delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersections level of service methodology, the City of Morgan Hill methodology employs the CMP defaults values for the analysis parameters, which include adjusted saturation flow rates to reflect conditions in Santa Clara County. All intersections within the City of Morgan Hill are required to meet the City's LOS standard of LOS D, with the exception of the following:

- **LOS F** for Downtown intersections and segments including at Main/Monterey, along Monterey Road between Main and Fifth Street, and along Depot Street at First through Fifth Street;

LOS E for the following intersections and freeway zones:

- Main Avenue and Del Monte Avenue
- Main Avenue and Depot Street
- Dunne Avenue and Del Monte Avenue
- Dunne Avenue and Monterey Avenue
- Dunne Avenue and Church Street
- Dunne Avenue and Depot Street
- Cochrane Road and Monterey Road
- Tennant Avenue and Monterey Road
- Tennant Avenue and Butterfield Boulevard
- Cochrane Road Freeway Zone: from Madrone Parkway/Cochrane Plaza to Cochrane Road/DePaul Drive
- Dunne Avenue Freeway Zone: from Walnut Grove Drive/East Dunne Avenue to Condit Road/East Dunne Avenue
- Tennant Avenue Freeway Zone: from Butterfield Boulevard/Tennant Avenue to Condit Road/Tennant Avenue

The correlation between average delay and level of service for signalized intersections is shown in Table 1.

Since truck trips do not have the same effect on the transportation network as auto trips, the estimated project truck traffic was factored up using a heavy vehicle adjustment factor of 2.0 to yield passenger vehicle equivalent trips (a truck trip is considered to represent 2.0 passenger-vehicles) for the purpose of calculating levels of service.

Unsignalized Intersections

The methodology used to determine the level of service for unsignalized intersections is also TRAFFIX and the 2000 HCM methodology for unsignalized intersection analysis. This method is applicable for both two-way and all-way stop-controlled intersections. For the analysis of stop-controlled intersections, the 2000 HCM methodology evaluates intersection operations on the basis of average control delay

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Sources: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology). *Traffic Level of Service Analysis Guidelines*, Santa Clara County Transportation Authority Congestion Management Program, June 2003.

time for all vehicles on the stop-controlled approaches. For the purpose of reporting level of service for one- and two-way stop-controlled intersections, the delay and corresponding level of service for the stop-controlled minor street approach with the highest delay is reported. For all-way stop-controlled intersections, the reported average delay and corresponding level of service is the average for all approaches at the intersection. The City uses a minimum acceptable level of service standard of LOS D for unsignalized intersections, in accordance with its adopted threshold of significance in its Guidelines for Preparation of Transportation Impact Reports. The correlation between average delay and level of service for unsignalized intersections is shown in Table 2.

Signal Warrants

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. The need for signalization of unsignalized intersections is assessed based on the Peak Hour Volume Warrant (Warrant 3) described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD)*, Part 4, Highway Traffic Signals, 2014. This method makes no evaluation of intersection level of service, but simply provides an indication whether vehicular peak hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants are met. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection as well as at adjacent intersections. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delays occurring with favorable progression.	up to 10.0
B	Operations with low delays occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operation with longer delays due to a combination of unfavorable progression of high V/C ratios.	25.1 to 35.0
E	Operation with high delay values indicating poor progression and high V/C ratios. This is considered to be the limited of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology).

Freeway Segments

As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. Density is calculated by the following formula:

$$D = V / S$$

Where:

D= density, in vehicles per mile per lane (vpmpl)

V= peak hour volume, in vehicles per hour per lane (vphpl)

S= average travel speed, in miles per hour (mph)

The vehicle density on a segment is correlated to level of service as shown in Table 3. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for mixed-flow lane segments that are three lanes or wider in one direction, and a capacity of 2,200 vphpl be used for mixed-flow lane segments that are two lanes wide in one direction. A capacity of 1,650 vphpl was used for high occupancy vehicle (HOV) lanes. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

Table 3
Freeway Level of Service Definitions Based on Density

Level of Service	Description	Density (vehicles/mile/lane)
A	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	0-11
B	Speeds at the free-flow speed are generally maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.	>11-18
C	Speeds at or near the free-flow speed of the freeway prevail. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more vigilance on the part of the driver.	>18-26
D	Speeds begin to decline slightly with increased flows at this level. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels.	>26-46
E	At this level, the freeway operates at or near capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream, leaving little room to maneuver within the traffic stream.	>46-58
F	Vehicular flow breakdowns occur. Large queues form behind breakdown points.	>58

Sources: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology). *Traffic Level of Service Analysis Guidelines*, Santa Clara County Transportation Authority Congestion Management Program, June 2003.

Report Organization

The remainder of this report is divided into seven chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the project impact on the transportation system and describes the recommended mitigation measures under existing plus project conditions. Chapter 4 presents the traffic conditions in the study area under Year 2030 Cumulative conditions without and with the addition of project traffic. Chapter 5 presents the traffic conditions in the study area under Year 2035 General Plan conditions without and with the proposed project and its land use amendment. Chapter 6 presents the results for the warehouse project alternative evaluation. Chapter 7 presents the analysis of other transportation related issues, including site access. Chapter 8 presents the conclusions of the traffic impact analysis.

2. Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

Existing Roadway Network

Regional access to the project site is provided via US 101. Local access to the site is provided by Cochrane Road, Half Road, DePaul Drive, Mission View Drive and an extension of DePaul Drive to Half Road. These facilities are described below.

US 101 is a north-south freeway extending northward to San Francisco and southward through Gilroy. US 101 is an eight-lane freeway (three mixed-flow lanes and one high-occupancy vehicle (HOV) lane in each direction) north of Cochrane Road. South of Cochrane Road, it is a six-lane freeway with no HOV lanes. Access to and from the project area is provided via a full interchange at Cochrane Road.

Cochrane Road is an east-west divided roadway that runs from Monterey Road to Malaguerra Avenue, east of US 101. Currently, Cochrane Road is a four-lane road between Monterey Road and Sutter Boulevard. Widening of Cochrane Road between Monterey Road and Sutter Boulevard from four lanes to six lanes is planned. Between Sutter Boulevard and US 101, Cochrane Road widens to three-lanes eastbound and two lanes westbound, then narrows back to four lanes east of US 101, and to two lanes east of Mission Avenue. Cochrane Road has posted speed limits of 40 and 45 miles-per-hour (mph) and runs along the northern project frontage and would provide one right-turn only driveway to the proposed commercial/retail uses. Access to other parcels of the commercial/industrial uses and the residential component would be provided via its intersections with DePaul Drive and Mission View Drive.

DePaul Drive is a north-south undivided roadway that intersects Cochrane Road approximately 700 feet east of the US-101 northbound ramps intersection and runs approximately 1,500 feet north and 1,000 feet south of Cochrane Road. DePaul Drive has a posted speed limit of 35 miles-per-hour (mph). The project proposes to extend DePaul Drive by approximately 2,280 feet south along its frontage to provide direct access to the commercial/industrial uses of the project via full access driveways. The extension also will provide access to the future residential component of the project. As proposed, DePaul Drive will terminate as a cul-de-sac just north of Half Road.

Half Road is an east-west undivided roadway that runs from Condit Road to Peet Road. Half Road runs along the south project frontage and has a posted speed limit of 35 miles-per-hour (mph). However, Half Road will not provide direct access to the commercial/industrial uses and will not

intersect the proposed extension of DePaul Drive. Access to the commercial/industrial site from Half Road will be provided via Mission View Drive and Cochrane Road.

Mission View Drive is a north-south two-lane undivided roadway that runs south from Eagle View Drive to Half Road. In the vicinity of the project site, Mission View Drive has a posted speed limit of 40 miles-per-hour (mph). Mission View Drive runs along the east frontage of the future residential component of the project. Access to the commercial/industrial uses from Mission View Drive would be provided via Cochrane Road and DePaul Drive.

Main Avenue is a two-lane roadway that runs eastward from its intersection with DeWitt Avenue to Coyote Road at the base of the eastern foothills. The roadway has an overcrossing of US 101, however no access to US 101 is provided. Access to the project site is provided via its intersection with Condit Road.

Condit Road is a two-lane north-south roadway that extends from Half Road southward to Tennant Avenue. The posted speed limit on Condit Road is 45 mph.

Existing Bicycle and Pedestrian Facilities

As defined by the Valley Transportation Authority (VTA), bicycle facilities include Class I bikeways (defined as bike paths off street, which is shared with pedestrians and excludes general motor vehicle traffic), Class II bikeways (defined as striped bike lanes on street), and rated streets. The latter refers to streets frequently used by bicyclists, sharing the roadway with motor vehicles, and includes city designated Class III bike routes. Rated streets include extreme caution (heavy traffic volumes with high traffic speeds), alert (moderate traffic volumes and speeds), and moderate (low traffic volumes and moderate to low traffic speeds). Class III bikeways only have signs to help guide bicyclists on recommended routes to certain locations.

Bike lanes are currently provided along the extent of Cochrane Road, including along the north project frontage. There also are bike lanes along Main Avenue beginning at Live Oak High School and continuing west across US-101 to Peak Avenue. An unpaved bike path, the Madrone Channel Trail, runs along the east side of US 101, between Tennant Avenue and Cochrane Road.

The remaining bicycle facilities in the area are located west of US-101. Bike lanes are currently provided along the following roadways:

- Butterfield Boulevard, along its entire length;
- Sutter Boulevard, from Cochrane Road to Butterfield Boulevard;
- Monterey Road, nearly its entire length within City of Morgan Hill limits, with the exception of the segment that runs through downtown between Dunne Avenue and Main Avenue;
- Burnett Avenue, from Monterey Road to Bauman Court (west of US 101);
- Central Avenue, from Butterfield Boulevard to its termination point west of US 101;
- Dunne Avenue, from Peak Avenue to east of Hill Road;
- Depot Street, along its entire length;
- Peak Avenue, between Dunne Avenue and Wright Avenue;
- Murphy Avenue, Dunne Avenue and Kelly Park Circle;
- Hale Avenue, between Main Avenue and north of City of Morgan Hill.

Other bicycle facilities in the project vicinity include the following:

- A bike route on Monterey Road, between Dunne Avenue and Main Avenue;
- A paved bike path on east side of Butterfield Boulevard, between San Pedro Avenue and Central Avenue.

The existing bicycle facilities in the study area are presented graphically on Figure 4.

Pedestrian facilities in the study areas consist primarily of sidewalks, pedestrian push buttons and signal heads at signalized intersections. All of the signalized intersections in the vicinity of the project site have marked crosswalks and pedestrian push buttons and signal heads. However, the project site is located within a primarily undeveloped area where continuous sidewalks along the surrounding streets are not available. Sidewalks are provided along at least one of the sides of the following roadways in the vicinity of the project site:

Cochrane Road – sidewalks are provided along the north side of the street between Butterfield Boulevard and White Moon Drive. Along the south side of the street, sidewalks are provided from Monterey Road to east of Mission View Drive with the exception of the segments between Woodview Avenue and Sutter Boulevard, US 101 northbound ramps and DePaul Drive (the north project frontage), and a short segment west of Mission View Drive.

Mission View Drive – sidewalks are provided along the east side of the street between the northern end of Mission View Drive (at Eagle View Drive) until approximately 950 feet north of its intersection with Half Road. There are no sidewalks along the west side of Mission View Drive, with the exception of curb ramps located at the northwest and southwest corners of the Mission View Drive and Cochrane Road intersection.

Sidewalks are not provided on either side of DePaul Drive south of Cochrane Road. All other streets in the immediate vicinity of the project site fronting undeveloped areas have no sidewalks.

Existing Transit Service

Existing transit service to the study area is provided by the VTA and Caltrain. The nearest bus stops to the project site are located at the DePaul Drive intersection with Cochrane Road. The transit services are described below and shown on Figure 5.

VTA Bus Services

The study area is served directly by one local bus (Local Bus Route 87). In addition, three express buses (Express Routes 121, 168, and 185) operate along Cochrane Road west of US 101.

Local Bus Route 87 operates on Cochrane Road in the study area. It runs from Burnett Avenue to the Civic Center (Main and Dewitt) in Morgan Hill with approximately 60-minute headways in the AM and PM commute periods. Route 87 operates between 6:30 AM and 5:45 PM. The nearest Route 87 stops to the project site are located on Cochrane Road, east and west of DePaul Drive.

Express Route 121 operates on Butterfield Boulevard and Cochrane Road on its route between the Gilroy Transit Center and the Lockheed Martin Transit Center. It operates northbound with 15 to 30-minute headways during the AM commute period only and southbound with 15 to 30-minute headways during the PM commute period only. The nearest Route 121 stop to the project site is located at the intersection of Cochrane Road and Sutter Boulevard, approximately 0.5-mile west of the project site.

Figure 4
Existing Bicycle Facilities

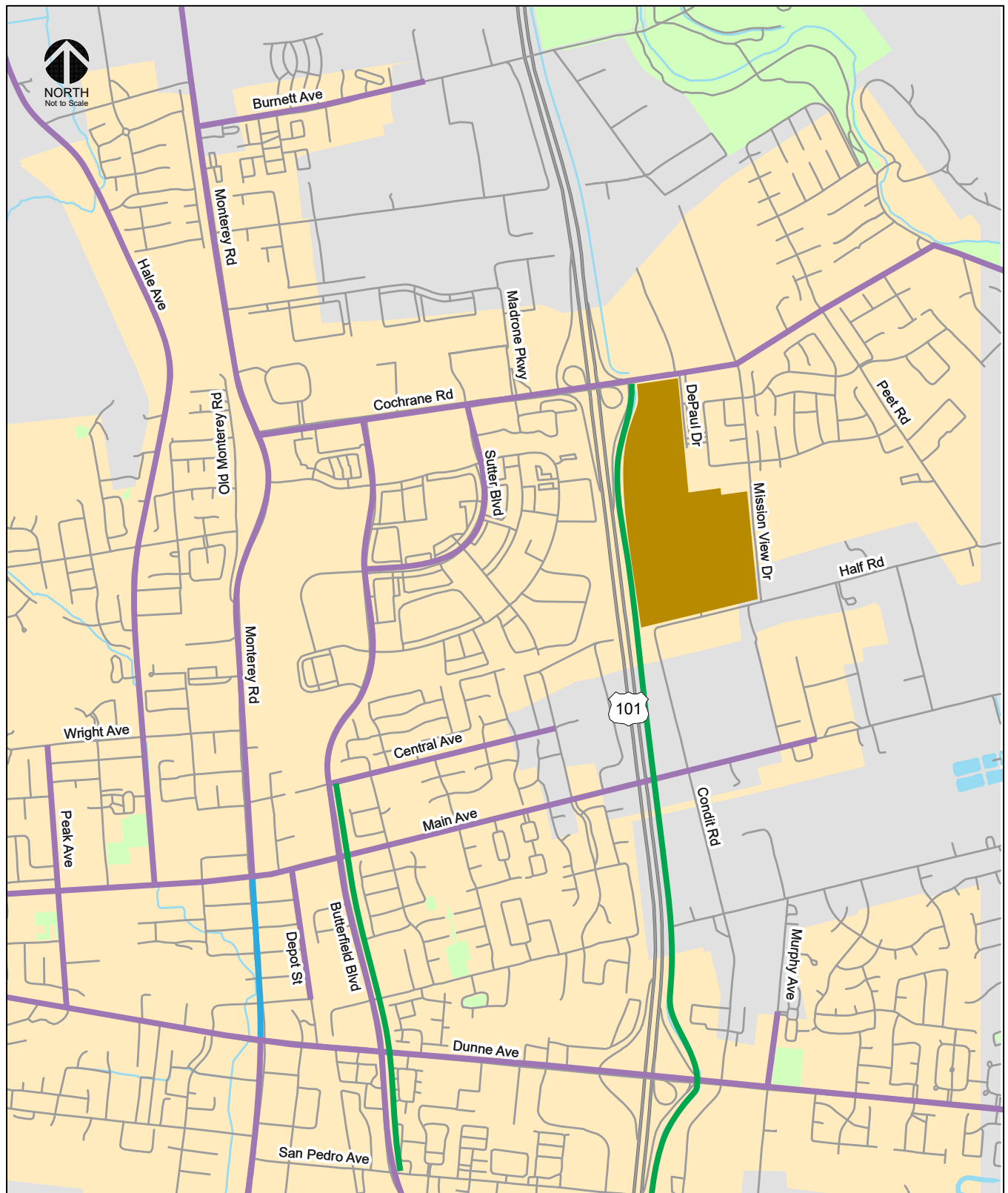
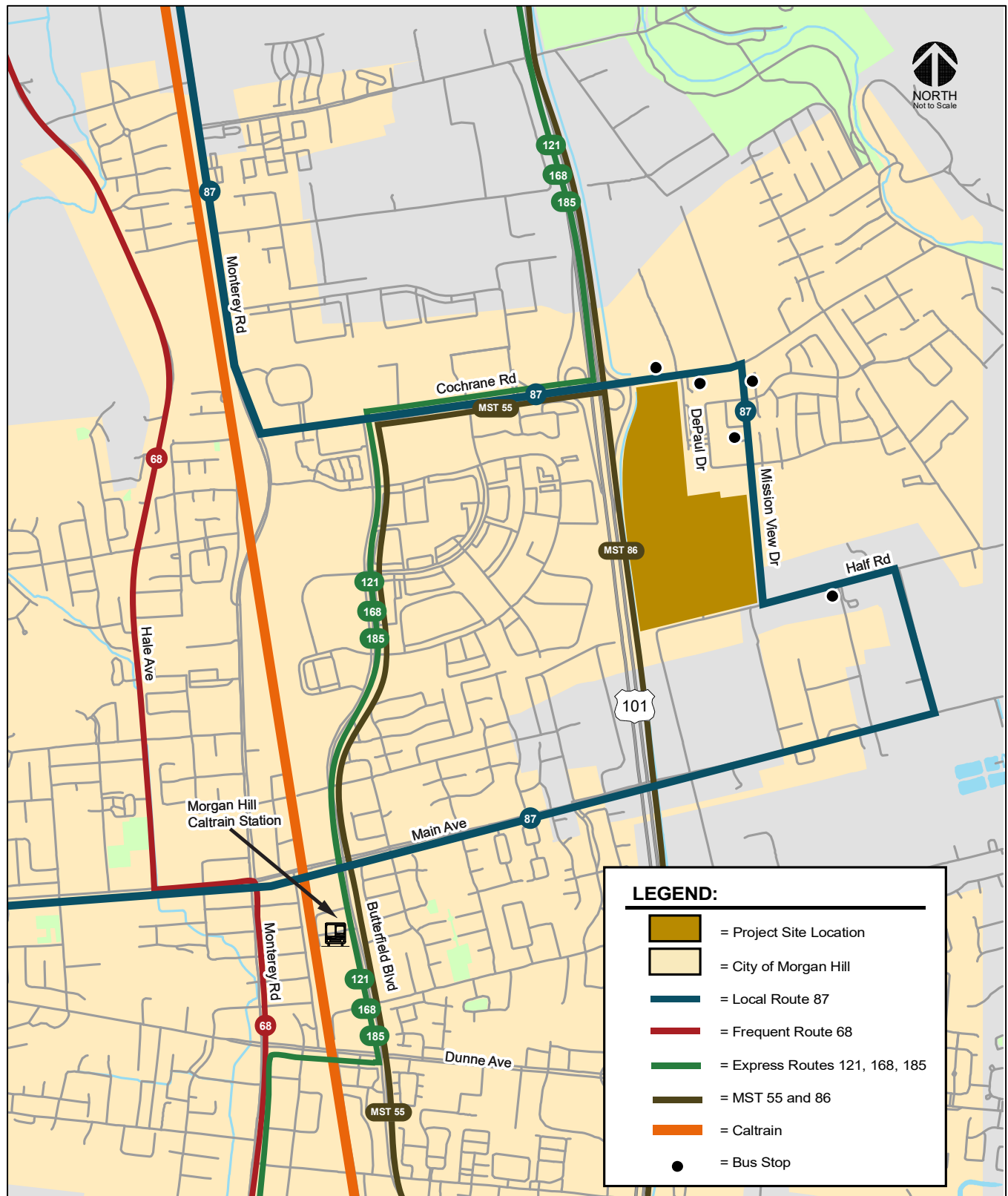


Figure 5
Existing Transit Services



Express Route 168 operates on Butterfield Boulevard and Cochrane Road on its route between the Gilroy Transit Center and the San Jose Diridon Transit Center. It operates northbound with 30- to 45-minute headways during the AM commute period only and southbound with 15- to 30-minute headways during the PM commute period only. The nearest Route 168 stop to the project site is located at the intersection of Cochrane Road and Sutter Boulevard, approximately 0.5-mile west of the project site.

Express Route 185 operates on Butterfield Boulevard and Cochrane Road on its route between the Gilroy Transit Center and Mountain View. It operates northbound with 45- to 60-minute headways during the AM commute period only and southbound with 45- to 60-minute headways during the PM commute period only. The nearest Route 185 stop to the project site is located at the intersection of Cochrane Road and Sutter Boulevard, approximately 0.5-mile west of the project site.

Caltrain

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The Morgan Hill Caltrain Station is located along Depot Street, with main access and parking off of Butterfield Boulevard, approximately two miles from the project site. At the Morgan Hill Station, Caltrain provides service in only the northbound direction during the AM commute period and only in the southbound direction during the PM commute period with approximately 30- to 40-minute headways during each of the commute hours.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 6.

Existing Traffic Volumes

Existing peak-hour traffic volumes were obtained from recently completed traffic studies and supplemented with manual turning-movement counts at intersections where counts were either unavailable or outdated (more than 2 years old). The existing peak-hour intersection volumes are shown on Figure 7. Intersection turning-movement counts conducted for this analysis are presented in Appendix A.

Existing Intersection Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 4. The results show that, measured against the City of Morgan Hill level of service standards, all the study intersections currently operate at an acceptable level of service, LOS D or better, under existing conditions during each of the peak hours analyzed.

Based on the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the California *Manual on Uniform Traffic Control Devices* (MUTCD), 2014 Edition, the existing traffic volumes at the Mission View Drive and Cochrane Road intersection were sufficient to warrant installation of a traffic signal during the AM and PM peak hour under existing conditions, based on counts conducted in May 2018. However, a traffic signal has since been installed at the intersection and is currently operational. All other unsignalized study intersections currently have traffic conditions that fall below the thresholds that warrant signalization. The level of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Figure 6
Existing Lane Configurations

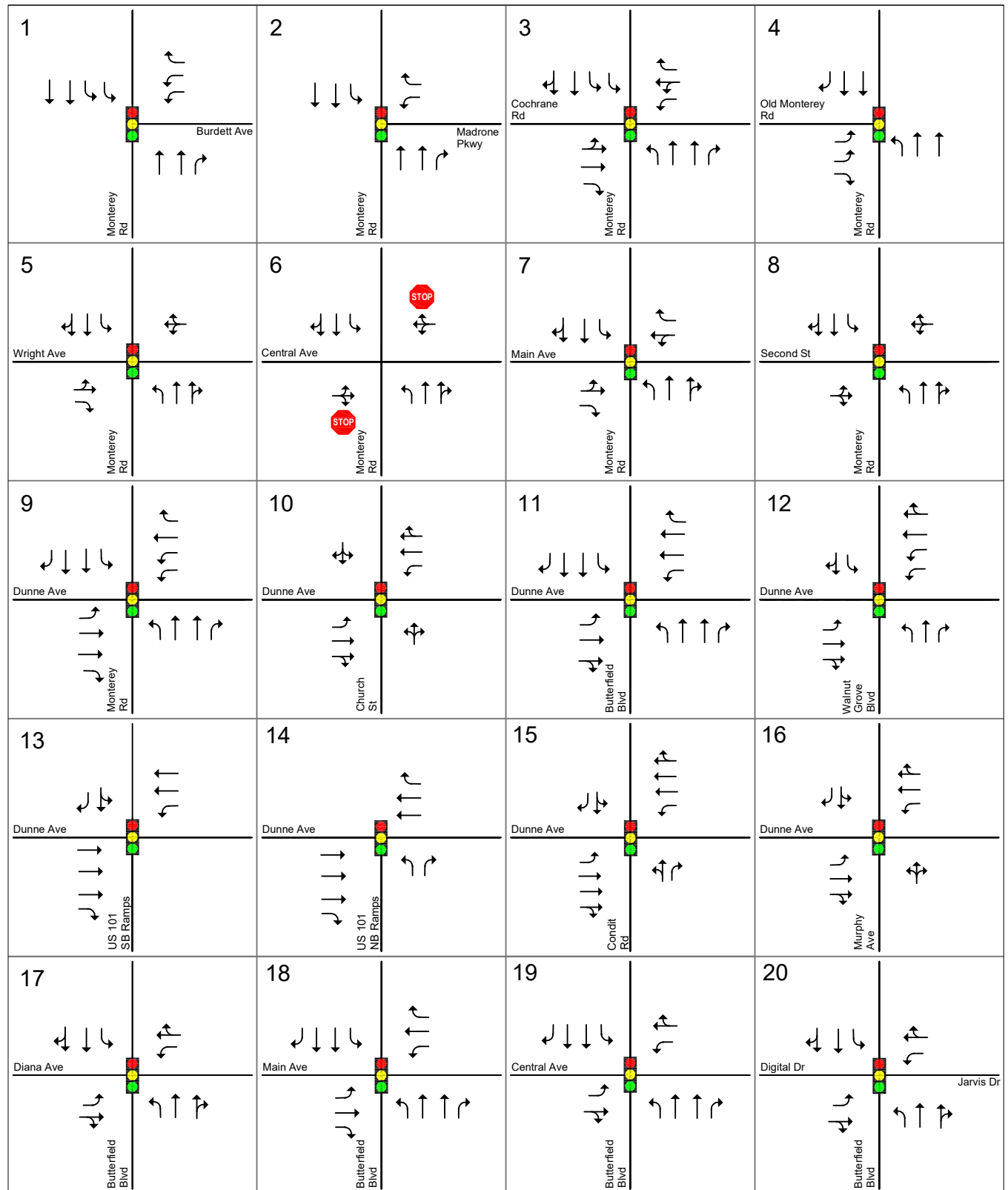


Figure 6 (Continued)
Existing Lane Configurations

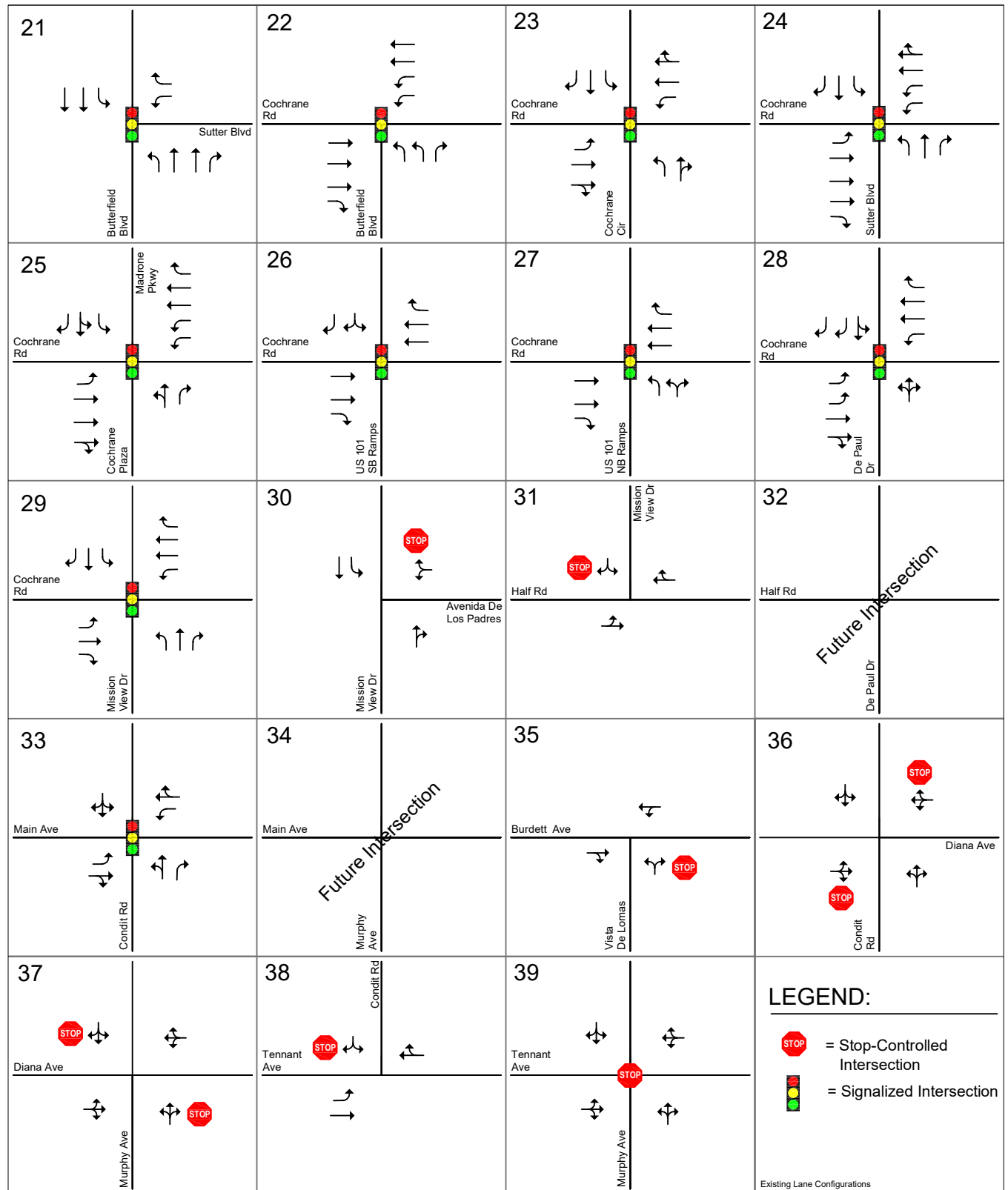


Figure 7
Existing Traffic Volumes

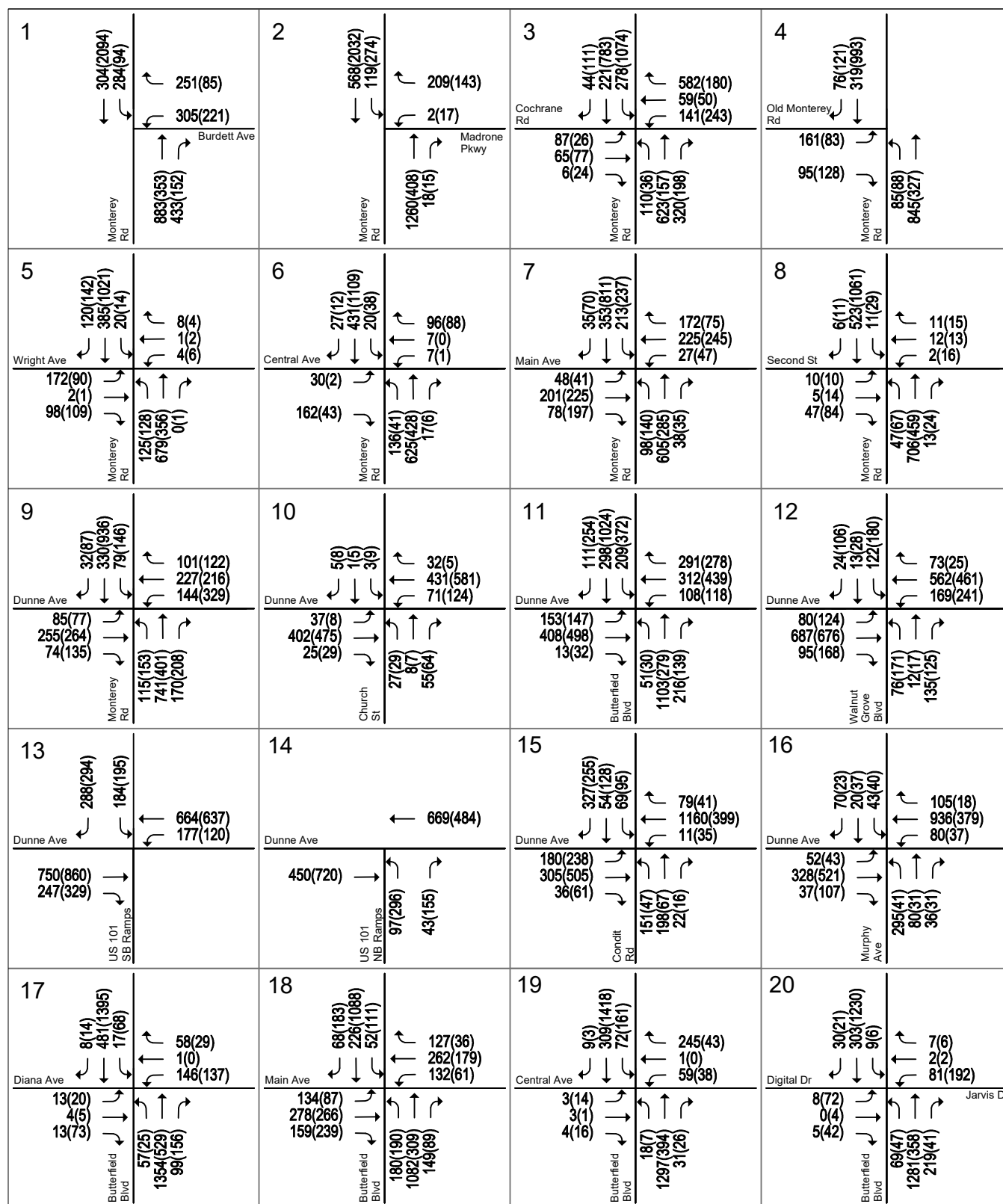
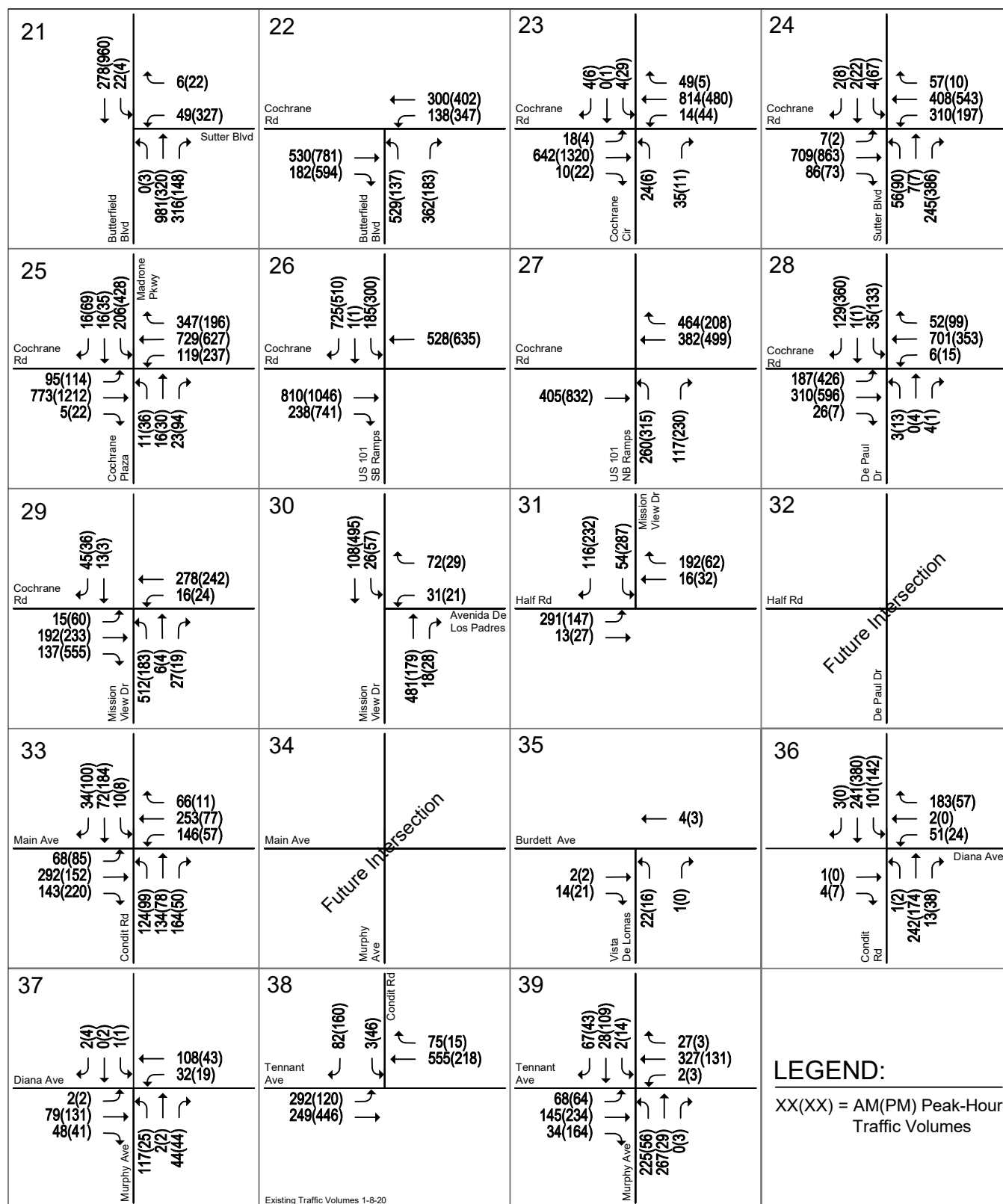


Figure 7 (Continued)
Existing Traffic Volumes



Existing Traffic Volumes 1-8-20

Table 4
Existing Intersection Levels of Service

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Warrant Met?	Delay ¹	LOS
1	Monterey Road and Burdett Avenue	Signal	D	AM	03/28/19	--	15.0	B
				PM	03/28/19	--	9.7	A
2	Monterey Road and Madrone Parkway	Signal	D	AM	02/28/19	--	9.4	A
				PM	02/28/19	--	9.8	A
3	Monterey Road and Cochrane Road	Signal	E	AM	05/08/18	--	28.1	C
				PM	05/08/18	--	24.0	C
4	Monterey Road and Old Monterey Road	Signal	D	AM	05/08/18	--	10.4	B
				PM	05/08/18	--	13.0	B
5	Monterey Road and Wright Avenue	Signal	D	AM	03/28/19	--	19.1	B
				PM	03/28/19	--	20.4	C
6	Monterey Road and Central Avenue	TWSC	D	AM	03/28/19	No	19.5	C
				PM	03/28/19	No	15.7	C
7	Monterey Road and Main Avenue	Signal	F	AM	05/08/18	--	44.2	D
				PM	05/08/18	--	45.1	D
8	Monterey Road and Second Street	Signal	F	AM	03/28/19	--	10.6	B
				PM	03/28/19	--	12.6	B
9	Monterey Road and Dunne Avenue	Signal	E	AM	05/08/18	--	28.9	C
				PM	05/08/18	--	31.4	C
10	Church Street and Dunne Avenue	Signal	E	AM	06/06/18	--	17.8	B
				PM	06/06/18	--	19.9	B
11	Butterfield Boulevard and Dunne Avenue	Signal	D	AM	05/08/18	--	35.5	D
				PM	05/08/18	--	31.7	C
12	Walnut Grove Drive and Dunne Avenue	Signal	E	AM	03/28/19	--	18.4	B
				PM	03/28/19	--	28.5	C
13	US 101 Southbound Ramps and Dunne Avenue	Signal	E	AM	05/08/18	--	20.9	C
				PM	05/08/18	--	18.8	B
14	US 101 Northbound Ramps and Dunne Avenue	Signal	E	AM	05/08/18	--	5.3	A
				PM	05/08/18	--	11.8	B
15	Condit Road and Dunne Avenue	Signal	E	AM	03/28/19	--	42.4	D
				PM	03/28/19	--	28.2	C
16	Murphy Avenue and Dunne Avenue	Signal	D	AM	03/28/19	--	18.9	B
				PM	03/28/19	--	11.8	B
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM	05/08/18	--	21.3	C
				PM	05/08/18	--	20.4	C
18	Butterfield Boulevard and Main Avenue	Signal	D	AM	05/08/18	--	27.6	C
				PM	05/08/18	--	29.8	C
19	Butterfield Boulevard and Central Avenue	Signal	D	AM	05/08/18	--	17.1	B
				PM	05/08/18	--	11.0	B
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM	05/08/18	--	11.7	B
				PM	05/08/18	--	12.8	B
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM	05/08/18	--	6.7	A
				PM	05/08/18	--	15.6	B
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM	05/08/18	--	12.3	B
				PM	05/08/18	--	12.0	B
23	Cochrane Circle and Cochrane Road	Signal	D	AM	05/08/18	--	10.5	B
				PM	05/08/18	--	10.9	B
24	Sutter Boulevard and Cochrane Road	Signal	D	AM	05/08/18	--	17.2	B
				PM	05/08/18	--	17.9	B
25	Madrone Parkway/Cochrane Plaza and Cochrane Road	Signal	E	AM	05/08/18	--	19.1	B
				PM	05/08/18	--	31.4	C
26	US 101 Southbound Ramps and Cochrane Road	Signal	E	AM	05/08/18	--	12.8	B
				PM	05/08/18	--	16.5	B
27	US 101 Northbound Ramps and Cochrane Road	Signal	E	AM	05/08/18	--	8.6	A
				PM	05/08/18	--	11.3	B
28	De Paul Drive and Cochrane Road	Signal	E	AM	05/08/18	--	17.7	B
				PM	05/08/18	--	18.7	B

Table 4 (Continued)
Existing Intersection Levels of Service

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Warrant Met?	Delay ¹	LOS
29	Mission View Drive and Cochrane Road	Signal	D	AM	05/08/18	--	23.0	C
				PM	05/08/18	--	15.7	B
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	03/28/19	No	13.5	B
				PM	03/28/19	No	12.5	B
31	Mission View Drive and Half Road	OWSC	D	AM	03/28/19	No	13.6	B
				PM	03/28/19	No	22.6	C
32	De Paul Drive Extension and Half Road	Future	D	AM	--	--	--	--
				PM	--	--	--	--
33	Condit Road and Main Avenue	Signal	D	AM	05/08/18	--	27.6	C
				PM	05/08/18	--	26.1	C
34	Murphy Avenue and Main Avenue	Future	D	AM	--	--	--	--
				PM	--	--	--	--
35	Vista De Lomas and Burdett Avenue	OWSC	D	AM	03/28/19	No	8.6	A
				PM	03/28/19	No	8.6	A
36	Condit Road and Diana Avenue	TWSC	D	AM	06/04/19	Yes	14.7	B
				PM	06/04/19	No	13.6	B
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	06/04/19	No	11.4	B
				PM	06/04/19	No	9.9	A
38	Condit Road and Tennant Avenue	OWSC	E	AM	06/04/19	Yes	14.7	B
				PM	06/04/19	Yes	14.6	B
39	Murphy Avenue and Tennant Avenue	AWSC	D	AM	06/04/19	Yes	21.3	C
				PM	06/04/19	No	11.9	B

Notes:
¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.

Existing Freeway Segment Levels of Service

Traffic volumes for the subject freeway segments were obtained from the 2018 CMP Annual Monitoring Report. The results of the analysis are summarized in Table 5. The results show that the mixed-flow lanes on the following ten directional mixed-flow freeway segments and one directional HOV freeway segment analyzed currently operate at an unacceptable LOS F during at least one peak hour:

Mixed-Flow Freeway Segment Unacceptable LOS

2. US 101, Northbound from San Martin Avenue to Tennant Avenue (AM Peak Hour)
3. US 101, Northbound from Tennant Avenue to East Dunne Avenue (AM Peak Hour)
4. US 101, Northbound from East Dunne Avenue to Cochrane Road (AM Peak Hour)
5. US 101, Northbound from Cochrane Road to Coyote Creek Golf Drive (AM Peak Hour)
8. US 101, Southbound from SR 85 to Bailey Avenue (PM Peak Hour)
9. US 101, Southbound from Bailey Avenue to Coyote Creek Golf Drive (PM Peak Hour)
10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour)
11. US 101, Southbound from Cochrane Road to East Dunne Avenue (PM Peak Hour)
12. US 101, Southbound from East Dunne Avenue to Tennant Avenue (PM Peak Hour)
13. US 101, Southbound from Tennant Avenue to San Martin Avenue (PM Peak Hour)

HOV Freeway Segment Unacceptable LOS

10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour)

All other freeway segments analyzed operate at LOS E or better conditions during the AM and PM peak hours.

Table 5
Existing Freeway Segment Levels of Service

#	Freeway Segment	Direction	Peak Hour	Mixed-Flow Lane				HOV Lane			
				Speed ¹ (mi/hr)	Volume ¹ (pc/hr/ln)	Density ¹ (pc/mi/ln)	LOS ¹	Speed ¹ (mi/hr)	Volume ¹ (pc/hr/ln)	Density ¹ (pc/mi/ln)	LOS ¹
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	1,804	53	E	--	--	--	--
		NB	PM	51.80	1,986	38	D	--	--	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	861	83	F	--	--	--	--
		NB	PM	60.00	1,782	30	D	--	--	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	796	85	F	--	--	--	--
		NB	PM	59.80	1,793	30	D	--	--	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	1,399	67	F	--	--	--	--
		NB	PM	61.60	1,674	27	D	--	--	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	1,446	65	F	71.41	813	11	A
		NB	PM	64.20	1,370	21	C	72.66	622	9	A
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	1,757	55	E	75.29	-- ²	-- ²	A
		NB	PM	64.00	1,402	22	C	76.15	-- ²	-- ²	A
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	1,872	50	E	65.21	1,329	20	B
		NB	PM	63.40	1,487	23	C	72.91	576	8	A
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	1,601	26	C	73.82	389	5	A
		SB	PM	16.00	1,176	73	F	39.99	1,752	44	E
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	1,402	22	C	73.79	395	5	A
		SB	PM	14.80	1,115	75	F	41.99	1,748	42	E
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	1,559	25	C	63.14	1,421	23	C
		SB	PM	12.60	994	79	F	21.57	1,654	77	F
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	1,639	26	C	--	--	--	--
		SB	PM	25.00	1,547	62	F	--	--	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	1,537	24	C	--	--	--	--
		SB	PM	27.00	1,612	60	F	--	--	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	1,537	24	C	--	--	--	--
		SB	PM	25.40	1,561	61	F	--	--	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	1,782	30	D	--	--	--	--
		SB	PM	37.80	1,876	50	E	--	--	--	--

Notes:
¹Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018.
²Speed exceeds the bound of the equation used to derive volume and density.
 Entries denoted in bold indicate unacceptable LOS F conditions.

3.

Existing Plus Project Conditions

This chapter describes existing plus project traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Existing plus project conditions are represented by existing traffic conditions with the addition of traffic generated by the proposed project.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. Significance criteria for impacts on intersections for this analysis are based on the City of Morgan Hill and CMP Level of Service standards.

Definition of Significant Signalized Intersection Impacts

All intersections within the City of Morgan Hill are required to meet the City's LOS standard of LOS D, with the exception of the following:

- **LOS F** for Downtown intersections and segments including at Main/Monterey, along Monterey Road between Main and Fifth Street, and along Depot Street at First through Fifth Street;
- **LOS E** for the following intersections and freeway zones:
 - Main Avenue and Del Monte Avenue
 - Main Avenue and Depot Street
 - Dunne Avenue and Del Monte Avenue
 - Dunne Avenue and Monterey Avenue
 - Dunne Avenue and Church Street;
 - Dunne Avenue and Depot Street
 - Cochrane Road and Monterey Road
 - Tennant Avenue and Monterey Road
 - Tennant Avenue and Butterfield Boulevard
 - Cochrane Road Freeway Zone: from Madrone Parkway/Cochrane Plaza to Cochrane Road/DePaul Drive
 - Dunne Avenue Freeway Zone: from Walnut Grove Drive/East Dunne Avenue to Condit Road/East Dunne Avenue
 - Tennant Avenue Freeway Zone: from Butterfield Boulevard/Tennant Avenue to Condit Road/Tennant Avenue

According to the City of Morgan Hill level of service guidelines, a development is said to create a significant adverse impact on traffic conditions at a signalized intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable level (LOS D or LOS E as identified above) under existing conditions to an unacceptable level (LOS E or F) under project conditions, or
2. The level of service at the intersection is an unacceptable level (LOS E or F as identified above) under existing conditions and the addition of project trips causes the average critical delay to increase by four (4) or more seconds *and* the volume-to-capacity ratio (V/C) to increase by 0.01.

An exception to this rule applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e., the change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

Definition of Significant Unsignalized Intersection Impacts

Unsignalized intersections within the City of Morgan Hill have a minimum operating level of LOS D. According to the City of Morgan Hill level of service guidelines, a development is said to have a significant adverse impact on traffic conditions at an unsignalized intersection if for either peak hour the addition of project traffic causes the worst approach delay to degrade to LOS E or F *and* the traffic volumes at the intersection are sufficiently high to satisfy the peak hour volume warrant.

CMP Definition of Significant Freeway Segment Impacts

A project is said to create a significant adverse impact on traffic conditions on a CMP freeway segment if for either peak hour:

1. The level of service on the freeway segment is an unacceptable LOS F under no project conditions, and the number of project trips on that segment constitutes at least one percent of capacity on that segment.
2. The level of service on the freeway segment degrades from an acceptable LOS E or better under existing conditions to an unacceptable LOS F under project conditions.

A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore freeway conditions to LOS E or better.

Transportation Network under Existing Plus Project Conditions

It is assumed in this analysis that the roadway network and intersection configurations under existing plus project conditions would be the same as described under existing conditions with the exception of the recent installation of a traffic signal at the Mission View Drive and Cochrane Road intersection and the following improvements that would be constructed as part of the project:

Extension of DePaul Drive. As part of the development of the industrial component of the project, DePaul Drive is proposed to be extended by approximately 2,280 feet south along the industrial site's eastern frontage to provide direct access to the commercial/industrial uses of the project via full access driveways. The extension also will provide access to the future residential component of the project. As proposed, DePaul Drive will terminate as a cul-de-sac just north of Half Road.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. These procedures are described further in the following sections.

Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. Hexagon prepared trip estimates for each component of the proposed project based on trip generation rates obtained from the Institute of Transportation Engineers' (ITE's) *Trip Generation Manual*, Tenth Edition, 2017.

Industrial/Commercial Components

Based on the recommended rates for general light industrial (Land Use #110) and the size of the proposed general light industrial space of the project, it is estimated that the light-industrial uses of the project would generate 5,404 daily trips, with 763 trips (671 inbound and 92 outbound) occurring during the AM peak hour and 686 trips (89 inbound and 597 outbound) occurring during the PM peak hour.

Truck Trips

It is anticipated that the proposed light industrial uses would primarily consist of light industrial/manufacturing space, which has the potential to generate a considerable number of truck trips. ITE's *Trip Generation Manual*, Tenth Edition does not provide data in regard to the composition of truck trips for general light industrial land use. Therefore, it is estimated that the proposed light industrial space would generate 248 daily truck trips, based on the assumption that each of the 124 dock doors would turn over at an average of once per day. The estimated 248 daily truck trips equates to approximately five percent of the total estimated daily trips for the light industrial uses. It also was assumed that five percent of the total estimated peak-hour trips would be comprised of trucks. Note that the estimated truck trips are included within and are not in addition to the vehicular trips described above.

Commercial (Retail) Trips

Trip generation for retail uses are typically adjusted to account for pass-by-trips. Pass-by-trips are trips that would already be on the adjacent roadways (and are therefore already counted in the existing traffic) but would turn into the site while passing by. Justification for applying the pass-by-trip reduction is founded on the observation that a portion of retail traffic is not actually generated by the retail use but is already part of the ambient traffic levels. Pass-by-trips are therefore excluded from the traffic projections (although pass-by traffic is accounted for at the site entrances). A typical pass-by trip reduction of 20% was applied to the retail/commercial component of the proposed project. Based on the ITE trip generation rates and reductions for pass-by-trips, it is estimated that the proposed commercial/retail component of the project would generate 1,850 daily trips, with 47 trips (29 inbound and 18 outbound) occurring during the AM peak hour and 153 trips (74 inbound and 79 outbound) occurring during the PM peak hour.

Based on the ITE trip generation rates and reductions for pass-by-trips, it is estimated that the proposed light industrial and commercial components of the project would generate a total of 7,254 daily trips, with 810 trips (700 inbound and 110 outbound) occurring during the AM peak hour and 839 trips (163 inbound and 676 outbound) occurring during the PM peak hour.

Residential Component

Although no formal land use entitlement applications are currently on file, a maximum residential development scenario of up to 319 residential units is evaluated within this study. The residential units are preliminarily anticipated to be comprised of 60 courtyard homes, 115 townhomes, and 72 duet units. Each duet unit is presumed to equate to two residential units. Therefore, trip estimates for a total of 319 residential units were evaluated. Based on the ITE trip generation rates, it is estimated that the proposed residential component of the project would generate 3,011 daily trips, with 236 trips (59 inbound and 177 outbound) occurring during the AM peak hour and 316 trips (199 inbound and 117 outbound) occurring during the PM peak hour.

Combined Total

Based on the ITE trip generation rates and reductions, it is estimated that the proposed project would generate a total of 10,265 daily trips, with 1,046 trips (759 inbound and 287 outbound) occurring during the AM peak hour and 1,155 trips (362 inbound and 793 outbound) occurring during the PM peak hour. The trip generation estimates for the proposed project are presented in Table 6.

Trip Distribution

The trip distribution patterns for project-generated traffic for each of the proposed land uses was estimated based on existing travel patterns on the surrounding roadway system, locations of complementary land uses, and use of the City of Morgan Hill Traffic Demand Forecasting (TDF) Model. The project trip distribution patterns for each land use are discussed below and shown graphically on Figure 8.

Light Industrial/Commercial Components

The distribution (or origin/destination) of project trips is typically determined based on the location of complimentary land uses and engineering judgement. However, due to the large size of the proposed light industrial uses of the project, the City's TDF model was used to assist in determining the distribution of auto trips associated with the proposed light industrial space. The TDF model considers the amount of housing and associated workers in the City to determine the extent to which trips would originate or be destined for areas outside of Morgan Hill. A site-specific trip assignment was extracted from the TDF model using the site-designated Traffic Analysis Zones (TAZs) to determine the external, or trips to and from areas outside of Morgan Hill, distribution of light industrial project trips. The TDF model distribution of light industrial trips indicates that approximately 47 percent of the trips generated by the light industrial uses of the project would originate or be bound for destinations outside of Morgan Hill. It was presumed that 100 percent of the truck traffic generated by the proposed light industrial space would originate and be bound for destinations outside of Morgan Hill and would utilize US 101.

Table 6
Project Trip Generation Estimates

Land Use	Classification	Size	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
						In	Out	In	Out	Total		In	Out	In	Out	Total
General Light Industrial (ITE LU # 110) ¹	All Vehicles	1,089,600 Square Feet	4.960	5,404	0.700	88%	12%	671	92	763	0.630	13%	87%	89	597	686
General Light Industrial	Auto Trips Only ²			5,156				640	88	728				85	570	655
General Light Industrial	Truck Trips Only ²			248				31	4	35				4	27	31
Shopping Center (ITE LU # 820) ¹		50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³				-38				0	0	0				-18	-20	-38
Total (General Light Industrial & Retail Uses)		1,139,600 Square Feet		7,254				700	110	810				163	676	839
Single-Family Detached Housing (ITE LU # 210) ¹		319 Dwelling Units ⁴	9.440	3,011	0.740	25%	75%	59	177	236	0.990	63%	37%	199	117	316
Total (All Land Uses)				10,265				759	287	1,046				362	793	1,155

Notes:

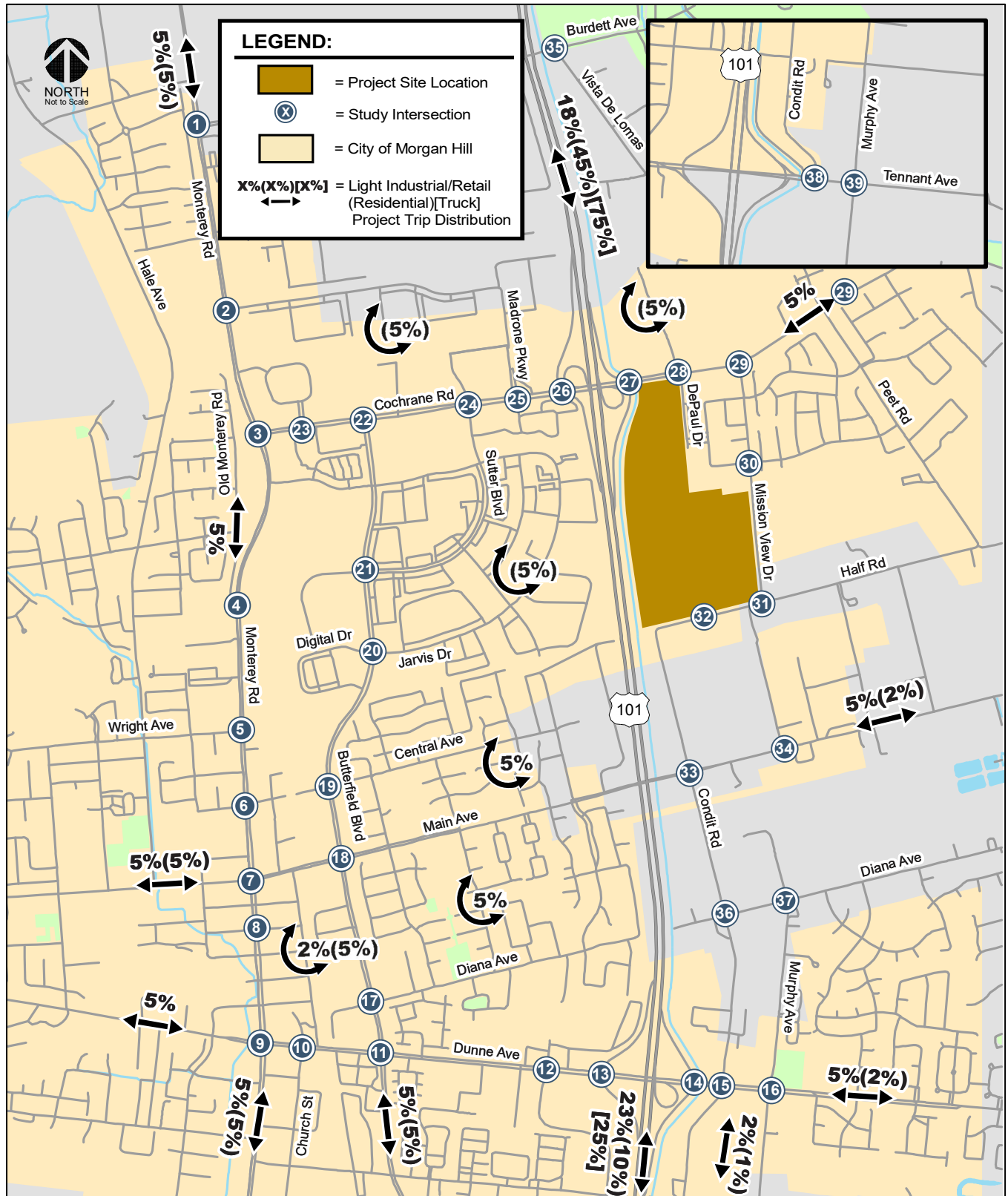
¹ITE Trip Generation Manual, 10th Edition 2017

²Assuming each of the 124 truck service doors would turn over once per day on average, truck trips would constitute 5 percent of the total daily trips. It was also assumed that the same percentage (approximately 5 percent) of the total estimated trips during the peak hours would be comprised of truck trips.

³A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill.

⁴Includes 60 courtyard homes, 115 townhomes, and 72 duet units (each duet = two dwelling units)

Figure 8
Project Trip Distribution



Residential Component

The TDF model trip distribution was reviewed for the project residential land uses. However, the TDF model was found to underestimate the amount of external trips for residential uses when considering the imbalance of jobs and housing within the City. Therefore, the trip distribution pattern for the residential component of the project was estimated based on existing travel patterns on the surrounding roadway system, locations of complementary land uses, and other trip distributions used in traffic studies for other residential developments in the City.

Trip Assignment

The peak-hour trips associated with each of the proposed project land use components were added to the transportation network in accordance with the distribution patterns discussed above. All truck traffic would originate and be bound for US 101 and utilize only Cochrane Road and DePaul Drive as their travel route. Figure 9 through 11 show the assignment of project traffic on the local transportation network. A tabular summary of project traffic at each study intersection is contained in Appendix B.

Existing Plus Project Traffic Volumes

Project trips for each of the land use components, as represented in the above project trip assignment, were added to the existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes are shown on Figures 12 and 13.

Existing Plus Project Intersection Analysis

The results of the level of service analysis under existing plus project conditions are summarized in Table 7. Level of service analysis under existing plus project conditions was completed for the development of only the light industrial/commercial land uses as well as buildout of all proposed project components.

The results show that the following three intersections would operate at unacceptable levels under existing plus project conditions during at least one peak hour.

- 28. Cochrane Road and De Paul Drive (Project Buildout Only - PM Peak Hour)
- 29. Cochrane Road and Mission View Drive (Both Development Scenarios - AM Peak Hour)
- 31. Mission View Drive and Half Road (unsignalized) (Both Development Scenarios - PM Peak Hour)

The Cochrane Road and De Paul Drive intersection is currently operating at an acceptable level of service (LOS B) during the PM peak hour under existing conditions. The addition of project traffic associated with buildout of the project would degrade the intersection level of service to LOS F during the PM peak hour. This constitutes a significant impact to the intersection based on the City's impact criteria.

The Cochrane Road and Mission View Drive intersection is currently operating at an acceptable level of service (LOS C) during the PM peak hour. The addition of project traffic would degrade the intersection level of service to LOS F under both development scenarios. This constitutes a significant impact to the intersection based on the City's impact criteria.

Figure 9
Commercial Component Project Trip Assignment

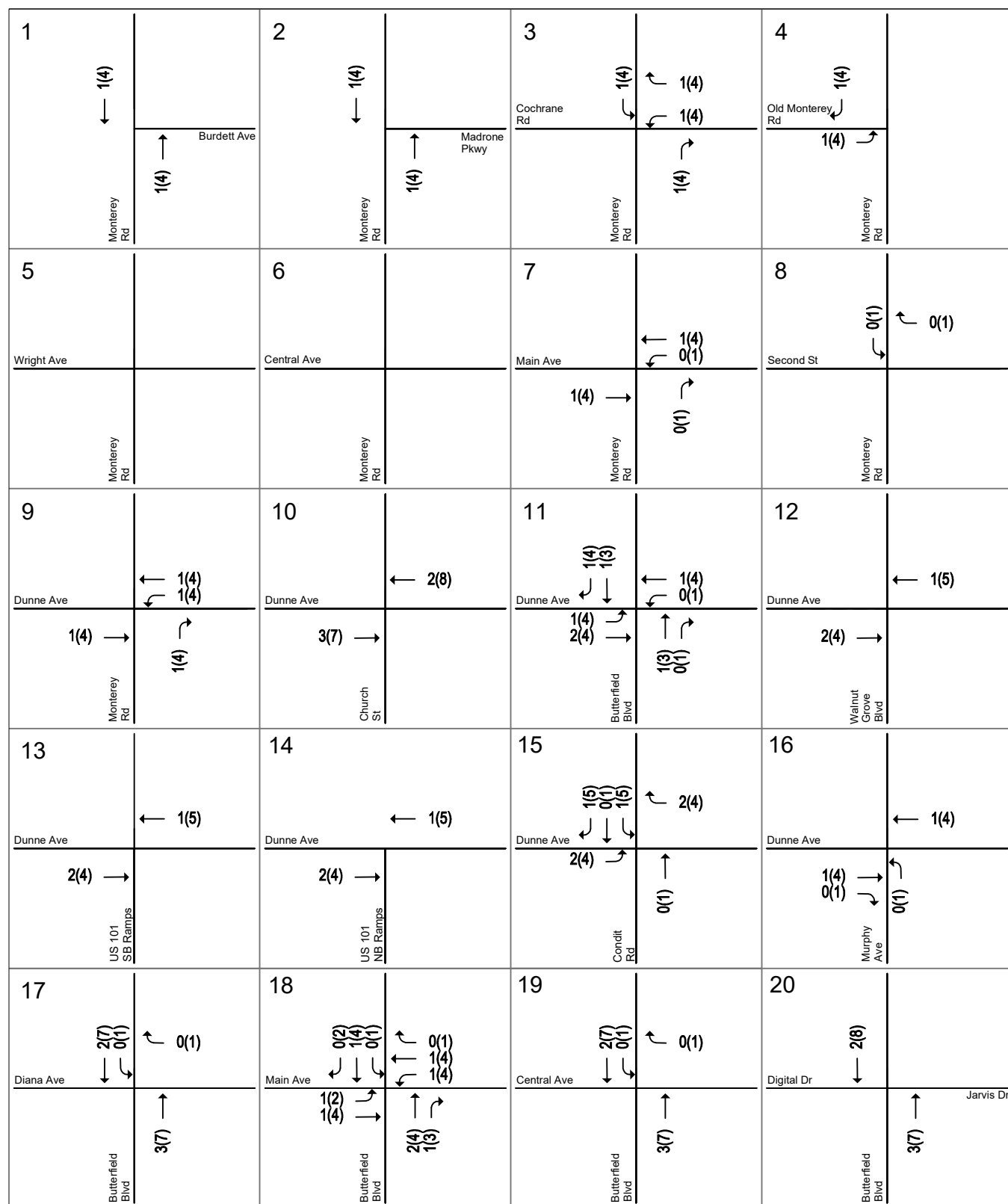
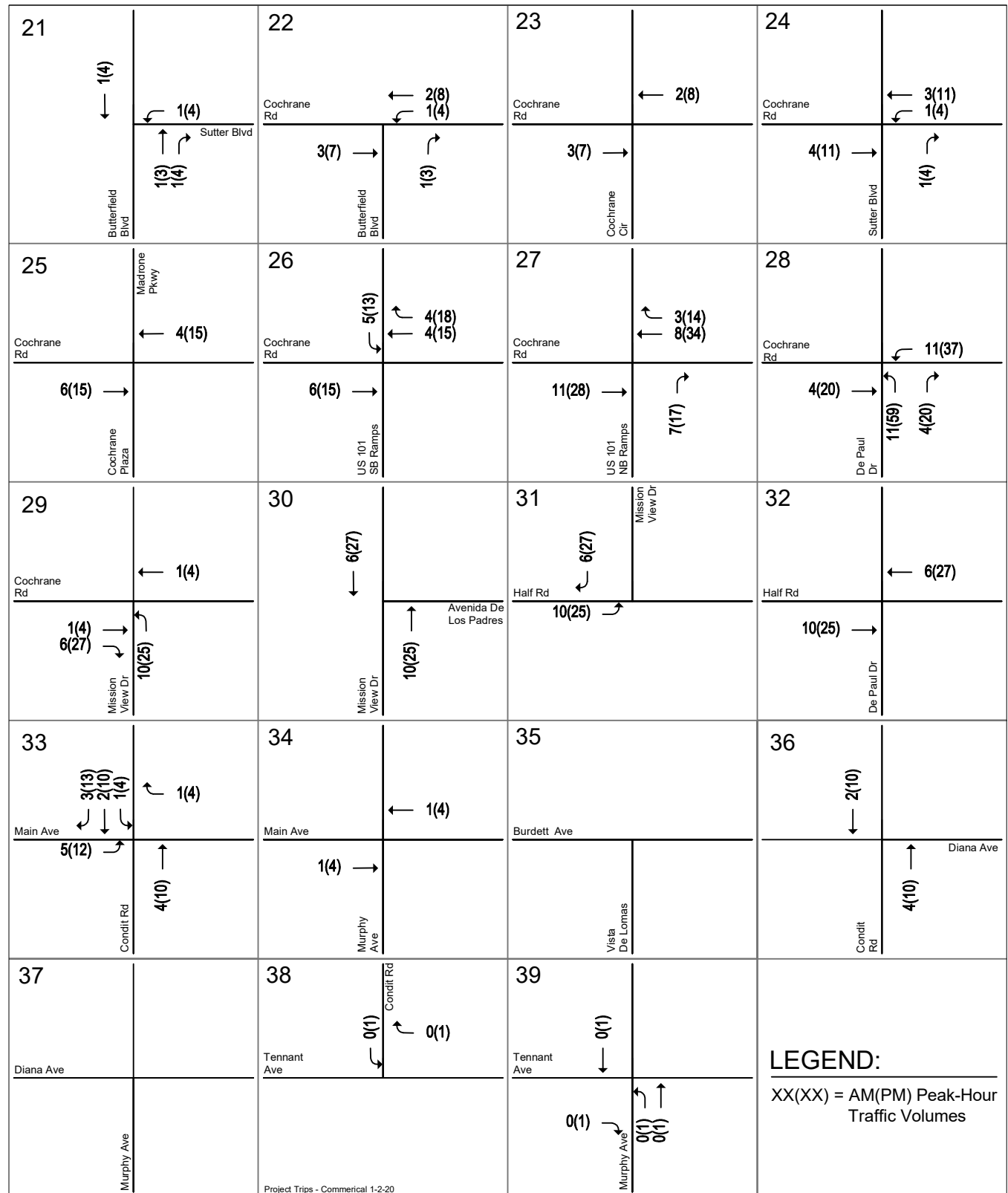


Figure 9 (Continued)
Commercial Component Project Trip Assignment



Project Trips - Commercial 1-2-20

Figure 10
Residential Component Project Trip Assignment

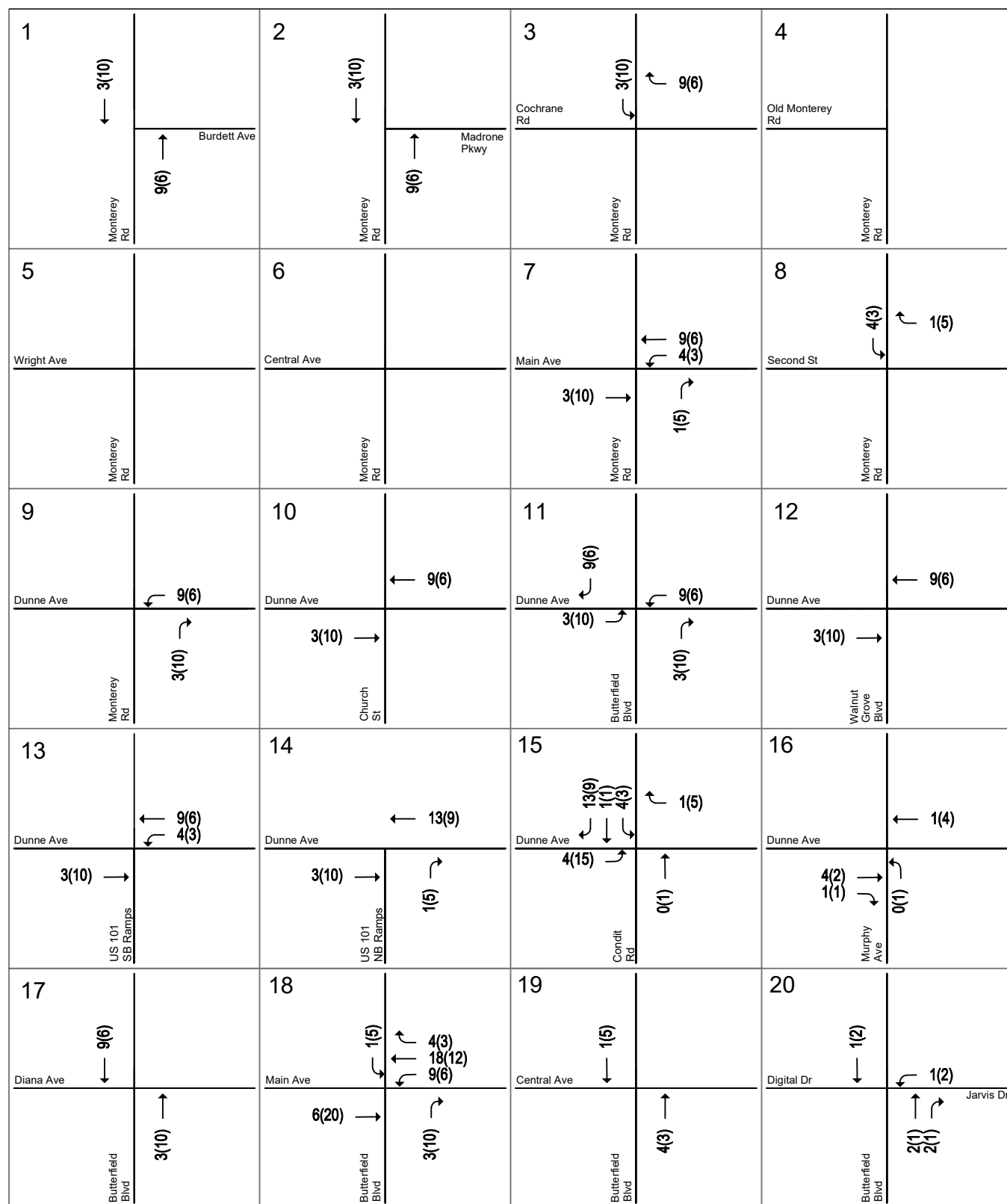
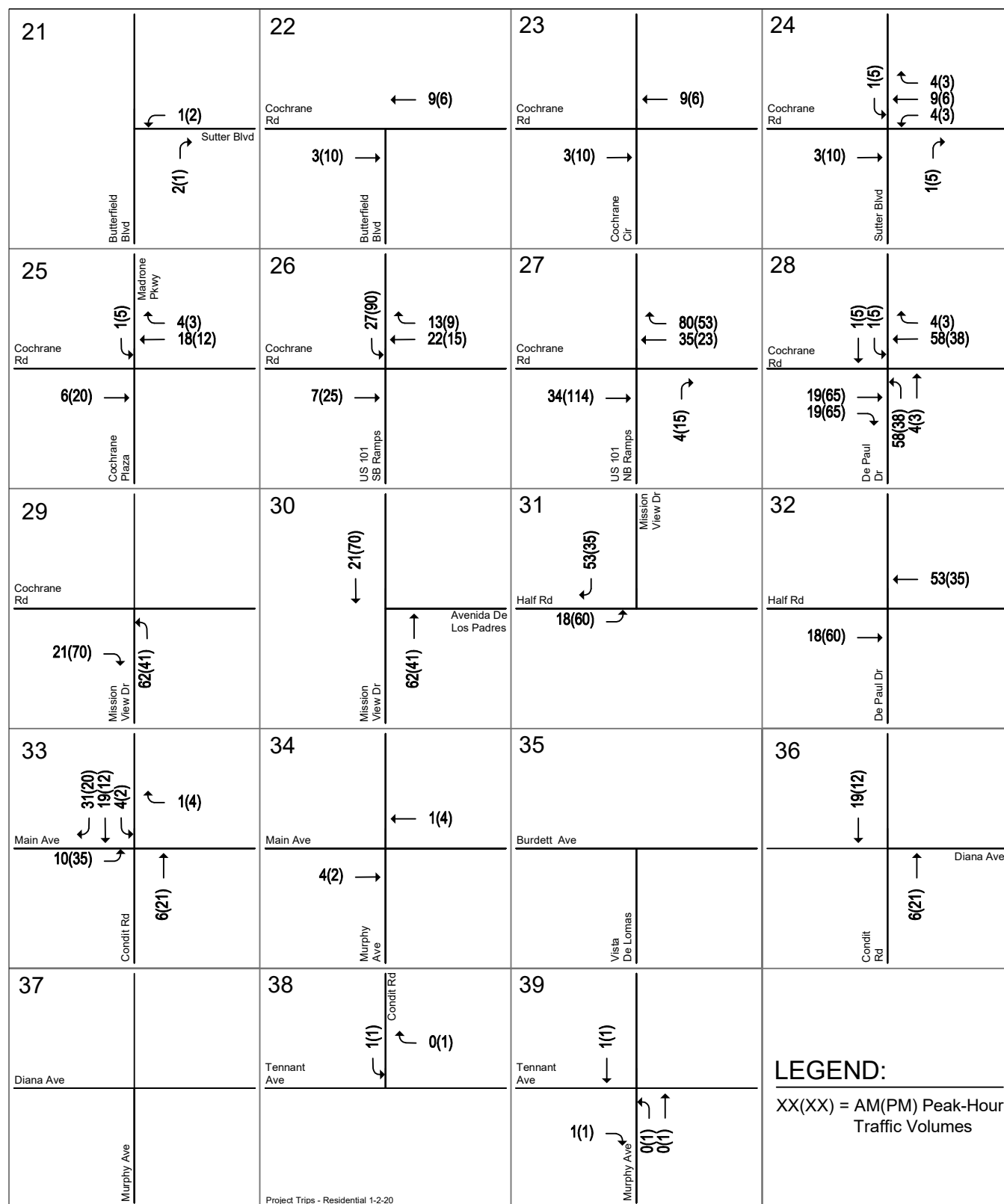


Figure 10 (Continued)
Residential Component Project Trip Assignment



Project Trips - Residential 1-2-20

Figure 11
Light Industrial Component Project Trip Assignment

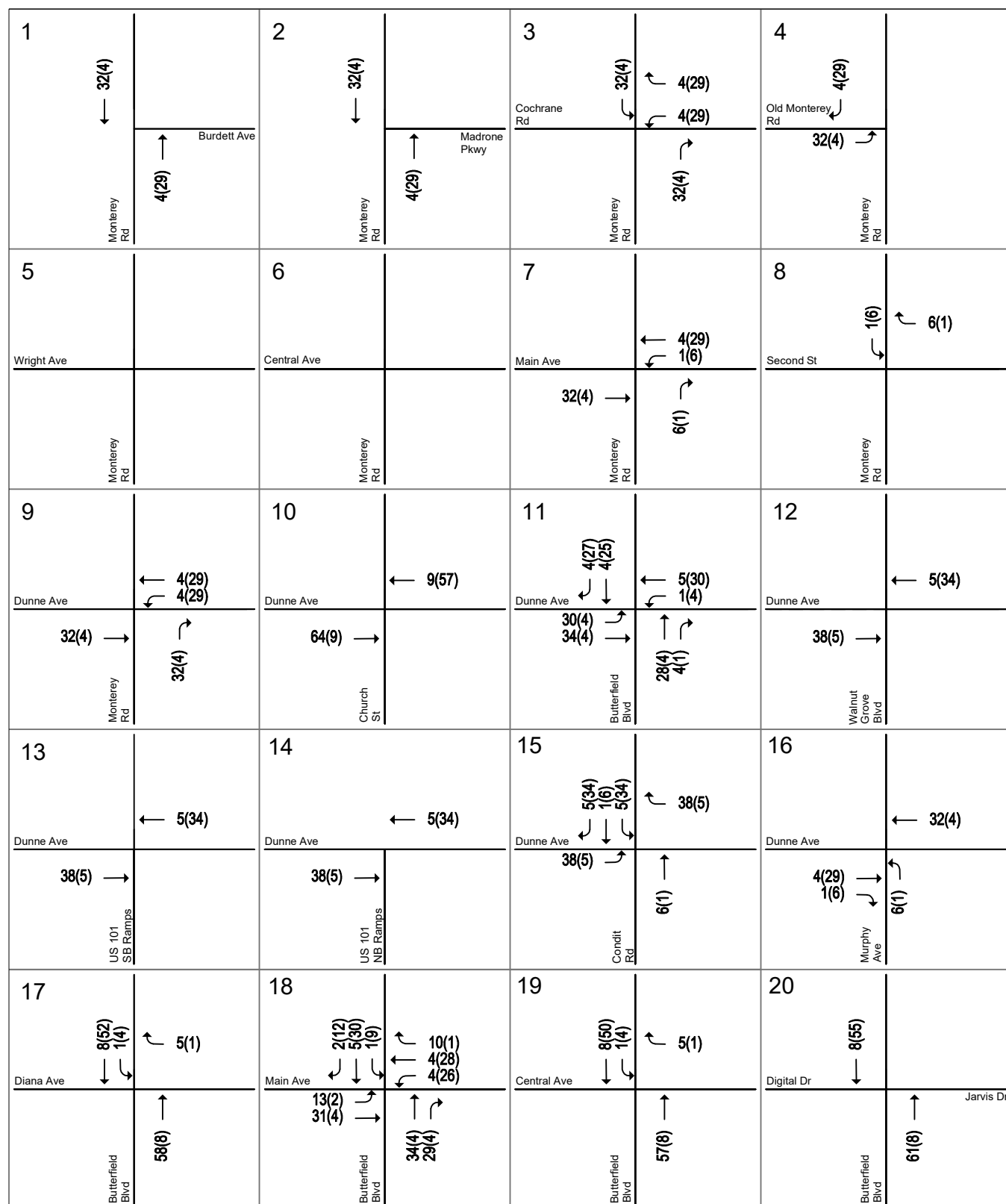


Figure 11 (Continued)
Light Industrial Component Project Trip Assignment

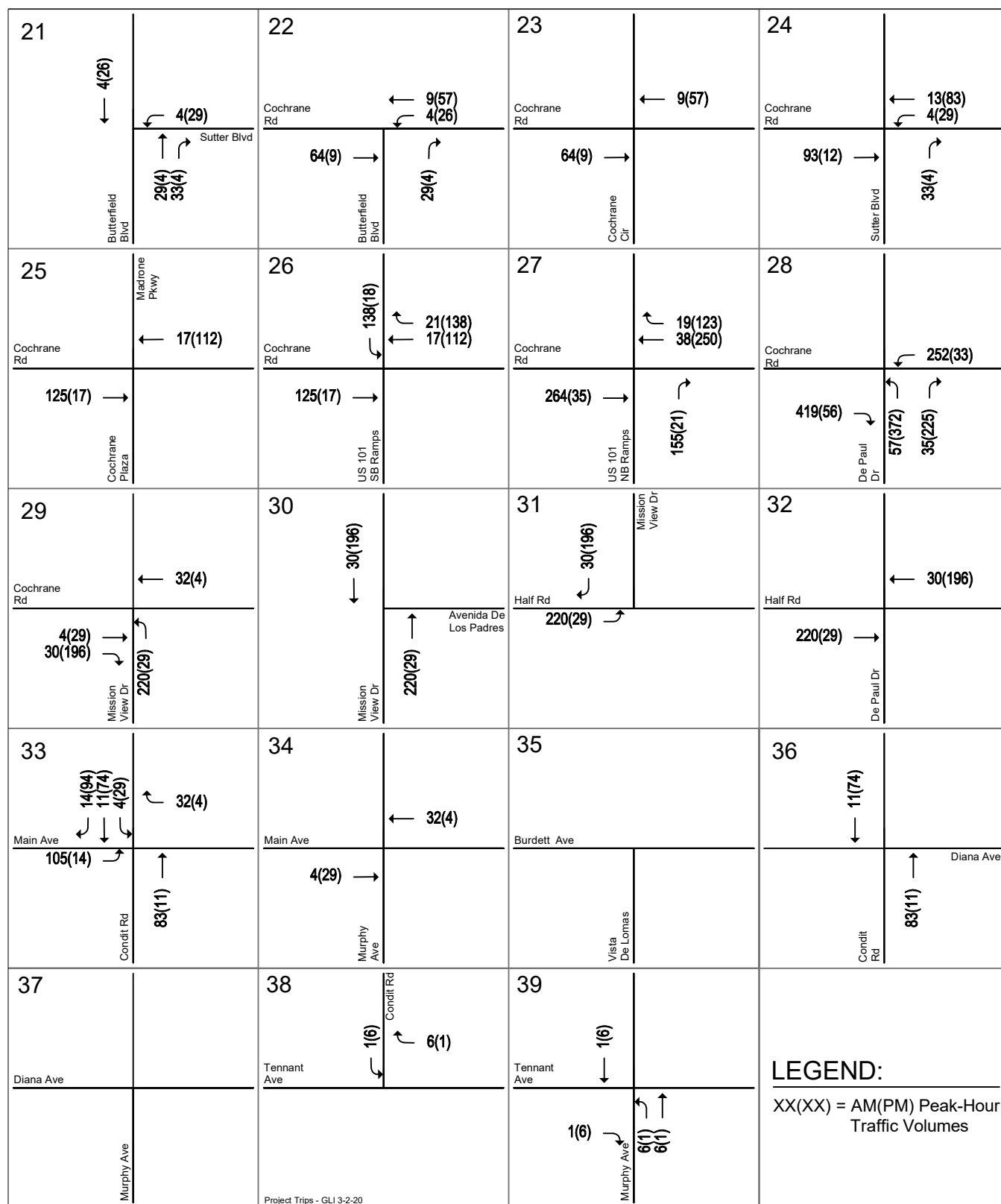


Figure 12
Existing Plus Commercial and Light Industrial Component Only Traffic Volumes

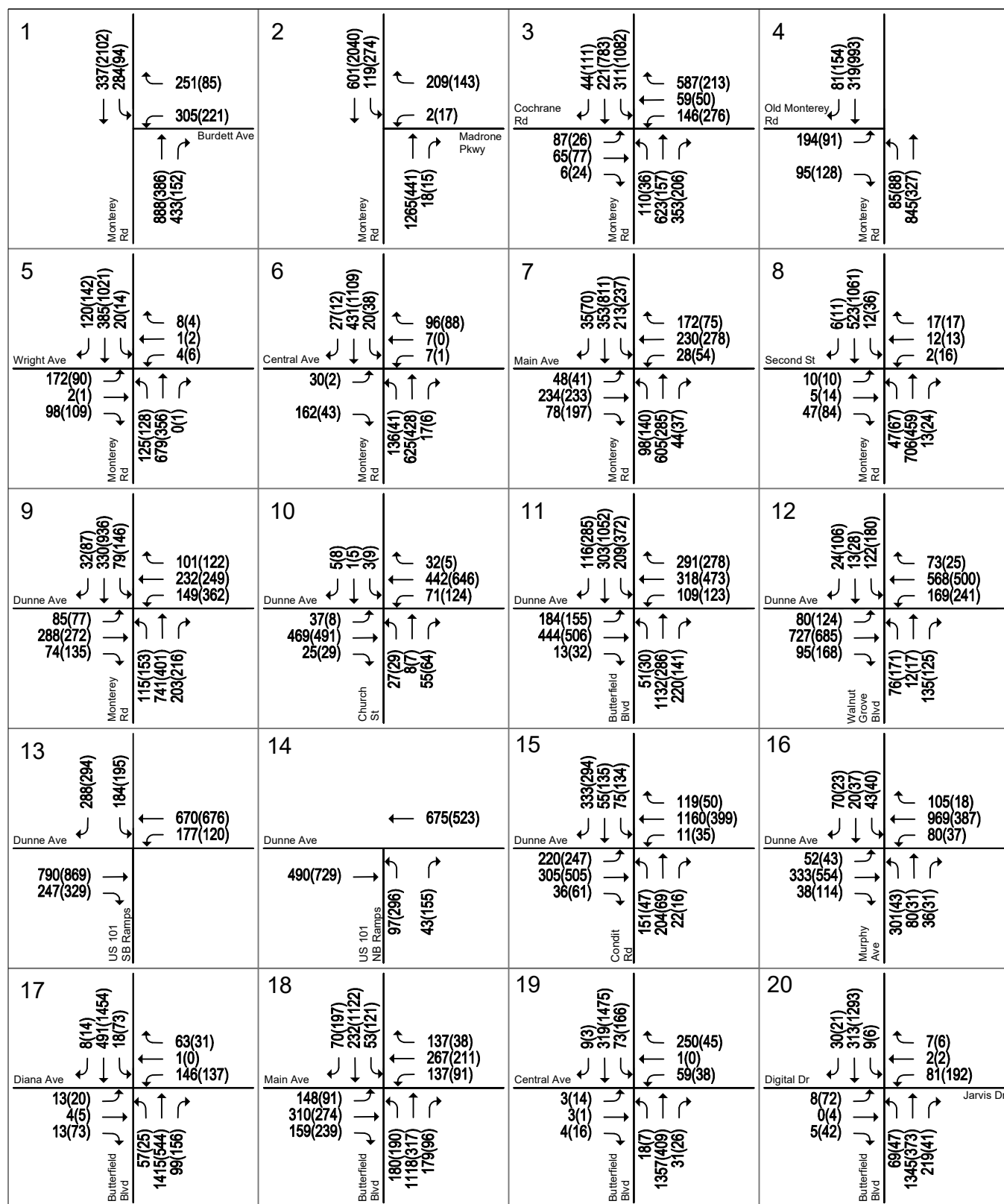
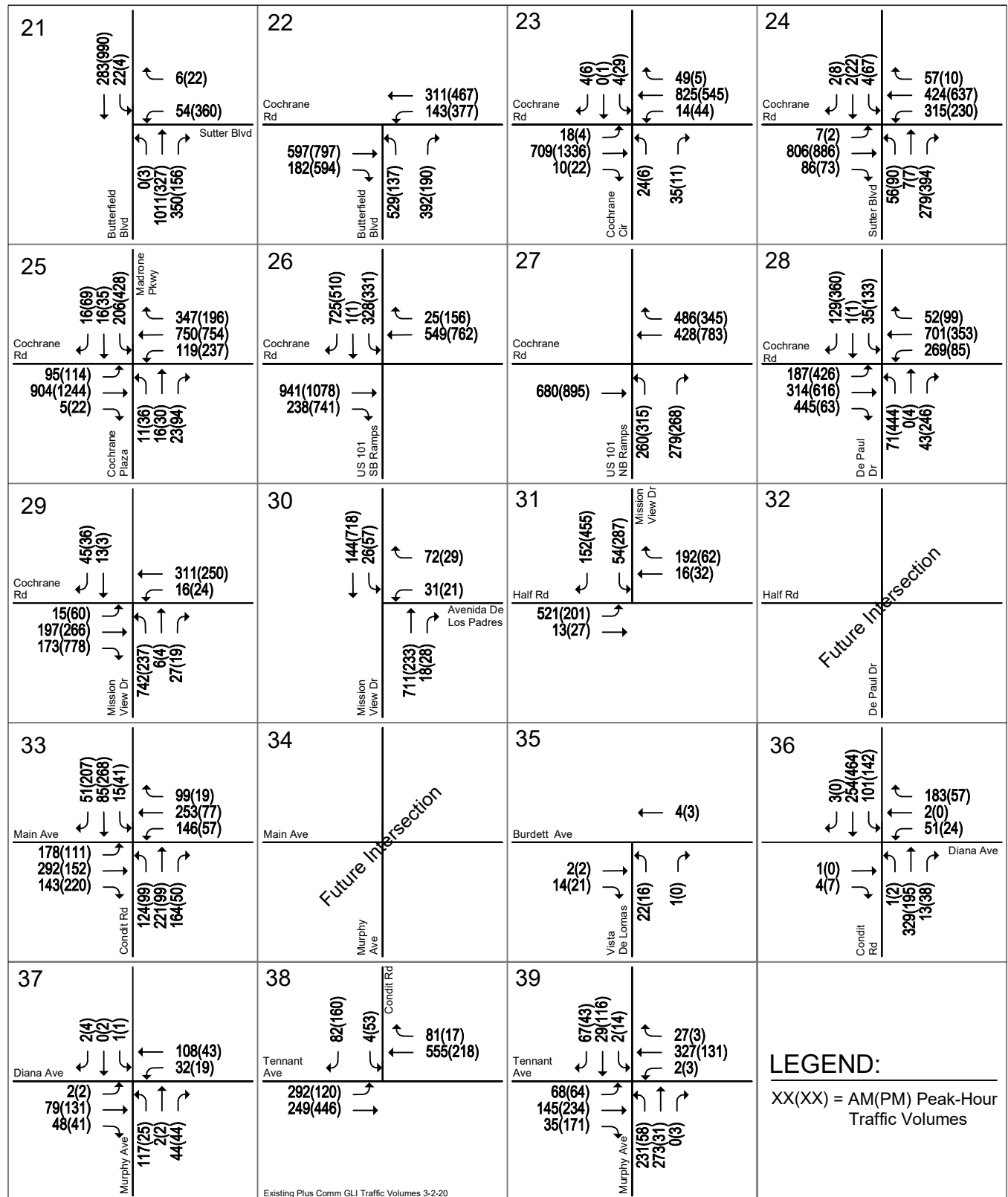


Figure 12 (Continued)
Existing Plus Commercial and Light Industrial Component Only Traffic Volumes



Existing Plus Comm GLI Traffic Volumes 3-2-20

Figure 13
Existing Plus Project Buildout Traffic Volumes

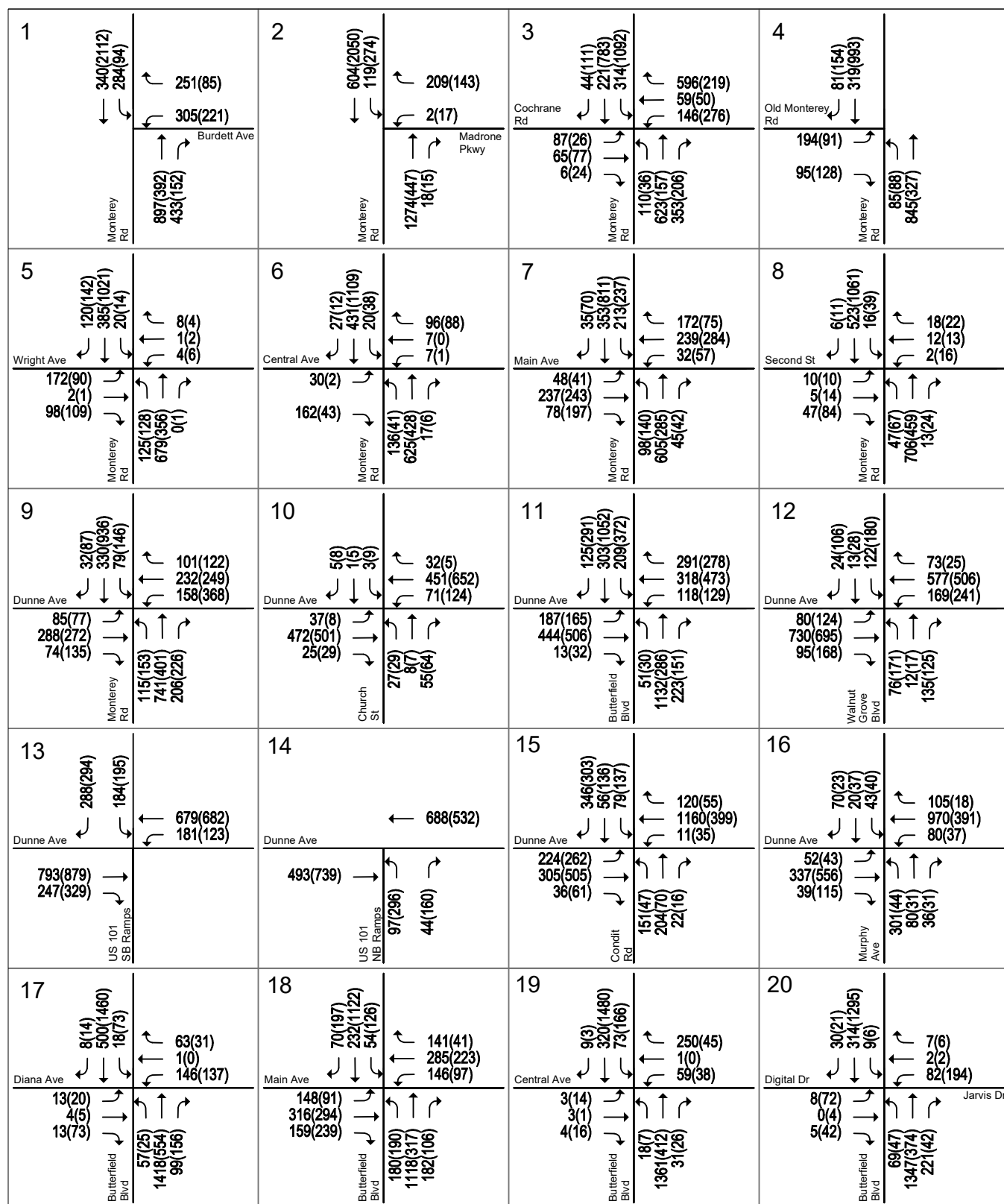
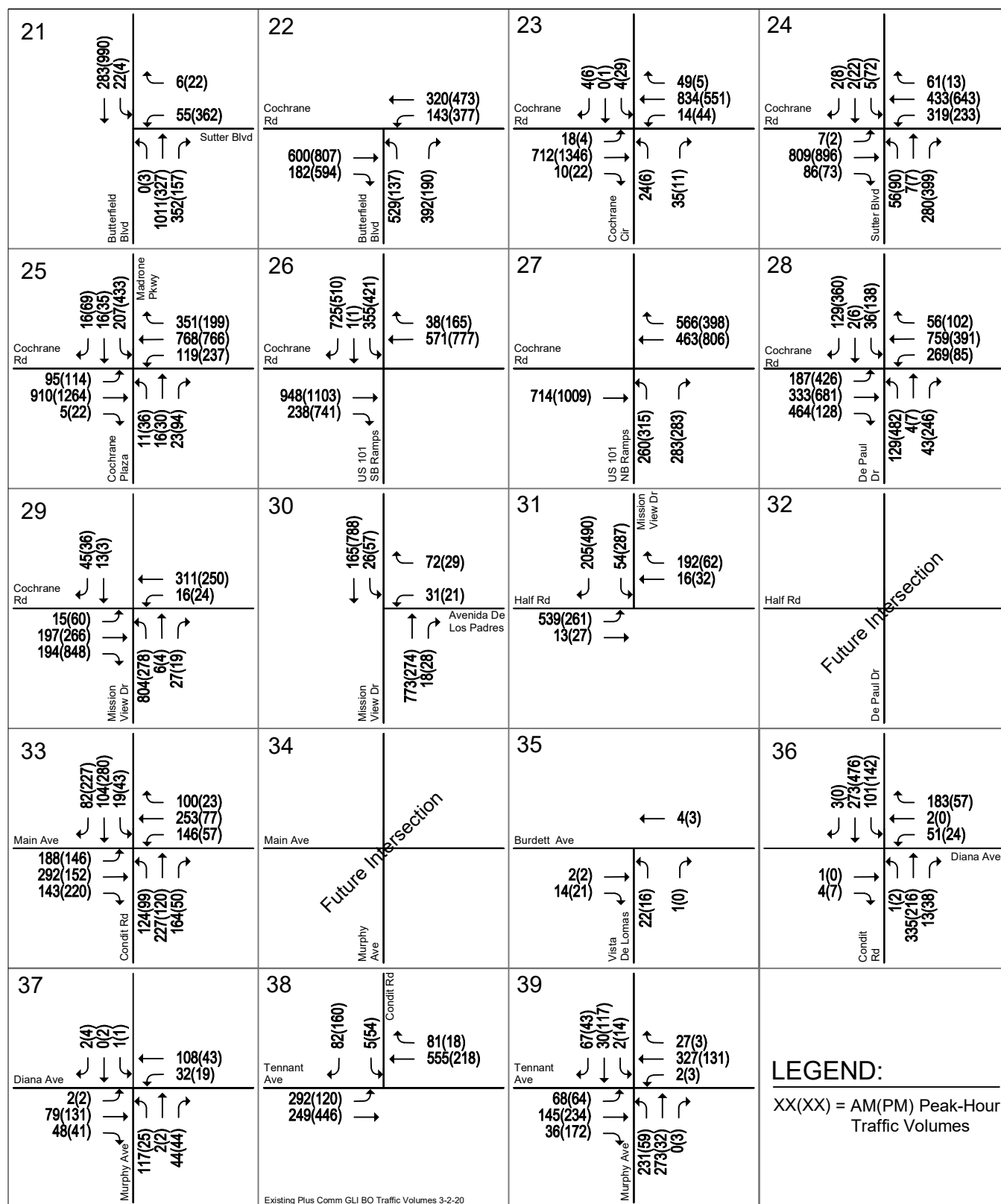


Figure 13 (Continued)
Existing Plus Project Buildout Traffic Volumes



Existing Plus Comm G/LI BO Traffic Volumes 3-2-20

Table 7
Existing Plus Project Intersection Levels of Service

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Existing + Project (Commercial & Light Industrial Components Only)										Existing + Project (Project Buildout)				
					Existing														
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Avg. Delay	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C		
1	Monterey Road and Burdett Avenue	Signal	D	AM	--	15.0	B	--	14.9	B	0.0	0.001	--	14.9	B	-0.1	0.004		
2	Monterey Road and Madrone Parkway	Signal	D	PM	--	9.7	A	--	9.8	A	0.0	0.002	--	9.8	A	0.1	0.005		
				AM	--	9.4	A	--	9.4	A	0.0	0.001	--	9.4	A	0.0	0.004		
3	Monterey Road and Cochrane Road	Signal	E	PM	--	9.8	A	--	9.9	A	0.1	0.002	--	10.0	B	0.2	0.006		
				AM	--	28.1	C	--	28.4	C	0.4	0.013	--	28.5	C	0.5	0.014		
4	Monterey Road and Old Monterey Road	Signal	D	PM	--	24.0	C	--	24.7	C	0.8	0.013	--	24.7	C	0.8	0.017		
				AM	--	10.4	B	--	10.9	B	0.3	0.012	--	10.9	B	0.3	0.012		
5	Monterey Road and Wright Avenue	Signal	D	PM	--	13.0	B	--	13.0	B	0.1	0.003	--	13.0	B	0.1	0.003		
				AM	--	19.1	B	--	19.1	B	0.0	0.000	--	19.1	B	0.0	0.000		
6	Monterey Road and Central Avenue	TWSC	D	PM	--	20.4	C	--	20.4	C	0.0	0.000	--	20.4	C	0.0	0.000		
				AM	No	19.5	C	No	19.5	C	N/A	N/A	No	19.5	C	N/A	N/A		
7	Monterey Road and Main Avenue	Signal	F	PM	No	15.7	C	No	15.7	C	N/A	N/A	No	15.7	C	N/A	N/A		
				AM	--	44.2	D	--	45.1	D	1.0	0.024	--	45.5	D	1.5	0.036		
8	Monterey Road and Second Street	Signal	F	PM	--	45.1	D	--	46.5	D	1.7	0.028	--	47.0	D	2.4	0.040		
				AM	--	10.6	B	--	10.6	B	0.0	0.001	--	10.7	B	0.1	0.003		
9	Monterey Road and East Dunne Avenue	Signal	E	PM	--	12.6	B	--	12.6	B	0.0	0.000	--	12.7	B	0.0	0.000		
				AM	--	28.9	C	--	29.0	C	0.1	0.002	--	29.1	C	0.1	0.003		
10	East Dunne Avenue and Church Street	Signal	E	PM	--	31.4	C	--	31.9	C	0.6	0.011	--	31.9	C	0.7	0.014		
				AM	--	17.8	B	--	17.7	B	-0.1	0.022	--	17.8	B	-0.1	0.024		
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	PM	--	19.9	B	--	19.3	B	-0.5	0.020	--	19.2	B	-0.6	0.022		
				AM	--	35.5	D	--	36.3	D	1.4	0.029	--	36.5	D	1.6	0.032		
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	PM	--	31.7	C	--	31.9	C	0.3	0.014	--	32.2	C	0.6	0.017		
				AM	--	18.4	B	--	18.4	B	0.0	0.013	--	18.4	B	0.0	0.015		
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	PM	--	28.5	C	--	28.3	C	-0.1	0.003	--	28.3	C	-0.1	0.006		
				AM	--	20.9	C	--	21.2	C	-0.2	-0.003	--	21.2	C	-0.2	0.000		
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	PM	--	18.8	B	--	18.8	B	0.0	0.000	--	18.8	B	0.1	0.002		
				AM	--	5.3	A	--	5.2	A	0.0	0.001	--	5.2	A	-0.1	0.006		
15	East Dunne Avenue and Condit Road	Signal	E	PM	--	11.8	B	--	11.5	B	-0.1	0.011	--	11.5	B	-0.1	0.014		
				AM	--	42.4	D	--	44.8	D	3.0	0.039	--	46.0	D	4.4	0.054		
16	East Dunne Avenue and Murphy Avenue	Signal	D	PM	--	28.2	C	--	28.5	C	0.4	0.035	--	28.6	C	0.7	0.052		
				AM	--	18.9	B	--	19.1	B	0.3	0.014	--	19.1	B	0.3	0.015		
17	Butterfield Boulevard and Diana Avenue	Signal	D	PM	--	11.8	B	--	11.7	B	-0.1	0.013	--	11.7	B	-0.1	0.015		
				AM	--	21.3	C	--	22.2	C	1.3	0.019	--	22.3	C	1.4	0.021		
18	Butterfield Boulevard and Main Avenue	Signal	D	PM	--	20.4	C	--	21.1	C	1.0	0.019	--	21.1	C	1.1	0.021		
				AM	--	27.6	C	--	28.3	C	1.2	0.032	--	28.8	C	2.0	0.045		
19	Butterfield Boulevard and East Central Avenue	Signal	D	PM	--	29.8	C	--	31.2	C	1.7	0.034	--	31.8	C	2.7	0.049		
				AM	--	17.1	B	--	17.2	B	0.2	0.020	--	17.2	B	0.1	0.022		
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	PM	--	11.0	B	--	11.1	B	0.1	0.017	--	11.1	B	0.2	0.018		
				AM	--	11.7	B	--	12.1	B	0.5	0.019	--	12.2	B	0.6	0.022		
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	PM	--	12.8	B	--	12.9	B	0.1	0.020	--	12.9	B	0.2	0.022		
				AM	--	6.7	A	--	6.7	A	0.1	0.012	--	6.7	A	0.1	0.013		
22	Butterfield Boulevard and Cochrane Road	Signal	D	PM	--	15.6	B	--	16.3	B	0.8	0.030	--	16.4	B	0.9	0.032		
				AM	--	12.3	B	--	12.5	B	0.1	0.015	--	12.5	B	0.2	0.016		
23	Cochrane Road and Cochrane Circle	Signal	D	PM	--	12.0	B	--	12.1	B	0.3	0.011	--	12.1	B	0.3	0.011		
				AM	--	10.5	B	--	10.4	B	0.0	0.003	--	10.4	B	0.0	0.006		
24	Cochrane Road and Sutter Boulevard	Signal	D	PM	--	10.9	B	--	11.1	B	0.1	0.005	--	11.1	B	0.1	0.008		
				AM	--	17.2	B	--	17.3	B	-0.1	0.022	--	17.3	B	0.0	0.026		
				PM	--	17.9	B	--	18.1	B	0.4	0.018	--	16.9	B	-2.0	-0.044		

Table 7 (Continued)
Existing Plus Project Intersection Levels of Service

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Existing			Existing + Project (Commercial & Light Industrial Components Only)					Existing + Project (Project Buildout)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Avg. Delay	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM	--	19.1	B	--	19.0	B	-3.0	-0.002	--	18.9	B	-3.1	0.005
				PM	--	31.4	C	--	30.9	C	-0.2	0.006	--	30.8	C	-0.2	0.012
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM	--	12.8	B	--	14.3	B	2.4	0.139	--	14.7	B	2.9	0.163
				PM	--	16.5	B	--	17.2	B	0.6	0.030	--	18.6	B	2.2	0.093
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM	--	8.6	A	--	10.8	B	2.0	0.161	--	10.7	B	2.9	0.221
				PM	--	11.3	B	--	12.0	B	0.5	0.044	--	11.9	B	0.8	0.086
28	Cochrane Road and De Paul Drive	Signal	E	AM	--	17.7	B	--	25.9	C	17.4	0.288	--	28.2	C	22.2	0.366
				PM	--	18.7	B	--	78.0	E	69.7	0.502	--	101.0	F	117.7	0.588
29	Cochrane Road and Mission View Drive	Signal	D	AM	--	23.0	C	--	69.1	E	72.8	0.160	--	94.6	F	112.6	0.212
				PM	--	15.7	B	--	22.8	C	11.8	0.159	--	30.0	C	22.2	0.209
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	No	13.5	B	No	17.7	C	N/A	N/A	No	19.8	C	N/A	N/A
				PM	No	12.5	B	No	15.3	C	N/A	N/A	No	17.0	C	N/A	N/A
31	Mission View Drive and Half Road	OWSC	D	AM	No	13.6	B	No	27.7	D	N/A	N/A	No	33.3	D	N/A	N/A
				PM	No	22.6	C	Yes	73.2	F	N/A	N/A	Yes	136.9	F	N/A	N/A
32	Half Road and De Paul Drive Extension	Future	D	AM	--	--	--	--	--	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--	--	--	--	--	--
33	Main Avenue and Condit Road	Signal	D	AM	--	27.6	C	--	31.1	C	3.3	0.074	--	34.2	C	6.6	0.121
				PM	--	26.1	C	--	35.0	D	10.2	0.168	--	39.3	D	15.2	0.205
34	Main Avenue and Murphy Avenue	Future	D	AM	--	--	--	--	--	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--	--	--	--	--	--
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
				PM	No	8.6	A	No	8.6	A	N/A	N/A	No	8.6	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	D	AM	Yes	14.7	B	Yes	16.9	C	N/A	N/A	Yes	17.5	C	N/A	N/A
				PM	No	13.6	B	No	14.9	B	N/A	N/A	No	15.4	C	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	No	11.4	B	No	11.4	B	N/A	N/A	No	11.4	B	N/A	N/A
				PM	No	9.9	A	No	9.9	A	N/A	N/A	No	9.9	A	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	Yes	14.7	B	Yes	15.2	C	N/A	N/A	Yes	15.7	C	N/A	N/A
				PM	Yes	14.6	B	Yes	15.3	C	N/A	N/A	Yes	15.4	C	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	Yes	21.3	C	Yes	22.5	C	N/A	N/A	Yes	22.8	C	N/A	N/A
				PM	No	11.9	B	No	12.2	B	N/A	N/A	No	12.2	B	N/A	N/A

Notes:

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.

Bold indicates unacceptable level of service or signal warrant met.

Bold and boxed indicate significant impact.

The signal warrant analysis indicates that the intersection of Mission View Drive and Half Road is projected to have traffic conditions that would meet the traffic signal warrant during the PM peak-hour under existing plus project conditions for both development scenarios. Therefore, based on the City's impact criteria and signal warrant analysis, both development scenarios would result in a significant impact at this intersection.

All other study intersections are projected to operate at acceptable levels of service under existing plus project conditions during each of the peak hours analyzed. The level of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Existing Plus Project Conditions Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under existing plus project conditions.

28. Cochrane Road and De Paul Drive

Impact: This intersection is currently operating at an acceptable level of service (LOS B) during the PM peak hour under existing conditions. The addition of project traffic associated with buildout of the project would degrade the intersection level of service to LOS F during the PM peak hour. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of an exclusive northbound left-turn lane and a separate eastbound right-turn lane. The addition of the northbound left-turn lane will require a signal modification (with split-phasing on the north and south approaches) and widening of the south approach (De Paul Drive) of the intersection by removing and reconstructing the curb and gutter along the project's frontage. The eastbound right-turn lane will require striping of the lane to the right of the existing bike lane along Cochrane Road. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under existing plus project buildout conditions.

29. Cochrane Road and Mission View Drive

Impact: This intersection is operating at an acceptable level of service (LOS C) during the AM peak hour under existing conditions. The addition of project traffic associated with both development scenarios would degrade the intersection level of service to LOS E or F. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of a second northbound left-turn lane on Mission View Drive and a cycle length adjustment. The addition of the second northbound left-turn lane will require lane striping and signal modification, but will fit within the existing curb-to-curb pavement width on Mission View Drive. Implementation of this improvement would improve the intersection's level of service to LOS B during the AM peak hour under existing plus project conditions for both development scenarios.

31. Mission View Drive and Half Road

Impact: This intersection is currently operating at an acceptable level of service (LOS C) during the PM peak hour. The addition of project traffic would degrade the intersection level of service to LOS F under both development scenarios. Additionally, the signal warrant analysis indicates that the intersection of Mission View Drive and Half Road is projected to have traffic conditions that would meet the traffic signal warrant during the PM peak-hour under existing plus project conditions for both development scenarios. Therefore, based on the City's impact criteria and signal warrant analysis, both development scenarios would result in a significant impact at this intersection.

Mitigation: The necessary improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. Implementation of a traffic signal at this location would improve the level of service to LOS B during both peak hours under existing plus project conditions for both development scenarios. The Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under existing plus project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Freeway Segment Analysis

The results of the CMP freeway level of service analysis under existing plus commercial and general light industrial components conditions and existing plus project buildout conditions are summarized in Table 8. Traffic volumes on the study freeway segments under existing plus project conditions were estimated by adding project trips for each project components to the existing volumes obtained from the 2018 CMP Monitoring and Conformance Report.

The results show that the same ten directional mixed-flow lanes and one directional HOV lane on the freeway segments analyzed that were shown to operate at an unacceptable LOS F during at least one peak hour under existing conditions would continue to operate at LOS F conditions with the addition of traffic due to both development scenarios.

Traffic associated with the light industrial and commercial components and the development of all proposed land uses of the project would result in an increase in traffic volumes of more than one percent of freeway capacity on six and ten of the directional mixed-flow lanes, respectively, and one directional HOV lane freeway segments currently operating at an unacceptable LOS F:

Mixed-Flow Freeway Segment Unacceptable LOS

- 2. US 101, Northbound from San Martin Avenue to Tennant Avenue (AM Peak Hour) – Impact under both development scenarios**
- 3. US 101, Northbound from Tennant Avenue to East Dunne Avenue (AM Peak Hour) – Impact under both development scenarios**
- 4. US 101, Northbound from East Dunne Avenue to Cochrane Road (AM Peak Hour) – Impact under both development scenarios**
- 5. US 101, Northbound from Cochrane Road to Coyote Creek Golf Drive (AM Peak Hour) – Impact under project buildout scenario only**
- 8. US 101, Southbound from SR 85 to Bailey Avenue (PM Peak Hour) – Impact under project buildout scenario only**

Table 8
Freeway Segment Levels of Service

														Existing Plus Project (Commercial & Light Industrial Components Only)										Project Trips						
														Mixed-Flow Lane					HOV Lane						Mixed-Flow Lane			HOV Lane		
#	Freeway Segment			Direction	Peak Hour	Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Total Volume	Volume	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity								
1	US 101	from Masten Avenue to San Martin Avenue		NB	AM	34.20	3	2,300	1,959	57	E	--	--	--	--	--	155	155	52	2.2	--	--								
				NB	PM	51.80	3	2,300	2,024	39	D	--	--	--	--	--	38	38	13	0.6	--	--								
2	US 101	from San Martin Avenue to Tennant Avenue		NB	AM	10.40	3	2,300	1,016	98	F	--	--	--	--	--	155	155	52	2.2	--	--								
				NB	PM	60.00	3	2,300	1,820	30	D	--	--	--	--	--	38	38	13	0.6	--	--								
3	US 101	from Tennant Avenue to East Dunne Avenue		NB	AM	9.40	3	2,300	951	101	F	--	--	--	--	--	155	155	52	2.2	--	--								
				NB	PM	59.80	3	2,300	1,831	31	D	--	--	--	--	--	38	38	13	0.6	--	--								
4	US 101	from East Dunne Avenue to Cochrane Road		NB	AM	21.00	3	2,300	1,554	74	F	--	--	--	--	--	155	155	52	2.2	--	--								
				NB	PM	61.60	3	2,300	1,712	28	D	--	--	--	--	--	38	38	13	0.6	--	--								
5	US 101	from Cochrane Road to Coyote Creek Golf Drive		NB	AM	22.20	3	2,300	1,462	66	F	71.41	1,650	816	11.0	B	19	16	5	0.2	3	0.2								
				NB	PM	64.20	3	2,300	1,489	23	C	72.66	1,650	640	9.0	A	137	119	40	1.7	18	1.1								
6	US 101	from Coyote Creek Golf Drive to Bailey Avenue		NB	AM	32.20	3	2,300	1,776	55	E	75.29	1,650	-- ²	-- ²	-- ²	19	19	6	0.3	0	0.0								
				NB	PM	64.00	3	2,300	1,539	24	C	76.15	1,650	-- ²	-- ²	-- ²	137	137	46	2.0	0	0.0								
7	US 101	from Bailey Avenue to SR 85		NB	AM	37.60	3	2,300	1,887	50	E	65.21	1,650	1,333	20.0	C	19	15	5	0.2	4	0.2								
				NB	PM	63.40	3	2,300	1,608	25	C	72.91	1,650	592	8.0	A	137	121	40	1.8	16	1.0								
8	US 101	from SR 85 to Bailey Avenue		SB	AM	62.40	3	2,300	1,729	28	D	73.82	1,650	399	5.0	A	138	128	43	1.9	10	0.6								
				SB	PM	16.00	3	2,300	1,197	75	F	39.99	1,650	1,763	44.0	D	32	21	7	0.3	11	0.7								
9	US 101	from Bailey Avenue to Coyote Creek Golf Drive		SB	AM	64.00	3	2,300	1,528	24	C	73.79	1,650	407	6.0	A	138	126	42	1.8	12	0.7								
				SB	PM	14.80	3	2,300	1,136	77	F	41.99	1,650	1,759	42.0	D	32	21	7	0.3	11	0.7								
10	US 101	from Coyote Creek Golf Drive to Cochrane Road		SB	AM	62.80	3	2,300	1,665	27	D	63.14	1,650	1,453	23.0	C	138	106	35	1.5	32	1.9								
				SB	PM	12.60	3	2,300	1,015	81	F	21.57	1,650	1,665	77.0	F	32	21	7	0.3	11	0.7								
11	US 101	from Cochrane Road to East Dunne Avenue		SB	AM	62.00	3	2,300	1,660	27	D	--	--	--	--	--	21	21	7	0.3	--	--								
				SB	PM	25.00	3	2,300	1,703	68	F	--	--	--	--	--	156	156	52	2.3	--	--								
12	US 101	from East Dunne Avenue to Tennant Avenue		SB	AM	63.00	3	2,300	1,558	25	C	--	--	--	--	--	21	21	7	0.3	--	--								
				SB	PM	27.00	3	2,300	1,768	65	F	--	--	--	--	--	156	156	52	2.3	--	--								
13	US 101	from Tennant Avenue to San Martin Avenue		SB	AM	63.00	3	2,300	1,558	25	C	--	--	--	--	--	21	21	7	0.3	--	--								
				SB	PM	25.40	3	2,300	1,717	68	F	--	--	--	--	--	156	156	52	2.3	--	--								
14	US 101	from San Martin Avenue to Masten Avenue		SB	AM	60.00	3	2,300	1,803	30	D	--	--	--	--	--	21	21	7	0.3	--	--								
				SB	PM	37.80	3	2,300	2,032	54	E	--	--	--	--	--	156	156	52	2.3	--	--								
Notes:																														
¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018.																														
² Speed exceeds the bound of the equation used to derive volume and density.																														
Bold indicates unacceptable LOS.																														

Table 8 (Continued)
Freeway Segment Levels of Service

#	Freeway Segment	Direction	Peak Hour	Existing Plus Project (Project Buildout)										Project Trips						
				Mixed-Flow Lane					HOV Lane					Total Volume	Mixed-Flow Lane			HOV Lane		
				Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)		LOS	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,972	58	E	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	51.80	3	2,300	2,043	39	D	--	--	--	--	--	57	57	19	0.8	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	1,029	99	F	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	60.00	3	2,300	1,839	31	D	--	--	--	--	--	57	57	19	0.8	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	964	103	F	--	--	--	--	--	168	168	56	2.4	--	--
		NB	PM	59.80	3	2,300	1,850	31	D	--	--	--	--	--	57	57	19	0.8	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,565	75	F	--	--	--	--	--	166	166	55	2.4	--	--
		NB	PM	61.60	3	2,300	1,726	28	D	--	--	--	--	--	52	52	17	0.8	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,532	69	F	71.41	1,650	829	12.0	B	102	86	29	1.2	16	1.0
		NB	PM	64.20	3	2,300	1,535	24	C	72.66	1,650	647	9.0	A	190	165	55	2.4	25	1.5
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,859	58	E	75.29	1,650	-- ²	-- ²	-- ²	102	102	34	1.5	0	0.0
		NB	PM	64.00	3	2,300	1,592	25	C	76.15	1,650	-- ²	-- ²	-- ²	190	190	63	2.8	0	0.0
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,954	52	E	65.21	1,650	1,349	21.0	C	102	82	27	1.2	20	1.2
		NB	PM	63.40	3	2,300	1,655	26	D	72.91	1,650	598	8.0	A	190	168	56	2.4	22	1.3
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,758	28	D	73.82	1,650	402	5.0	A	170	157	52	2.3	13	0.8
		SB	PM	16.00	3	2,300	1,257	79	F	39.99	1,650	1,792	45.0	D	121	81	27	1.2	40	2.4
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,557	24	C	73.79	1,650	410	6.0	A	170	155	52	2.2	15	0.9
		SB	PM	14.80	3	2,300	1,194	81	F	41.99	1,650	1,790	43.0	D	121	79	26	1.1	42	2.5
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,689	27	D	63.14	1,650	1,461	23.0	C	170	130	43	1.9	40	2.4
		SB	PM	12.60	3	2,300	1,072	85	F	21.57	1,650	1,697	79.0	F	121	78	26	1.1	43	2.6
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,678	27	D	--	--	--	--	--	39	39	13	0.6	--	--
		SB	PM	25.00	3	2,300	1,712	68	F	--	--	--	--	--	165	165	55	2.4	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,580	25	C	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	27.00	3	2,300	1,780	66	F	--	--	--	--	--	168	168	56	2.4	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,580	25	C	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	25.40	3	2,300	1,729	68	F	--	--	--	--	--	168	168	56	2.4	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,825	30	D	--	--	--	--	--	43	43	14	0.6	--	--
		SB	PM	37.80	3	2,300	2,044	54	E	--	--	--	--	--	168	168	56	2.4	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS. Boxed indicates significant impact.																				

- 9. US 101, Southbound from Bailey Avenue to Coyote Creek Golf Drive (PM Peak Hour) – Impact under project buildout scenario only**
- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only**
- 11. US 101, Southbound from Cochrane Road to East Dunne Avenue (PM Peak Hour) – Impact under both development scenarios**
- 12. US 101, Southbound from East Dunne Avenue to Tennant Avenue (PM Peak Hour) – Impact under both development scenarios**
- 13. US 101, Southbound from Tennant Avenue to San Martin Avenue (PM Peak Hour) – Impact under both development scenarios**

HOV Freeway Segment Unacceptable LOS

- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only**

Therefore, based on CMP impact criteria, the general light industrial/commercial components and buildout of all proposed land use components of the project would have a significant impact on six and ten study freeway segments, respectively.

Full mitigation of significant project impacts on freeway segments would require freeway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

4.

Year 2030 Cumulative Conditions

This chapter describes Year 2030 Cumulative traffic conditions without and with only the proposed light industrial/commercial component of the project. Since Year 2030 is reflective of an approximately 10-Year build timeline and there is no current development plan for the residential portion of the project, only the proposed light industrial/commercial project component is evaluated under Year 2030 Cumulative conditions. Year 2030 Cumulative conditions are comprised of forecasted traffic volumes and reflect estimated traffic growth in the City of Morgan Hill for the Year 2030. This chapter describes the procedure used to determine Year 2030 Cumulative traffic volumes and the resulting traffic conditions.

Year 2030 Cumulative Land Use and Traffic Forecasts

Year 2030 Cumulative traffic volumes were developed based on traffic forecasts produced for the City of Morgan Hill 2035 General Plan using the City's Traffic Demand Forecasting (TDF) model. The Year 2035 General Plan traffic forecasts include land use growth and transportation improvements associated with buildout of the City's General Plan. The 2035 General Plan forecasts also include trips associated with the adopted General Plan land uses for the light industrial/commercial portions of the project site that include 76,000 s.f. of research & development space, 33,000 s.f. of office space, and 44,000 s.f. of retail space. Therefore, the trips associated with the adopted General Plan land uses for the light industrial/commercial portions of the project site were removed from the projected Year 2035 traffic volumes. Hexagon prepared trip estimates for the adopted GP land uses which indicate that the proposed light industrial/commercial development plan are of greater intensity than those assumed in the General Plan. When compared with the land uses included in the City's General Plan, the proposed light industrial/commercial development plan would result in an additional 699 AM peak hour trips and 629 PM peak hour trips at the project site. The net new project trip generation under Year 2035 General Plan conditions are presented in Table 9.

The Year 2030 Cumulative no project traffic volumes were then estimated using a growth method that involved adding a proportion (15 Years or 75%) of the 2035 projected growth, with removal of the trips associated with the adopted General Plan land uses for the project, to existing traffic counts at each of the study intersections. Figure 14 shows the Year 2030 Cumulative No Project traffic volumes. Appendix B lists each of the components used to tabulate cumulative traffic volumes at each study intersection.

Table 9
General Plan 2035 Trip Generation Estimates (Proposed Commercial/Light Industrial Site Only)

Land Use	Classification	Size	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
						In	Out	In	Out	Total		In	Out	In	Out	Total
Proposed Land Uses																
General Light Industrial (ITE LU # 110) ¹	All Vehicles	1,089,600 Square Feet	4.960	5,404	0.700	88%	12%	671	92	763	0.630	13%	87%	89	597	686
General Light Industrial	Auto Trips Only ²			5,156				640	88	728				85	570	655
General Light Industrial	Truck Trips Only ²			248				31	4	35				4	27	31
Shopping Center (ITE LU # 820) ¹		50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³				-38				0	0	0				-18	-20	-38
Total (General Light Industrial & Retail Uses)		1,139,600 Square Feet		7,254				700	110	810				163	676	839
GP Land Uses																
Research and Development Center (ITE LU # 760) ¹		76,000 Square Feet	11.260	856	0.420	75%	25%	24	8	32	0.490	15%	85%	6	31	37
General Office Building (ITE LU # 710) ¹		33,000 Square Feet	9.740	321	1.160	86%	14%	33	5	38	1.150	16%	84%	6	32	38
Shopping Center (ITE LU # 820) ¹		44,000 Square Feet	37.750	1,661	0.940	62%	38%	25	16	41	3.810	48%	52%	81	87	168
20% Pass-by Reduction ³				-33				0	0	0				-16	-17	-33
Total				2,805				82	29	111				77	133	210
Difference (Proposed - GP Land Uses)				4,449				618	81	699				86	543	629
Notes: ¹ ITE Trip Generation Manual, 10 th Edition 2017 ² Assuming each of the 124 truck service doors would turn over once per day on average, truck trips would constitute 5 percent of the total daily trips. It was also assumed that the same percentage (approximately 5 percent) of the total estimated trips during the peak hours would be comprised of truck trips. ³ A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill.																

Figure 14
Year 2030 Cumulative No Project Traffic Volumes

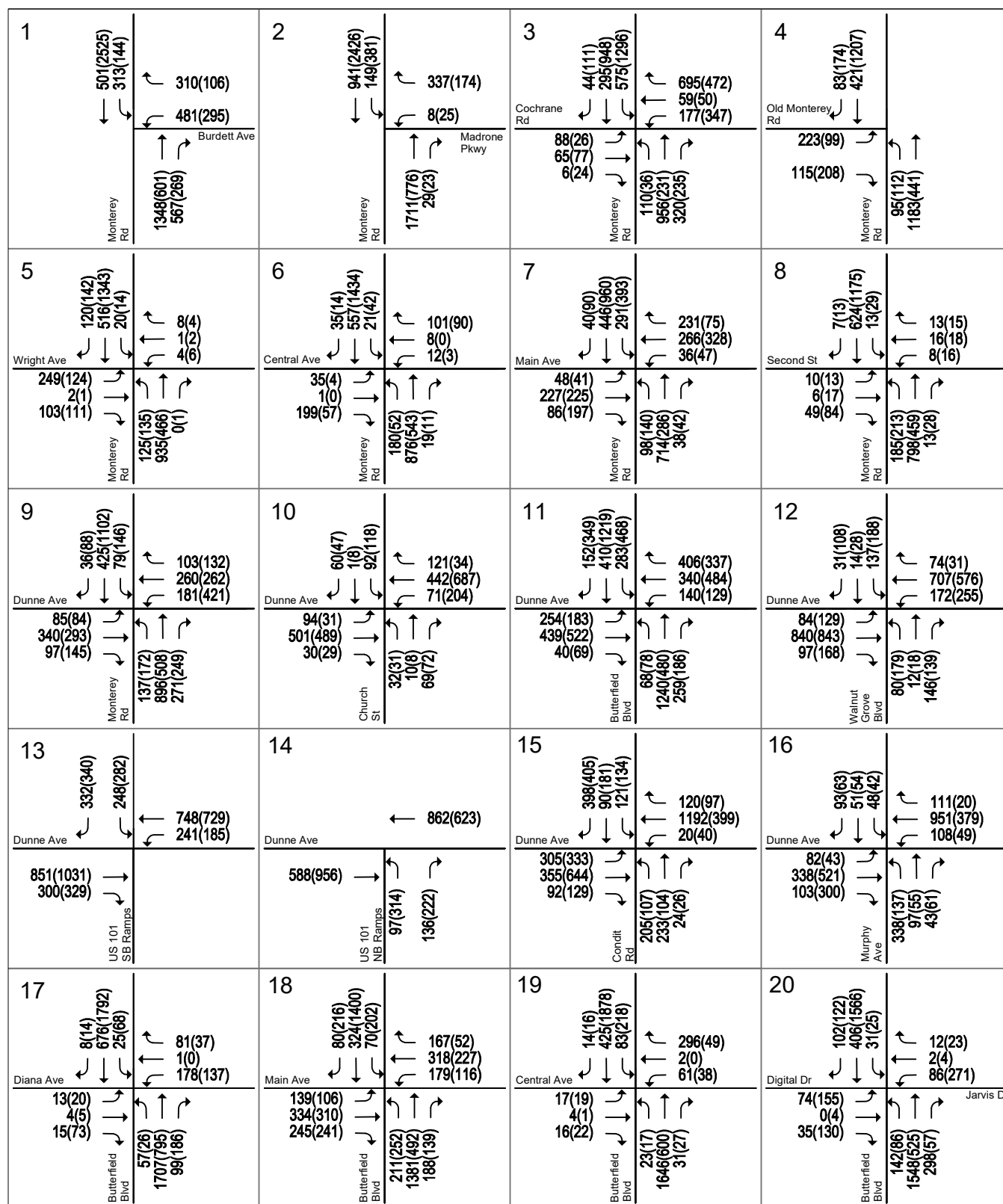
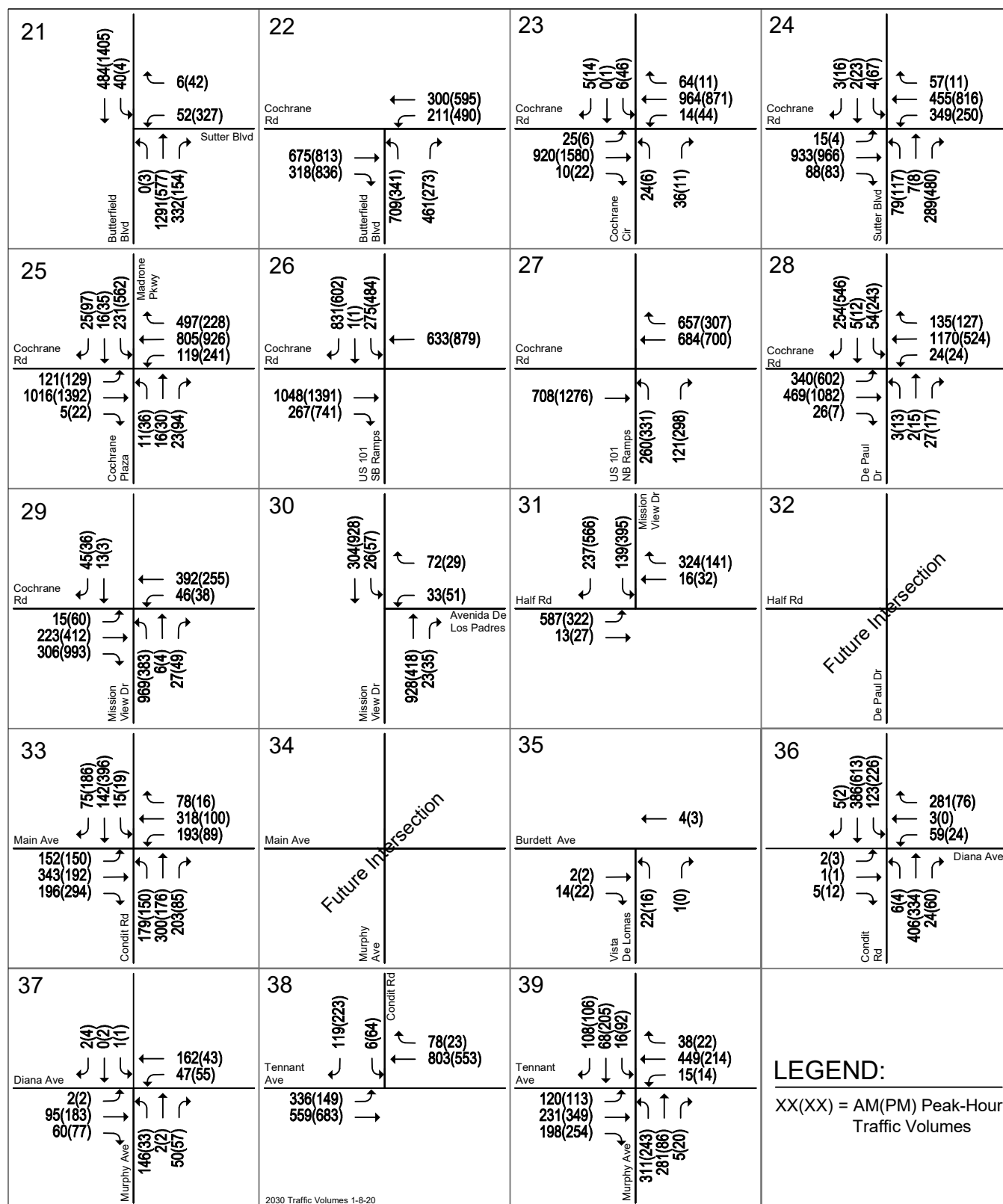


Figure 14 (Continued)
Year 2030 Cumulative No Project Traffic Volumes



2030 Traffic Volumes 1-8-20

Year 2030 Cumulative Transportation Network

It is assumed in this analysis that the roadway network and intersection configurations under Year 2030 Cumulative conditions would be the same as described under existing conditions with the exception of the recent installation of a traffic signal at the Mission View Drive and Cochrane Road intersection and the following improvements that would be constructed as part of the project:

Extension of DePaul Drive. As part of the development of the light industrial component of the project, DePaul Drive is proposed to be extended by approximately 2,280 feet south along the light industrial site's eastern frontage to provide direct access to the commercial/light industrial uses of the project via full access driveways. The extension also will provide access to the future residential component of the project. As proposed, DePaul Drive will terminate as a cul-de-sac just north of Half Road.

Year 2030 Project Trip Generation Estimates

The estimated project trips for the proposed light industrial/commercial development plan were added to Year 2030 Cumulative no project traffic volumes to represent Year 2030 Cumulative with project conditions. Figure 15 shows the Year 2030 Cumulative with project traffic volumes. Appendix B lists each of the components used to tabulate cumulative traffic volumes at each study intersection.

Intersection Levels of Service under Year 2030 Cumulative Conditions

The level of service results under Year 2030 Cumulative without and with only the general light industrial and commercial components of the project are summarized in Table 10. The results show that the following eight intersections would operate at unacceptable levels during Year 2030 Cumulative without and with only the general light industrial/commercial project components during at least one peak hour when measured against the City of Morgan Hill level of service standards:

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 29. Cochrane Road and Mission View Drive (AM and PM Peak Hours)
- 30. Mission View Drive and Avenida De Los Padres (unsignalized) (AM and PM Peak Hours)
- 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)
- 33. Main Avenue and Condit Road (AM & PM Peak Hours)
- 36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Additionally, the intersection level of service results show that one signalized study intersection, Cochrane Road and De Paul Drive, would deteriorate from an acceptable LOS B under existing conditions to an unacceptable LOS F during the PM peak hour under Year 2030 Cumulative with only the general light industrial/commercial project components.

The peak-hour traffic signal warrant checks indicate that of the above identified study intersections, the following intersections are projected to have traffic volumes under Year 2030 Cumulative without and with only the general light industrial/commercial project components that would meet thresholds that warrant signalization under at least one peak hour.

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 30. Mission View Drive and Avenida De Los Padres (unsignalized) (AM Peak Hour)
- 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)

Figure 15
Year 2030 Cumulative Plus Project Comm/Light Industrial Components Only Traffic Volumes

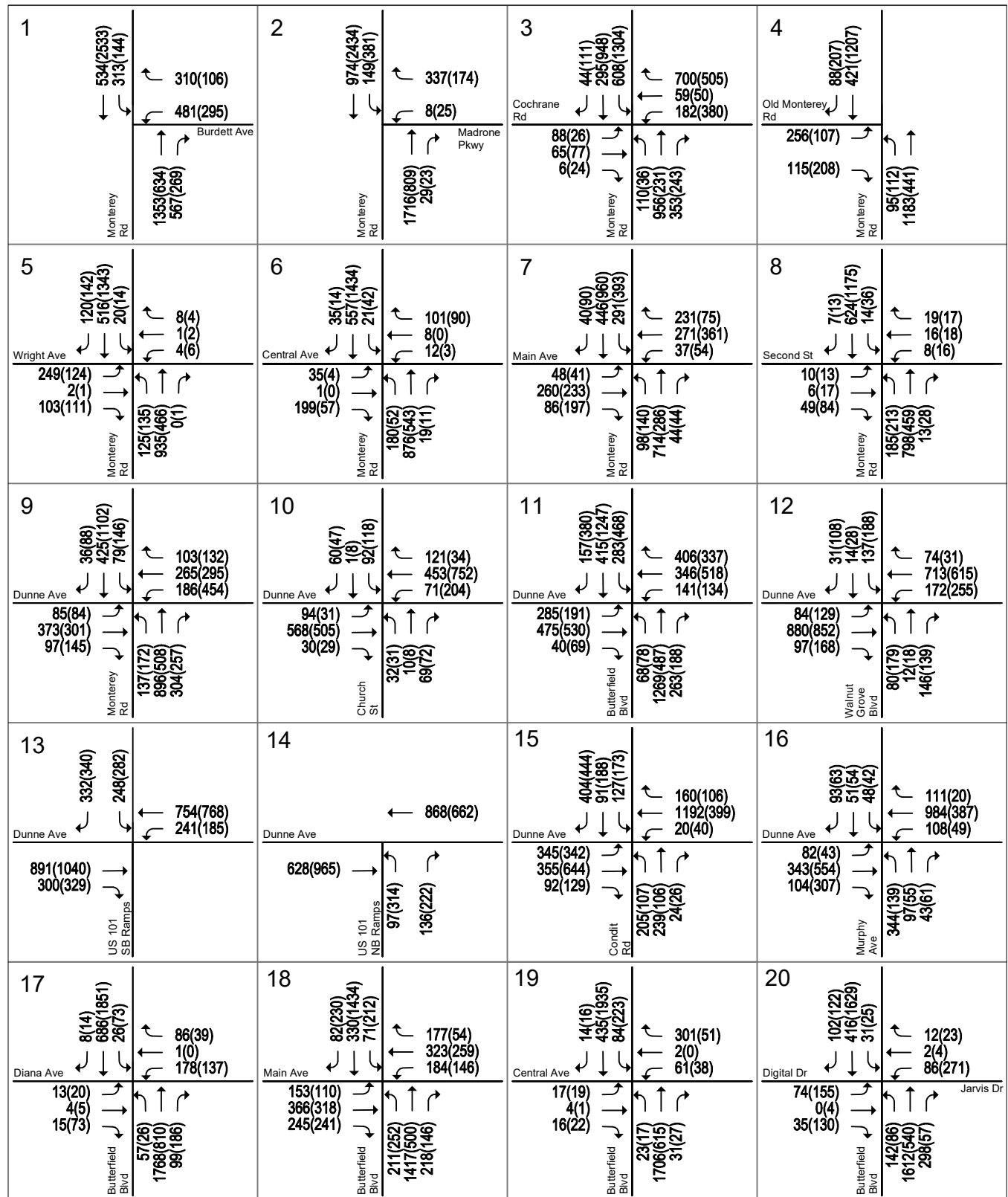
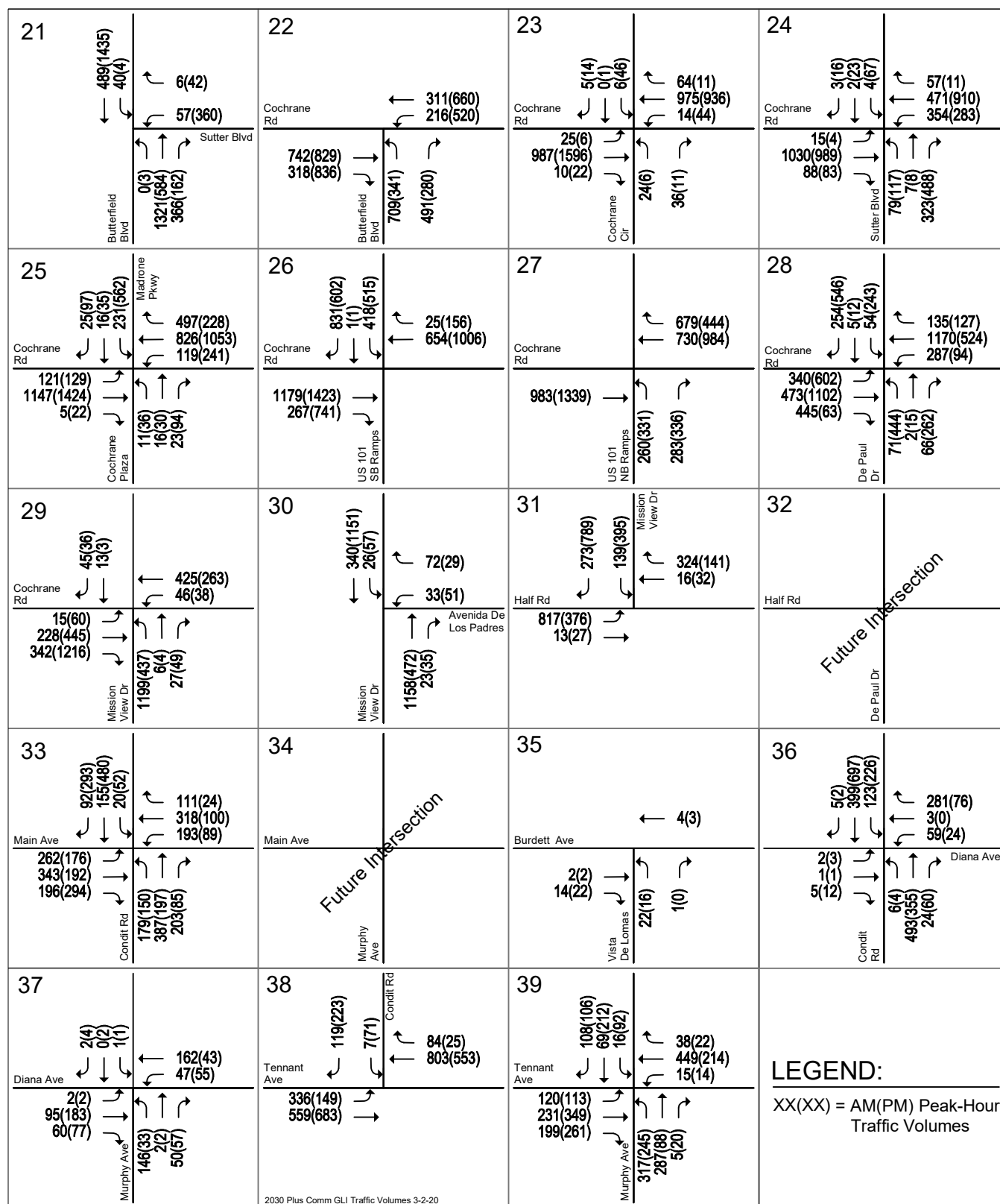


Figure 15 (Continued)
Year 2030 Cumulative Plus Project Comm/Light Industrial Components Only Traffic Volumes



2030 Plus Comm GLI Traffic Volumes 3-2-20

Table 10
Year 2030 Cumulative Intersection Levels of Service

Int. #	Intersection	Year 2030 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Light Industrial Components Only)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	D	AM PM	-- --	16.6 13.1	B B	-- --	16.5 13.1	B B	0.0 0.1	0.001 0.002
2	Monterey Road and Madrone Parkway	Signal	D	AM PM	-- --	12.2 15.8	B B	-- --	12.1 16.1	B B	0.1 0.3	0.002 0.002
3	Monterey Road and Cochrane Road	Signal	E	AM PM	-- --	30.3 26.9	C C	-- --	30.6 27.7	C C	0.5 0.9	0.013 0.013
4	Monterey Road and Old Monterey Road	Signal	D	AM PM	-- --	9.8 14.8	A B	-- --	10.1 14.8	B B	0.5 0.0	0.012 0.000
5	Monterey Road and Wright Avenue	Signal	D	AM PM	-- --	22.4 23.0	C C	-- --	22.4 23.0	C C	0.0 0.0	0.000 0.000
6	Monterey Road and Central Avenue	TWSC	D	AM PM	Yes No	67.0 27.0	F D	Yes No	67.0 27.0	F D	N/A N/A	N/A N/A
7	Monterey Road and Main Avenue	Signal	F	AM PM	-- --	47.8 49.1	D D	-- --	49.3 51.2	D D	1.8 2.5	0.026 0.028
8	Monterey Road and Second Street	Signal	F	AM PM	-- --	11.5 16.7	B B	-- --	11.5 16.7	B B	0.0 0.0	0.001 0.000
9	Monterey Road and East Dunne Avenue	Signal	E	AM PM	-- --	29.0 33.2	C C	-- --	29.2 33.7	C C	0.1 0.7	0.003 0.014
10	East Dunne Avenue and Church Street	Signal	E	AM PM	-- --	19.5 25.4	B C	-- --	19.8 24.7	B C	0.0 -0.5	0.004 0.020
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM PM	-- --	40.9 35.1	D D	-- --	42.5 35.5	D D	2.5 0.8	0.031 0.017
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM PM	-- --	18.9 27.8	B C	-- --	19.0 27.7	B C	0.2 0.0	0.014 0.003
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM PM	-- --	21.9 21.4	C C	-- --	22.0 21.3	C C	0.0 0.0	0.000 0.000
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM PM	-- --	6.2 11.3	A B	-- --	6.1 11.2	A B	0.0 -0.1	0.002 0.007
15	East Dunne Avenue and Condit Road	Signal	E	AM PM	-- --	64.8 32.8	E C	-- --	73.9 33.9	E C	11.5 1.7	0.042 0.035
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM PM	-- --	20.5 14.4	C B	-- --	20.8 14.3	C B	0.4 0.0	0.015 0.013
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM PM	-- --	37.5 35.0	D D	-- --	44.4 41.1	D D	9.5 9.1	0.020 0.019
18	Butterfield Boulevard and Main Avenue	Signal	D	AM PM	-- --	31.1 36.3	C D	-- --	32.5 38.6	C D	2.5 3.6	0.035 0.034
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM PM	-- --	19.3 12.6	B B	-- --	19.6 12.8	B B	0.5 0.3	0.021 0.017
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM PM	-- --	16.0 17.8	B B	-- --	17.4 18.5	B B	2.0 1.0	0.020 0.020
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM PM	-- --	7.4 16.3	A B	-- --	7.5 17.4	A B	0.2 1.4	0.013 0.030
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM PM	-- --	12.8 14.8	B B	-- --	13.0 14.9	B B	0.2 0.5	0.016 0.011
23	Cochrane Road and Cochrane Circle	Signal	D	AM PM	-- --	10.4 12.2	B B	-- --	10.4 12.2	B B	0.0 0.2	0.003 0.005
24	Cochrane Road and Sutter Boulevard	Signal	D	AM PM	-- --	17.8 17.9	B B	-- --	18.0 18.3	B B	0.1 0.5	0.023 0.032
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM PM	-- --	19.1 32.3	B C	-- --	19.0 31.9	B C	0.0 0.4	0.000 0.024
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM PM	-- --	14.5 22.2	B C	-- --	18.5 24.2	B C	6.8 2.9	0.144 0.030
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM PM	-- --	7.5 11.6	A B	-- --	10.4 12.3	B B	4.2 0.8	0.169 0.038
28	Cochrane Road and De Paul Drive	Signal	E	AM PM	-- --	26.0 23.3	C C	-- --	31.4 133.7	C F	8.0 172.5	0.104 0.579
29	Cochrane Road and Mission View Drive	Signal	D	AM PM	-- --	148.0 58.1	F E	-- --	243.5 125.3	F F	143.4 98.4	0.168 0.159
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM PM	No No	28.6 37.6	D E	Yes No	48.8 68.5	E F	N/A N/A	N/A N/A
31	Mission View Drive and Half Road	OWSC	D	AM PM	Yes Yes	OVFL OVFL	F F	Yes Yes	OVFL OVFL	F F	N/A N/A	N/A N/A
32	Half Road and De Paul Drive Extension	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
33	Main Avenue and Condit Road	Signal	D	AM PM	-- --	51.5 79.8	D E	-- --	75.6 138.8	E F	21.4 69.7	0.081 0.168
34	Main Avenue and Murphy Avenue	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM PM	No No	8.6 8.6	A A	No No	8.6 8.6	A A	N/A N/A	N/A N/A

Table 10 (Continued)
Year 2030 Cumulative Intersection Levels of Service

Int. #	Intersection	Year 2030 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Light Industrial Components Only)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
36	Condit Road and Diana Avenue	TWSC	D	AM	Yes	36.8	E	Yes	56.8	F	N/A	N/A
				PM	Yes	26.9	D	Yes	32.3	D	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	No	13.5	B	No	13.5	B	N/A	N/A
				PM	No	11.0	B	No	11.0	B	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	Yes	30.5	D	Yes	33.1	D	N/A	N/A
				PM	Yes	89.1	F	Yes	105.7	F	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	Yes	127.6	F	Yes	132.8	F	N/A	N/A
				PM	Yes	117.8	F	Yes	122.9	F	N/A	N/A

Notes:
¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
 Bold indicates unacceptable level of service or signal warrant met.
 Bold and boxed indicate significant impact.
 OVFL = Overflow (delay is greater than 250 seconds)

36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Based on the City's impact criteria and signal warrant analysis, the proposed commercial and general light industrial components of the project would result in a significant impact at the following eight study intersections.

28. De Paul Drive and Cochrane Road (PM Peak Hour)
 29. Mission View Drive and Cochrane Road (AM and PM Peak Hours)
 30. Mission View Drive and Avenida De Los Padres (unsignalized) (AM Peak Hour)
 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)
 33. Condit Road and Main Avenue (AM & PM Peak Hours)
 36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The project would not have an impact the intersection of Monterey Road and Central Avenue because the proposed commercial and general light industrial components of the project would not add any trips to this intersection during the AM peak hour under Year 2030 with project conditions.

All other study intersections are projected to operate at acceptable levels of service under Year 2030 Cumulative without and with the light industrial and commercial components of the project, during each of the peak hours analyzed. The level of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Year 2030 Cumulative Conditions Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under Year 2030 Cumulative conditions.

28. Cochrane Road and De Paul Drive

- Impact:** This intersection is projected to operate at an acceptable level of service (LOS C) during the PM peak hour under Year 2030 Cumulative no project conditions. Traffic associated with the general light industrial/commercial components of the project would degrade the intersection level of service to LOS F. This constitutes a significant impact to the intersection based on the City's impact criteria.
- Mitigation:** The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of the improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project.

29. Cochrane Road and Mission View Drive

- Impact:** This intersection is projected to operate at an unacceptable level of service (LOS E or worse) during the both peak hours under Year 2030 Cumulative no project conditions. Traffic associated with the proposed general light industrial/commercial components of the project site would cause the critical delay to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01 during both peak hours. This constitutes a significant impact to the intersection based on the City's impact criteria.
- Mitigation:** The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project.

30. Mission View Drive and Avenida De Los Padres

- Impact:** This intersection is projected to operate at an acceptable level of service (LOS D) during the AM peak hour under Year 2030 Cumulative conditions without the project. Traffic associated with the general light industrial/commercial components of the project would degrade the intersection level of service to LOS E during the same peak hour. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes that meet thresholds that warrant signalization under Year 2030 Cumulative conditions with the general light industrial/commercial components of the project. This constitutes a significant impact to the intersection based on the City's impact criteria.
- Mitigation:** Implementation of a traffic signal at this location would improve the level of service to LOS B during the AM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

31. Mission View Drive and Half Road

- Impact:** This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2030 Cumulative conditions without and with the

general light industrial/commercial components of project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes that meet thresholds that warrant signalization under Year 2030 Cumulative conditions without and with the general light industrial/commercial components of the project. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: As discussed under existing plus project conditions, the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under Year 2030 conditions. Implementation of a traffic signal at this location would improve the level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E) during the PM peak hour under Year 2030 Cumulative no project conditions. Traffic associated with the proposed general light industrial/commercial components of the project site would cause the critical delay to increase by more than 4 seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01. Additionally, this intersection is projected to operate at an acceptable LOS D during the AM peak hour under Year 2030 Cumulative no project conditions. The proposed general light industrial/commercial components of the project site would cause the level of service to degrade to an unacceptable LOS E during the AM peak hour. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road and an exclusive eastbound right-turn lane on Main Avenue. The addition of the right-turn lanes will require signal modifications and lane striping on the southbound and eastbound approaches. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

36. Condit Road and Diana Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E or F) during the AM peak hour under Year 2030 Cumulative conditions without and with the general light industrial/commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the AM peak hour under Year 2030 Cumulative conditions without and with the general light industrial/commercial components project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the AM peak hour under Year 2030 Cumulative with the project

conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during the PM peak hour under Year 2030 Cumulative conditions without and with the general light industrial/commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the PM peak hour under Year 2030 Cumulative conditions without and with the general light industrial/commercial components project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would operate at LOS C conditions during the PM peak hour under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both the AM and PM peak hours under Year 2030 Cumulative conditions without and with the general light industrial/commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during both peak hours under Year 2030 Cumulative without and with the general light industrial/commercial only project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS C during the peak hours under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

5.

Year 2035 General Plan Conditions

This chapter presents the long-term Year 2035 General Plan traffic conditions with and without the proposed general plan amendment for the commercial/light industrial component of the project site. The current adopted General Plan land use designation and zoning for the 61-acre site of the commercial and light industrial components of the project is Commercial and Commercial/Industrial, and is located within three zoning districts: PUD Highway Commercial (CH), Administrative Office (CO), and PUD Light Industrial (IL). The applicant proposes to reduce the Commercial General Plan designation area and increase the Commercial/Industrial General Plan designation area through a General Plan Amendment (File No. GPA2019-0002); and establish a Planned Development (PD) Combining District over the commercial and light industrial project area through a Zoning Amendment (File No. ZA2019-0005).

The residential component of the project is approximately 28 acres with an existing General Plan designation of Residential Attached Low. The proposed residential land uses of the project are consistent with the current General Plan land use designations, therefore a General Plan Amendment is not required for the residential component of the project. No formal land use entitlement applications are currently on file and this portion of the project is being evaluated at a programmatic level for a maximum of 319 units.

Year 2035 General Plan conditions are comprised of forecasted traffic volumes and reflect estimated traffic growth associated with the proposed land use amendment as well as buildout of the projected land use growth and transportation improvements identified in the City of Morgan Hill General Plan. This chapter describes the procedure used to determine Year 2035 General Plan traffic volumes and the resulting traffic conditions with the proposed land use amendment. The analysis includes an evaluation of the proposed land use amendment against the adopted 2035 General Plan (No Project).

Year 2035 General Plan Transportation Network

The Year 2035 General Plan traffic forecasts include land use growth and transportation improvements associated with buildout of the City's General Plan as identified in the City's *2010 General Plan Circulation Element*. Several new roadways are planned under Year 2035 General Plan conditions to provide for enhanced connectivity and circulation throughout the City. The roadway improvements presented in Table 11 and Figure 16 within the City are planned and assumed completed under Year 2035 General Plan conditions. Adjustments to intersection lane geometrics, as identified in the *2010 General Plan Circulation Element*, will be required to implement the Year 2035 GP roadway improvements. Figure 17 indicates the planned intersection geometries under Year 2035 General Plan conditions.

Table 11
Year 2035 General Plan Roadway Improvements

#	2035 Roadway Improvements
1	Extension of Butterfield Blvd as a 2-lane collector between Madrone Pkwy and Cochrane Rd
2	Extension of Hale Ave/Santa Teresa Blvd as a 2-lane multi-modal arterial between Main Ave and Spring Ave
3	Closure of DeWitt Ave between Price Drive and Spring Ave
4	Extension of Walnut Grove as a 2-lane collector between Dunne Ave and Diana Ave
5	Tennant Ave widening as a 4-lane arterial between Condit Rd and Murphy Ave
6	Monterey Rd widened to a 4-lane arterial between Cochrane Rd and Old Monterey Rd / Llagas Creek Dr
7	Extension of Llagas Creek Dr as a 2-lane collector between Hale Ave and Monterey Rd
8	Realignment of Old Monterey Rd to intersect with Llagas Creek Dr extension
9	Dunne Ave widened to a 4-lane arterial between Monterey Rd and Del Monte Ave
10	Modifications to intersection control and access at San Pedro Ave and Monterey Rd
11	Extension of Madrone Parkway as a 2-lane arterial between Hale Ave and Monterey Rd
12	Realignment of DeWitt Ave as a 2-lane arterial with Sunnyside Ave
13	Extension of Mission View Dr as a 2-lane collector between Cochrane Rd and Vista del Lomas Ave
14	Mission View Dr upgraded to a 2-lane multi-modal arterial between Cochrane Rd and Half Rd
15	Extension of Murphy Ave/Mission View Dr as a 2-lane multi-modal arterial between Half Rd and Diana Ave
16	Cochrane Rd widened to a 6-lane arterial between Monterey Rd and Mission View Dr
17	Main Ave widened to a 4-lane arterial between Depot St and Butterfield Blvd
18	Watsonville Rd widened to a 4-lane arterial between La Alameda and Monterey Rd
19	Extension of Serene Dr as a 2-lane collector between Jarvis Dr and Central Ave
20	Dunne Avenue intersection at Depot Street closed with Dunne Avenue grade separation from Union Pacific railroad tracks
21	Extension of McKeely Lane as a 2-lane collector between West Edmundson Ave and La Crosse Dr
22	Tennant Ave widened to a 6-lane arterial between US 101 and Butterfield Blvd
23	Extension of Hill Rd/Peet Rd as a 2-lane collector between Half Rd and Main Ave
Source: City of Morgan Hill General Plan Circulation Element Network and Policy Revisions Transportation Impact Analysis, prepared by Fehr & Peers Transportation Consultants, July 2009.	

Though not planned as part of the City's GP roadway network, a full access intersection from the planned DePaul Drive extension to Half Road is assumed under Year 2035 conditions with the proposed project. However, the City has yet to determine whether a connection of DePaul Drive to Half Road will ultimately be provided.

In addition, the Year 2035 General Plan transportation network also includes the planned widening of US 101 to include an HOV lane in both the southbound and northbound directions between Cochrane Road and Monterey Road in Gilroy, as identified in the Valley Transportation Plan (VTP) 2040 adopted by the VTA in October 2013. The VTP 2040 also identifies the conversion of the HOV lanes all along US 101 within Santa Clara County to express lanes.

Figure 16
Year 2035 General Plan Roadway Improvements

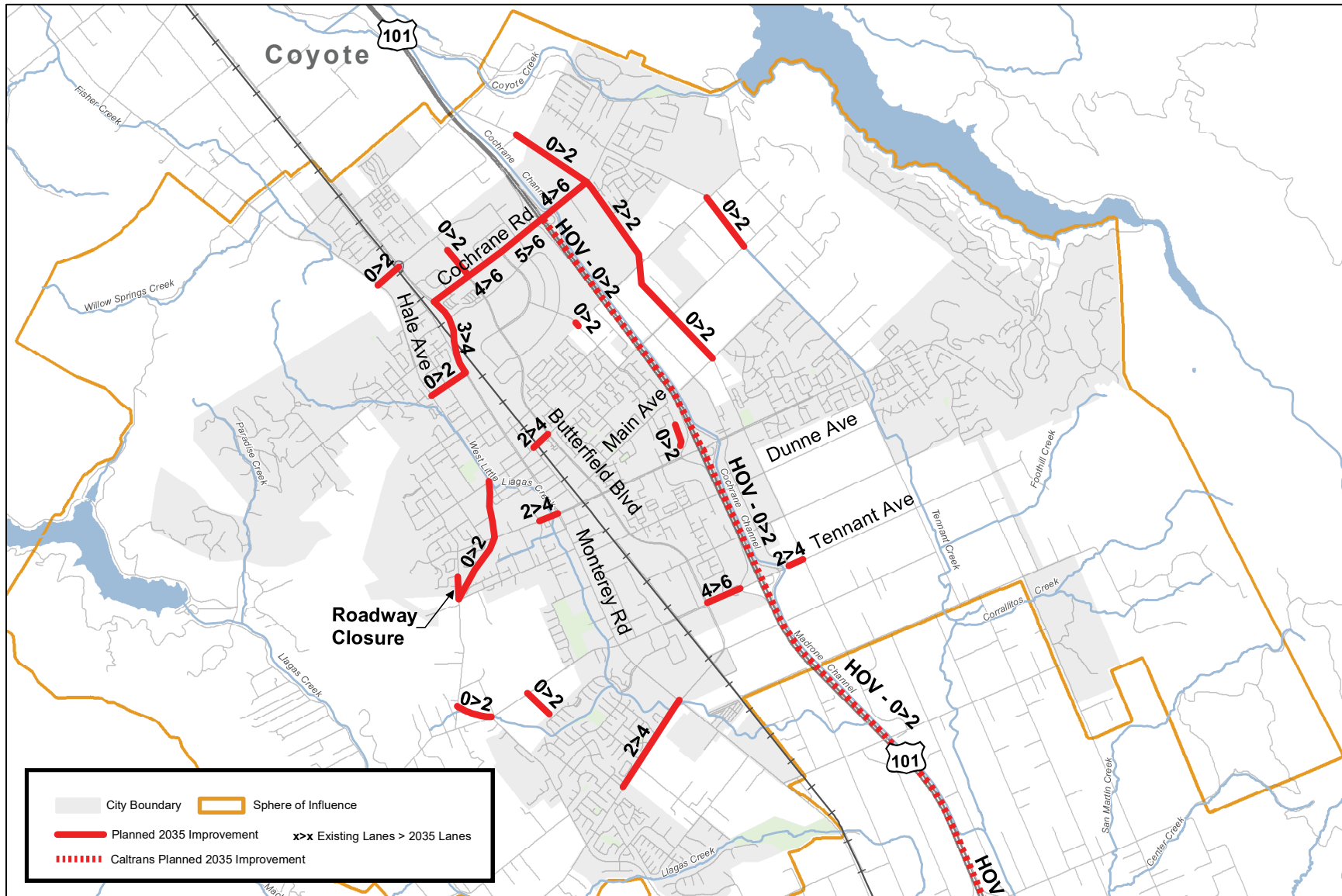


Figure 17
Year 2035 General Plan Intersection Lane Geometrics

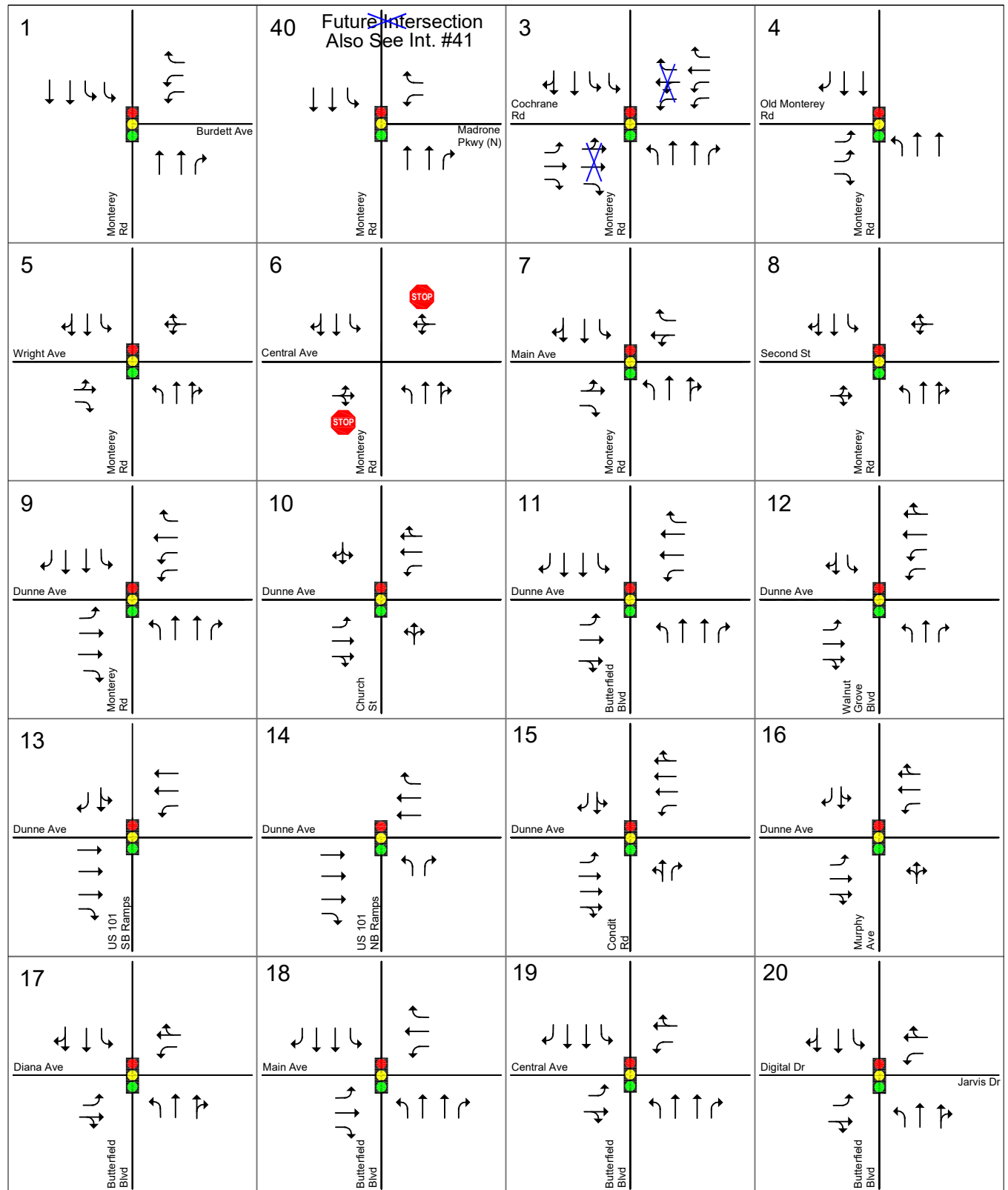
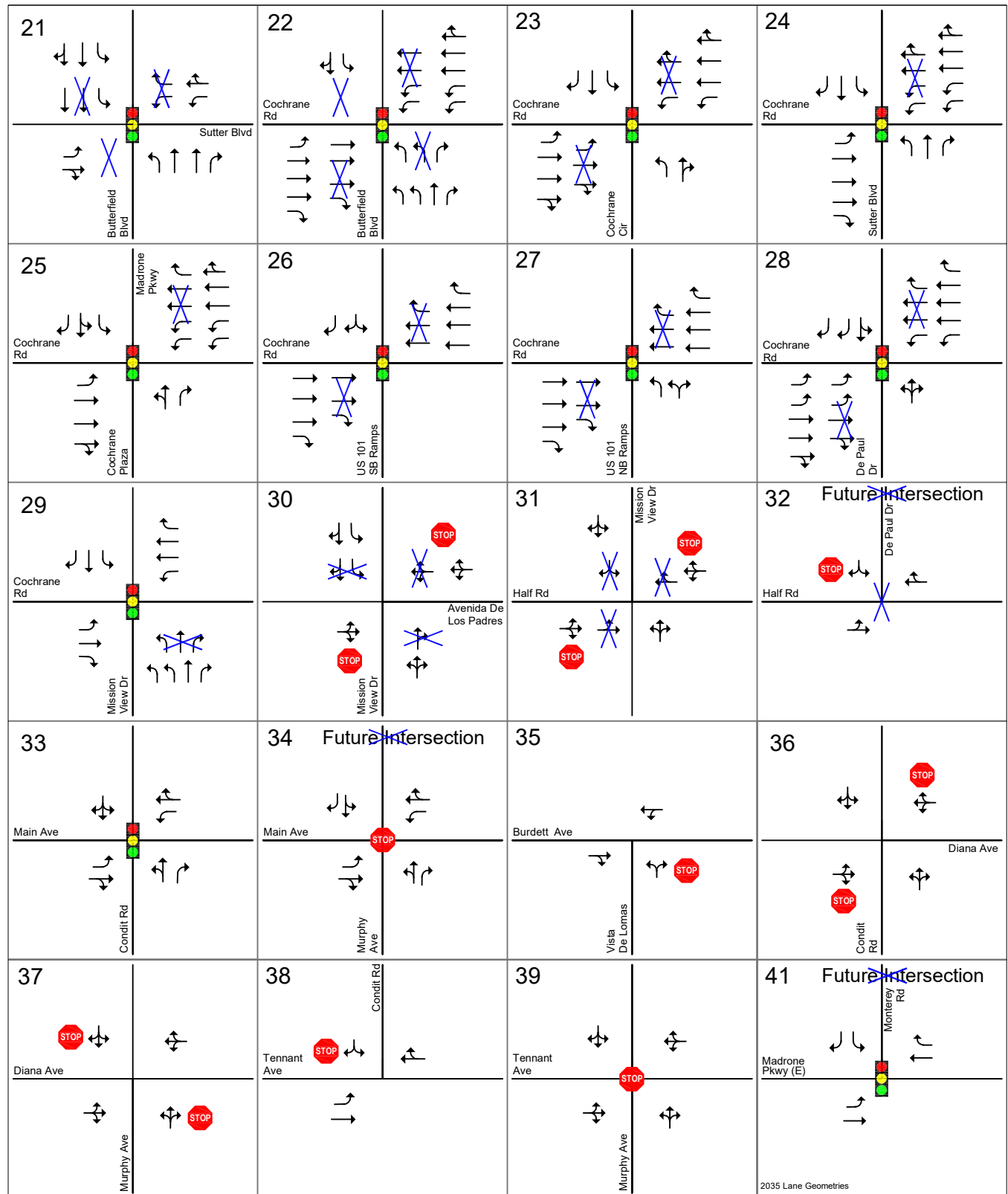


Figure 17 (Continued)
Year 2035 General Plan Intersection Lane Geometrics



Year 2035 General Plan Land Use and Traffic Forecasts

Traffic volume forecasts were completed by Hexagon based on the proposed Morgan Hill 2035 General Plan land use projections and using the City of Morgan Hill's TDF model. Model volume forecasts were developed for both the Base Year 2015 baseline conditions and the Year 2035 General Plan conditions. These forecasts are considered "raw" model volume forecasts, which on their own do not represent future volume conditions, but are simply used to forecast growth and travel pattern changes expected in the future due to the land use changes associated with the Morgan Hill 2035 General Plan. To obtain the final traffic volume forecasts, adjustments are made to raw model volume forecasts and used in conjunction with existing count data. This process is further explained below.

Turn-Movement Adjustments

Adjustments were made to the raw forecasted volumes from the model to account for instances where the turn movements produced by the model are relatively coarse. The adjustment process begins by comparing and adjusting baseline model forecasts (Year 2015 forecasts representing existing conditions) with existing traffic counts. By adjusting the baseline model forecasts with existing volumes, model projections are calibrated with actual travel patterns on the existing roadway network. Once the base model forecasts are calibrated, future model forecasts are developed for Year 2035 General Plan conditions. These represent the "raw" model volume forecasts.

To obtain the final traffic volume forecasts, raw model volume forecasts in conjunction with existing count data are used. Final future traffic volume forecasts are developed by adding to the existing traffic count data the projected growth between the baseline (Year 2015) and the General Plan (Year 2035) raw model volume forecasts. The adjustment process is outlined below:

$$\text{Final Traffic Volume Forecast} = \text{Existing Count} + (\text{2035 GP Forecast} - \text{2015 Forecast})$$

It should be noted that as a conservative approach, it was assumed in this analysis that, unless a major change in the roadway network or existing land use is projected for the future conditions, all future model forecast volumes would be no less than the existing traffic counts. Figure 18 shows the Year 2035 General Plan no project traffic volumes. Appendix B lists Year 2035 General Plan no project traffic volumes at each study intersection.

Year 2035 Project Trip Generation Estimates

The City's traffic forecasting model was used to produce Year 2035 AM and PM peak hour traffic forecasts with the proposed land use amendment and site uses. The current General Plan land uses contained in the traffic analysis zone(s) that represent the project site were adjusted to reflect the proposed land use amendment and site uses.

Hexagon prepared trip estimates for the project site GP land uses included in the City's traffic model and the proposed buildout of the project site. The adopted land uses for the project site include 76,000 s.f. of research & development space, 33,000 s.f. of office space, 44,000 s.f. of retail space, and 345 residential units.

The land uses of the proposed light industrial/commercial development plan are of greater intensity than those assumed in the General Plan. When compared with the land uses included in the City's General Plan, the proposed land uses would result in an additional 680 AM peak hour trips and 603 PM peak hour trips to be generated by the project site. The trip generation estimates under Year 2035 General Plan Amendment Conditions for the proposed and general plan uses for the project site are presented in Tables 12. Figure 19 presents the 2035 General Plan with project traffic volumes. Appendix B lists 2035 General Plan with project traffic volumes at each study intersection.

Table 12
Year 2035 General Plan Trip Generation Estimates (Buildout Project Site)

Land Use	Size	Daily		AM Peak Hour						PM Peak Hour					
		Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
					In	Out	In	Out	Total		In	Out	In	Out	Total
Proposed Land Uses															
General Light Industrial (ITE LU # 110) ¹	1,089,600 Square Feet	4.960	5,404	0.700	88%	12%	671	92	763	0.630	13%	87%	89	597	686
General Light Industrial			5,156				640	88	728				85	570	655
General Light Industrial			248				31	4	35				4	27	31
Shopping Center (ITE LU # 820) ¹	50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³			-38				0	0	0				-18	-20	-38
Sub-Total	1,139,600 Square Feet		7,254				700	110	810				163	676	839
Single-Family Detached Housing (ITE LU # 210) ¹	319 Dwelling Units ⁴	9.440	3,011	0.740	25%	75%	59	177	236	0.990	63%	37%	199	117	316
Total			10,265				759	287	1,046				362	793	1,155
GP Land Uses															
Research and Development Center (ITE LU # 760) ¹	76,000 Square Feet	11.260	856	0.420	75%	25%	24	8	32	0.490	15%	85%	6	31	37
General Office Building (ITE LU # 710) ¹	33,000 Square Feet	9.740	321	1.160	86%	14%	33	5	38	1.150	16%	84%	6	32	38
Shopping Center (ITE LU # 820) ¹	44,000 Square Feet	37.750	1,661	0.940	62%	38%	25	16	41	3.810	48%	52%	81	87	168
20% Pass-by Reduction ³			-33				0	0	0				-16	-17	-33
Single-Family Detached Housing (ITE LU # 210) ¹	345 Dwelling Units	9.440	3,257	0.740	25%	75%	64	191	255	0.990	63%	37%	215	127	342
Total			6,062				146	220	366				292	260	552
Difference (Proposed - GP Land Uses)			4,203				613	67	680				70	533	603
Notes:															
¹ ITE Trip Generation Manual, 10 th Edition 2017															
² Assuming each of the 124 truck service doors would turn over once per day on average, truck trips would constitute 5 percent of the total daily trips. It was also assumed that the same percentage (approximately 5 percent) of the total estimated trips during the peak hours would be comprised of truck trips.															
³ A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill.															
⁴ Includes 60 courtyard homes, 115 townhomes, and 72 duet units (each duet = two dwelling units)															

Figure 18
Year 2035 General Plan No Project Traffic Volumes

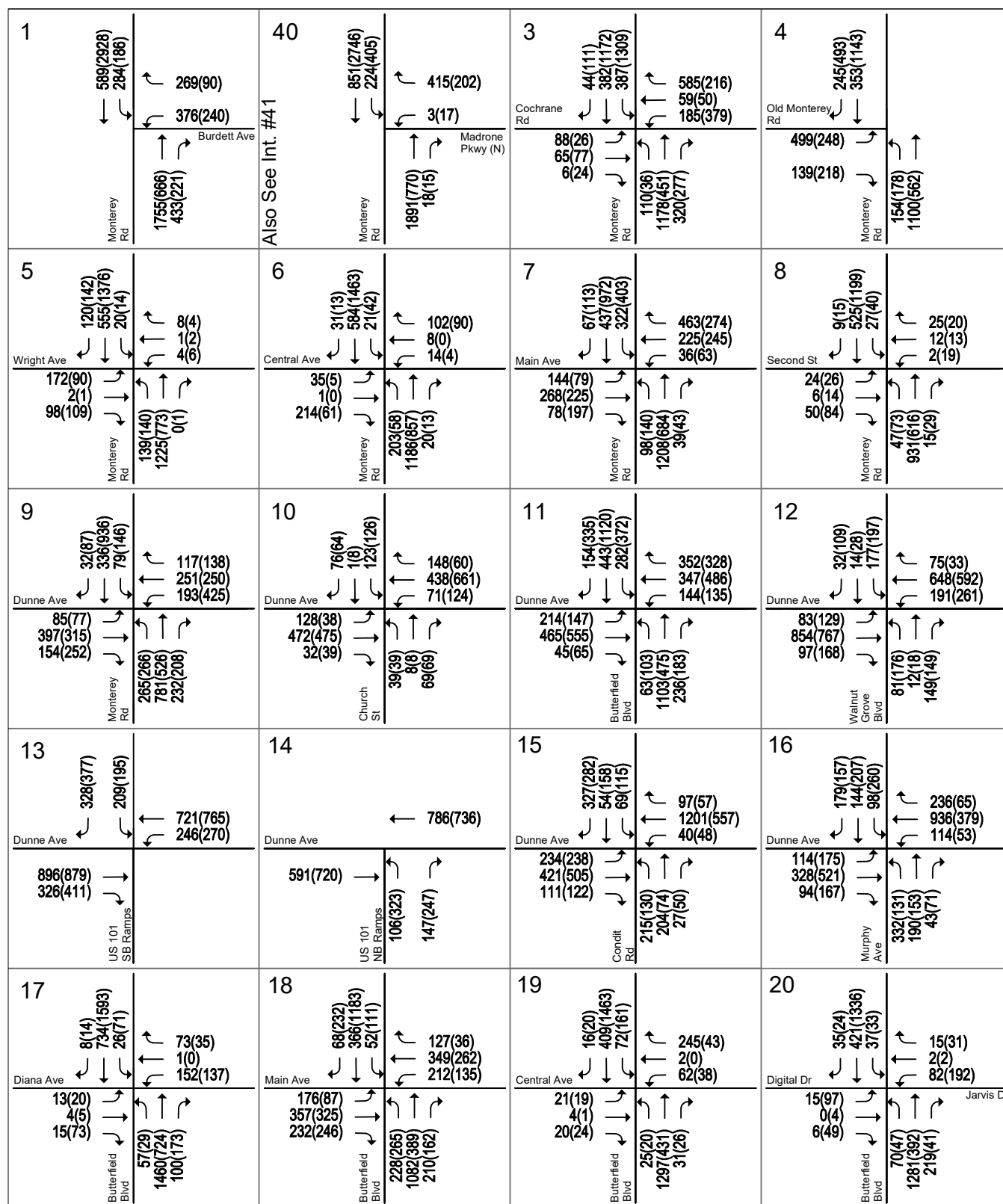


Figure 18 (Continued)
Year 2035 General Plan No Project Traffic Volumes

<p>21</p> <p>Cochran Rd</p> <p>Sutter Blvd</p> <p>Butterfield Blvd</p>	<p>22</p> <p>Cochran Rd</p> <p>Butterfield Blvd</p>	<p>23</p> <p>Cochran Rd</p> <p>Cochran Cir</p>	<p>24</p> <p>Cochran Rd</p> <p>Sutter Blvd</p>
<p>25</p> <p>Cochran Rd</p> <p>Cochran Plaza</p>	<p>26</p> <p>Cochran Rd</p> <p>US 101 SB Ramps</p>	<p>27</p> <p>Cochran Rd</p> <p>US 101 NB Ramps</p>	<p>28</p> <p>Cochran Rd</p> <p>De Paul Dr</p>
<p>29</p> <p>Cochran Rd</p> <p>Mission View Dr</p>	<p>30</p> <p>Cochran Rd</p> <p>Avenida De Los Padres</p>	<p>31</p> <p>Half Rd</p> <p>Mission View Dr</p>	<p>32</p> <p>Half Rd</p> <p>De Paul Dr</p>
<p>33</p> <p>Main Ave</p> <p>Condit Rd</p>	<p>34</p> <p>Main Ave</p> <p>Murphy Ave</p>	<p>35</p> <p>Burdett Ave</p> <p>V/ista De Lomas</p>	<p>36</p> <p>Condit Rd</p> <p>Diana Ave</p>
<p>37</p> <p>Diana Ave</p> <p>Murphy Ave</p>	<p>38</p> <p>Tennant Ave</p> <p>Condit Rd</p>	<p>39</p> <p>Tennant Ave</p> <p>Murphy Ave</p>	<p>40</p> <p>Madrone Pkwy (E)</p> <p>Monterey Rd</p>

2035 Traffic Volumes 1-8-20

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 19
Year 2035 General Plan with Project Buildout Traffic Volumes

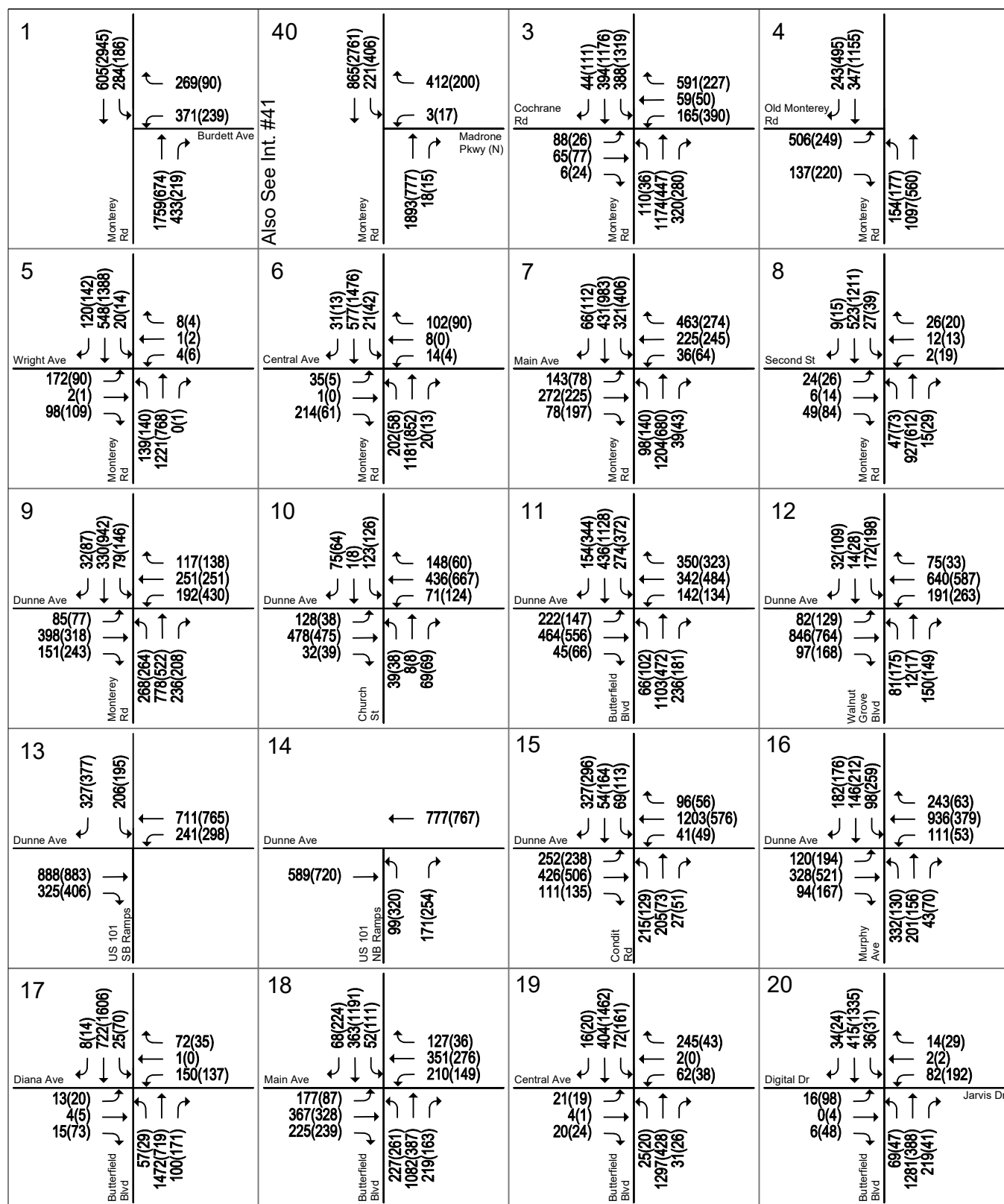
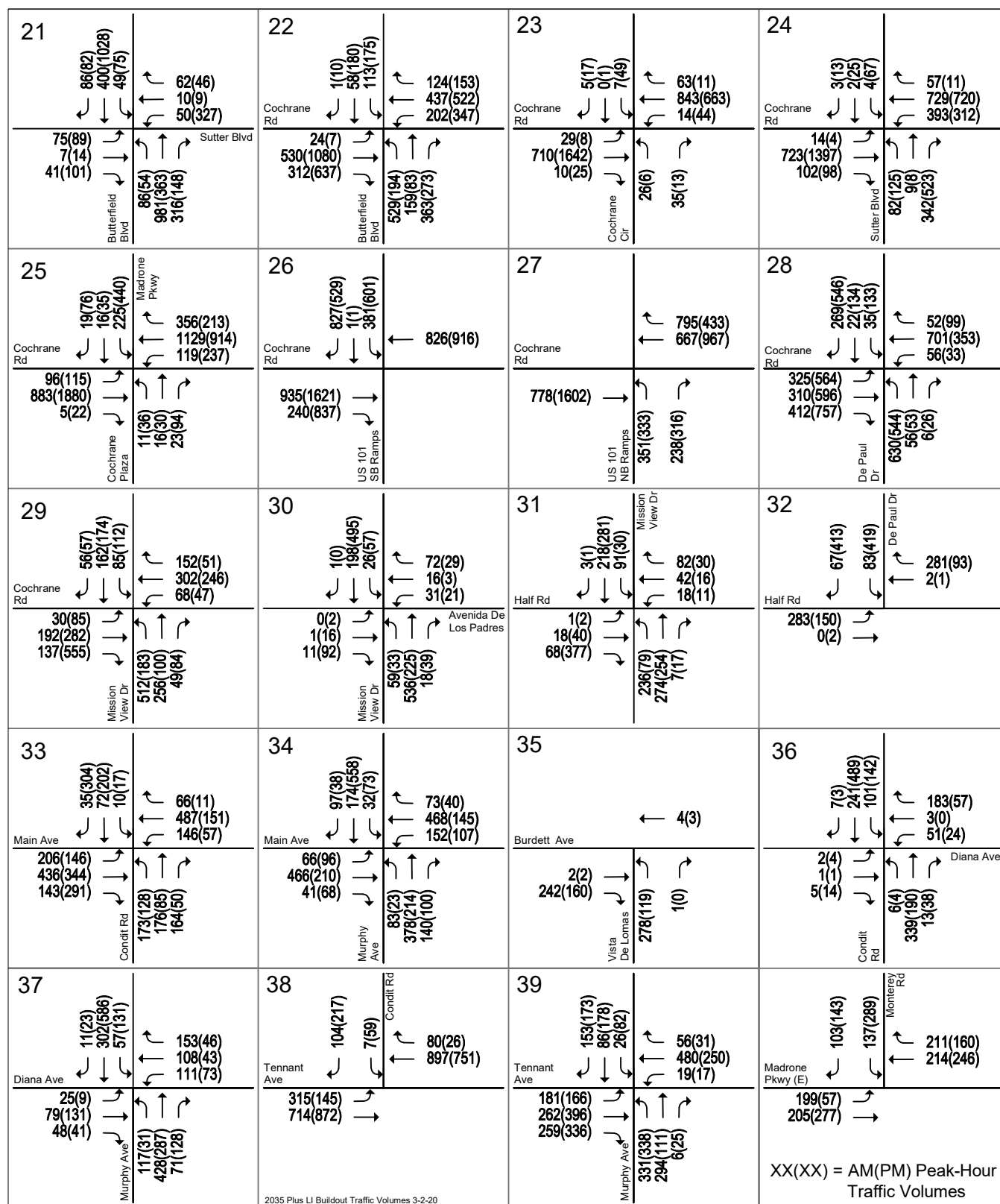


Figure 19 (Continued)
Year 2035 General Plan with Project Buildout Traffic Volumes



Year 2035 General Plan Level of Service Analysis

The level of service results under Year 2035 General Plan without and with project buildout conditions are summarized in Table 13. The results show that the following seven intersections would operate at unacceptable levels under Year 2035 General Plan without project conditions during at least one peak hour when measured against the City of Morgan Hill level of service standards:

- 6. Monterey Road and Central Avenue (unsignalized) (AM & PM Peak Hours)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 33. Main Avenue and Condit Road (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Additionally, the intersection level of service results show that one signalized study intersection, Cochrane Road and De Paul Drive, would deteriorate from an acceptable LOS E under Year 2035 General Plan no project conditions to an unacceptable LOS F under Year 2035 General Plan with project buildout conditions.

The peak-hour traffic signal warrant checks indicate that of the above identified study intersections, the following are projected to have traffic volumes under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization under at least one peak hour.

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Based on the City's impact criteria, the project buildout would result in a significant impact at each of the following intersections under Year 2035 General Plan conditions:

- 28. Cochrane Road and De Paul Drive (PM Peak Hour)
- 32. Half Road and De Paul Drive Extension (PM Peak Hour)
- 33. Main Avenue and Condit Road (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The project would not have an impact at the intersection of Monterey Road and Central Avenue because the project would not result in the addition of trips to the intersection during AM peak hour under Year 2035 General Plan with the project buildout conditions.

All other study intersections are projected to operate at acceptable levels of service under Year 2035 General Plan without and with project buildout conditions during each of the peak hours analyzed.

Table 13
Year 2035 General Plan Conditions Intersection Levels of Service

Int. #	Intersection	Year 2035 Control	LOS Standard	Peak Hour	Year 2035 No Project			Year 2035 + Project (Project Buildout)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	D	AM	--	16.0	B	--	15.9	B	-0.1	-0.001
				PM	--	25.0	C	--	26.1	C	1.5	0.005
2a.	Monterey Road and Madrone Parkway (N)	Signal	D	AM	--	19.0	B	--	18.7	B	-0.3	-0.001
				PM	--	35.2	D	--	36.7	D	2.1	0.005
2b.	Monterey Road and Madrone Parkway (E)	Signal	D	AM	--	14.9	B	--	14.8	B	0.0	-0.003
				PM	--	14.0	B	--	14.0	B	0.0	0.002
3	Monterey Road and Cochrane Road	Signal	E	AM	--	26.9	C	--	26.8	C	-1.7	-0.014
				PM	--	30.8	C	--	31.2	C	0.5	0.006
4	Monterey Road and Old Monterey Road	Signal	D	AM	--	14.1	B	--	14.1	B	0.0	0.001
				PM	--	17.7	B	--	17.7	B	0.0	0.004
5	Monterey Road and Wright Avenue	Signal	D	AM	--	27.6	C	--	27.3	C	-0.4	-0.001
				PM	--	22.3	C	--	22.5	C	0.2	0.004
6	Monterey Road and Central Avenue	TWSC	D	AM	Yes	240.6	F	Yes	227.2	F	N/A	N/A
				PM	No	39.4	E	No	40.3	E	N/A	N/A
7	Monterey Road and Main Avenue	Signal	F	AM	--	99.7	F	--	99.9	F	0.1	0.000
				PM	--	51.9	D	--	51.9	D	0.1	0.001
8	Monterey Road and Second Street	Signal	F	AM	--	10.8	B	--	10.8	B	0.0	-0.002
				PM	--	12.5	B	--	12.4	B	0.0	0.004
9	Monterey Road and East Dunne Avenue	Signal	E	AM	--	30.7	C	--	30.6	C	0.0	-0.001
				PM	--	36.7	D	--	36.6	D	-0.3	-0.004
10	East Dunne Avenue and Church Street	Signal	E	AM	--	20.8	C	--	20.8	C	0.0	-0.001
				PM	--	25.1	C	--	25.0	C	-0.1	0.001
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM	--	38.9	D	--	38.9	D	-0.5	-0.007
				PM	--	34.8	C	--	34.7	C	-0.1	0.002
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM	--	20.3	C	--	20.1	C	-0.3	-0.006
				PM	--	28.0	C	--	28.1	C	0.1	0.000
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM	--	21.7	C	--	21.7	C	-0.1	-0.004
				PM	--	22.3	C	--	22.8	C	0.8	0.015
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM	--	6.8	A	--	7.4	A	0.5	-0.007
				PM	--	10.8	B	--	10.7	B	-0.1	0.007
15	East Dunne Avenue and Condit Road	Signal	E	AM	--	48.4	D	--	49.6	D	1.7	0.012
				PM	--	30.5	C	--	30.6	C	0.2	0.012
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM	--	23.1	C	--	23.7	C	0.8	0.013
				PM	--	16.9	B	--	17.1	B	0.1	0.003
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM	--	22.7	C	--	23.0	C	0.4	0.002
				PM	--	23.5	C	--	23.9	C	0.6	0.004
18	Butterfield Boulevard and Main Avenue	Signal	D	AM	--	31.5	C	--	31.6	C	0.3	0.005
				PM	--	35.7	D	--	36.4	D	0.9	0.011
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM	--	17.5	B	--	17.5	B	0.0	0.000
				PM	--	11.3	B	--	11.3	B	0.0	0.000
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM	--	12.1	B	--	12.0	B	0.0	-0.001
				PM	--	13.2	B	--	13.2	B	0.0	0.000
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM	--	16.2	B	--	16.2	B	0.0	-0.003
				PM	--	25.7	C	--	25.8	C	0.0	-0.001
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM	--	18.8	B	--	18.8	B	0.0	-0.001
				PM	--	23.1	C	--	23.0	C	-0.1	0.003
23	Cochrane Road and Cochrane Circle	Signal	D	AM	--	10.0	B	--	10.0	B	0.0	-0.003
				PM	--	9.9	A	--	10.0	A	0.0	0.003
24	Cochrane Road and Sutter Boulevard	Signal	D	AM	--	17.6	B	--	17.6	B	-0.1	0.000
				PM	--	22.0	C	--	22.2	C	0.3	0.006
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM	--	18.5	B	--	18.4	B	0.0	-0.004
				PM	--	29.0	C	--	28.8	C	0.0	0.004
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM	--	15.0	B	--	15.3	B	0.6	0.029
				PM	--	20.6	C	--	21.6	C	1.2	0.029
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM	--	9.6	A	--	10.6	B	2.1	0.062
				PM	--	12.1	B	--	12.2	B	0.2	0.019
28	Cochrane Road and De Paul Drive	Signal	E	AM	--	40.2	D	--	67.7	E	64.0	0.144
				PM	--	68.3	E	--	112.5	F	92.8	0.166
29	Cochrane Road and Mission View Drive	Signal	D	AM	--	18.4	B	--	18.4	B	0.1	0.004
				PM	--	17.4	B	--	17.2	B	-0.5	-0.013
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	No	17.8	C	No	19.6	C	N/A	N/A
				PM	No	18.4	C	No	18.6	C	N/A	N/A
31	Mission View Drive and Half Road	TWSC	D	AM	No	28.5	D	No	35.3	E	N/A	N/A
				PM	Yes	19.3	C	Yes	20.8	C	N/A	N/A
32	Half Road and De Paul Drive Extension	OWSC	D	AM	No	14.9	B	No	16.3	C	N/A	N/A
				PM	Yes	61.7	F	Yes	86.8	F	N/A	N/A
33	Main Avenue and Condit Road	Signal	D	AM	--	35.5	D	--	38.0	D	5.2	0.034
				PM	--	62.7	E	--	75.8	E	15.9	0.035

Year 2035 General Plan Level of Service Analysis

The level of service results under Year 2035 General Plan without and with project buildout conditions are summarized in Table 13. The results show that the following seven intersections would operate at unacceptable levels under Year 2035 General Plan without project conditions during at least one peak hour when measured against the City of Morgan Hill level of service standards:

- 6. Monterey Road and Central Avenue (unsignalized) (AM & PM Peak Hours)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 33. Main Avenue and Condit Road (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Additionally, the intersection level of service results show that one signalized study intersection, Cochrane Road and De Paul Drive, would deteriorate from an acceptable LOS E under Year 2035 General Plan no project conditions to an unacceptable LOS F under Year 2035 General Plan with project buildout conditions.

The peak-hour traffic signal warrant checks indicate that of the above identified study intersections, the following are projected to have traffic volumes under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization under at least one peak hour.

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Based on the City's impact criteria, the project buildout would result in a significant impact at each of the following intersections under Year 2035 General Plan conditions:

- 28. Cochrane Road and De Paul Drive (PM Peak Hour)
- 32. Half Road and De Paul Drive Extension (PM Peak Hour)
- 33. Main Avenue and Condit Road (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The project would not have an impact at the intersection of Monterey Road and Central Avenue because the project would not result in the addition of trips to the intersection during AM peak hour under Year 2035 General Plan with the project buildout conditions.

All other study intersections are projected to operate at acceptable levels of service under Year 2035 General Plan without and with project buildout conditions during each of the peak hours analyzed.

Table 13 (Continued)
Year 2035 General Plan Conditions Intersection Levels of Service

Int. #	Intersection	Year 2035 Control	LOS Standard	Peak Hour	Year 2035 No Project			Year 2035 + Project (Project Buildout)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
34	Main Avenue and Murphy Avenue	AWSC	D	AM	Yes	209.3	F	Yes	222.2	F	N/A	N/A
				PM	Yes	81.5	F	Yes	100.6	F	N/A	N/A
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	No	11.0	B	No	11.1	B	N/A	N/A
				PM	No	9.5	A	No	9.5	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	D	AM	Yes	17.0	C	Yes	17.5	C	N/A	N/A
				PM	No	15.3	C	No	15.4	C	N/A	N/A
37	Murphy Avenue and Diana Avenue	TWSC	D	AM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
				PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	Yes	24.3	C	Yes	24.2	C	N/A	N/A
				PM	Yes	75.1	F	Yes	75.5	F	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	Yes	213.7	F	Yes	215.8	F	N/A	N/A
				PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A

Notes:
¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
 Bold indicates unacceptable level of service or signal warrant met.
 Bold and boxed indicate significant impact.
 OVFL = Overflow (delay is greater than 250 seconds)

Year 2035 General Plan Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under Year 2035 General Plan conditions.

28. Cochrane Road and De Paul Drive

Impact: This intersection is projected to operate at an acceptable level of service (LOS E) during the PM peak hour under Year 2035 General Plan no project conditions. Traffic associated with buildout of the project would degrade the intersection level of service to LOS F during the PM peak hour. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under Year 2035 General Plan with the project buildout conditions.

32. Half Road and De Paul Drive

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during the PM peak hour under Year 2035 General Plan conditions without and with the buildout of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection is projected to have traffic volumes under Year 2035 General Plan without and with buildout of the project that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: It was presumed that a full access intersection would be provided at the De Paul Drive and Half Road intersection under Year 2035 General Plan with project conditions. Though peak-hour traffic signal warrant checks indicate that the traffic volumes at the

intersection are projected to meet thresholds that warrant signalization, signalization of the intersection is not recommended. Since the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network, it is recommended that turn movements at the De Paul Drive and Half Road intersection be restricted to right-turns only. The turn restriction will restrict the use of De Paul Drive and Condit Road as cut-through routes. Implementation of the turn restrictions at the De Paul Drive and Half Road intersection along with a traffic signal at Mission View Drive and Half Road would result in LOS B conditions during the PM peak hour at the Mission View Drive and Half Road intersection the under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E) during the PM peak hour under Year 2035 General Plan no project conditions. Traffic associated with buildout of the project would cause the critical delay to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road. Implementation of this improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2035 General Plan with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

34. Main Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2035 General Plan conditions without and with buildout of the project. Additionally, the peak-hour traffic signal warrant checks indicate that this intersection would have traffic volumes under Year 2035 General Plan without and with buildout of the project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The signalization of the future intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS D and C during the AM and PM peak hours, respectively, under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

37. Murphy Avenue and Diana Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2035 General Plan conditions without and with buildout of the project. Additionally, the peak-hour traffic signal warrant checks indicate

that the intersection would have traffic volumes during both peak hours under Year 2035 General Plan without and with buildout of the project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The signalization of the intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS C during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during the PM peak hour under Year 2035 General Plan conditions without and with buildout of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the PM peak hour under Year 2035 General Plan conditions without and with buildout of the project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the PM peak hour under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both the AM and PM peak hours under Year 2035 General Plan conditions without and with buildout of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during both peak hours under Year 2035 General Plan without and with buildout of the project conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS D during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Vehicle Miles Traveled

A comparison of Vehicle Miles Traveled (VMT) for the Year 2035 General Plan no project conditions versus the Year 2035 General Plan with the proposed project was made to determine the effects of the proposed project on traffic patterns within the City.

In general, whenever new trips are added to the transportation system, VMT will increase proportionally to the number of trips being added. A proposed development that would intensify land use would generally be expected to result in higher overall VMT for the proposed project. However, there are several types of land uses that can be exceptions to this generalization. Land uses that tend to minimize the increase in VMT are land uses that involve adding new housing closer to jobs or new jobs closer to housing.

In an area dominated by housing, adding jobs without displacing housing, while increasing trips, can actually reduce VMT by reducing commute distances. These types of land use changes can cause trips to be internalized within the area in which the change is proposed and can reduce through trips in adjacent areas, thereby reducing VMT.

Adding jobs and displacing housing in an area dominated by housing will usually reduce VMT because the displaced trips, usually traveling in the peak direction, are eliminated. The substituted trips are usually shorter in length (thus reducing VMT). This type of land use will cause trips to be internalized within the area in which the land use is proposed and will reduce through trips in some adjacent areas, both as a result of the internalization as well as the reduced number of trips made from households.

Table 14 presents the projected VMT associated with the project site. All data provided, including trip length, number of vehicles, VMT, and the directional orientation of the trips, were calculated using the City's travel demand forecasting model and represent only those trips associated with the project site. The VMT results show that the proposed project would result in a significant increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/industrial development uses on the project site. However, the VMT per trip is shown to only minimally increase.

Table 14
Year 2035 General Plan Vehicle Miles Traveled

Scenario	Daily		
	VMT	Trips	VMT per Trip
Existing 2035 General Plan	31,062	5,315	5.84
Project Industrial Buildout	65,207	11,122	5.86
Change	34,145	5,807	0.02
Percent Change	110%	109%	0%
Source: City of Morgan Hill Travel Demand Model, Hexagon March 2020.			
<u>Notes:</u>			
VMT = Vehicle Miles Traveled associated with the project site.			

6.

Warehouse Project Alternative Evaluation

This chapter presents the evaluation of a project alternative for the proposed light industrial component of the project to reflect the potential mix of industrial uses on the site that would be allowed by the site zoning.

As currently proposed and evaluated within the previous chapters of this study, the industrial component of the project was presumed to consist of six buildings that would provide a total of 1,089,600 square feet of light industrial space. However, the site zoning could ultimately allow for various industrial land uses on the site including advanced manufacturing, warehouse distribution, supporting office, and other similar uses. In terms of trip generation, warehouse and manufacturing space generally generates much less auto trips than light-industrial space. However, the composition of truck traffic tends to be greater for warehouse uses when compared to light-industrial space. Therefore, the City requested that an alternative project scenario, consisting of warehouse uses on the entirety of the industrial portion of the site, be evaluated to reflect the potential for the project site uses to generate a fewer number of vehicular trips and typical truck trips for warehouse uses than estimated for the light industrial uses for the site.

The warehouse project alternative was analyzed to the same level as was completed for the proposed light industrial uses under each of the same study scenarios. The following development scenarios were evaluated:

Warehouse & Commercial Components Only - The warehouse/commercial component of the project is evaluated independently for each of the scenarios since there is a current plan for its development.

Project Alternative Buildout - There is no specific development plan for the residential component of the project, therefore the residential is evaluated only in combination with the warehouse & commercial components for each scenario.

The analysis of each of the scenarios includes an evaluation of intersection and freeway levels of service, roadway segments and queuing as was completed and presented in previous chapters for the proposed light industrial use. The same methodology and standards of evaluation were used for the evaluation of the warehouse project alternative. Detailed discussions of methodologies and standards are presented in the previous chapters and are not repeated within this chapter.

Project Alternative Description

For the purpose of completing the requested project alternative evaluation, the project applicant developed a conceptual development plan for the industrial portion of the site that would consist of

three buildings that could provide up to 1,105,000 s.f. of warehouse space along with the same 50,000 s.f. of commercial space and 319 residential units. The conceptual site plan is shown in Figure 20.

Project Trip Estimates, Project Trip Distribution and Assignment

Proposed Project Trip Estimates

Based on the recommended rates for warehousing (Land Use #150) and the size of the proposed warehouse space of the project, it is estimated that the proposed warehouse uses of the project would generate 1,923 daily trips, with 188 trips (145 inbound and 43 outbound) occurring during the AM peak hour and 210 trips (57 inbound and 153 outbound) occurring during the PM peak hour.

Truck Trips

ITE's *Trip Generation Manual*, Tenth Edition does not provide data in regard to the composition of truck trips for warehouse land use. However, ITE's *Trip Generation Manual*, Ninth Edition indicates that truck trips account for 9 to 29 percent of the weekday peak hour traffic and the peak truck activities occur outside of the peak hours of adjacent street traffic for warehouse/distribution centers. ITE's *Trip Generation Manual*, Ninth Edition also indicates that truck trips account for 20 percent of the daily trips generated by warehouse uses. Since the specific operations of the proposed building are not known at this time, the ITE data is the best available resource for estimating the amount of truck trips that may be generated by the warehouse component of the proposed project.

Conservatively assuming that 20 percent of the estimated peak hour trips would be comprised of trucks, it is estimated that the proposed warehouse space would generate 385 daily truck trips, with 38 trips (29 inbound and 9 outbound) occurring during the AM peak hour and 42 trips (11 inbound and 31 outbound) occurring during the PM peak hour. Note that the estimated truck trips are included within and are not in addition to the vehicular trips described above.

Combined Total

Based on the ITE trip generation rates and reductions, it is estimated that the warehouse alternative would generate a total of 6,784 daily trips, with 471 trips (233 inbound and 238 outbound) occurring during the AM peak hour and 679 trips (330 inbound and 349 outbound) occurring during the PM peak hour. The trip generation estimates for the proposed project are presented in Table 15.

2035 General Plan Trip Generation Estimates

The land uses of the proposed warehouse/commercial development and project buildout plans are of greater intensity than those assumed in the General Plan. When compared with the land uses included in the City's General Plan, the proposed development plan would result in an additional 124 AM peak hour trips and 153 PM peak hour trips to be generated by the industrial component of the project site. When compared with the land uses included in the City's General Plan, the proposed buildout plan would result in an additional 105 AM peak hour trips and 127 PM peak hour trips at the entire project site.

The trip generation estimates under Year 2035 General Plan Amendment Conditions for the proposed commercial/industrial portion and buildout of the project site are presented in Tables 16 and 17, respectively. Appendix B lists 2035 General Plan with project traffic volumes at each study intersection.

Figure 20
Warehouse/Commercial Component Site Plan

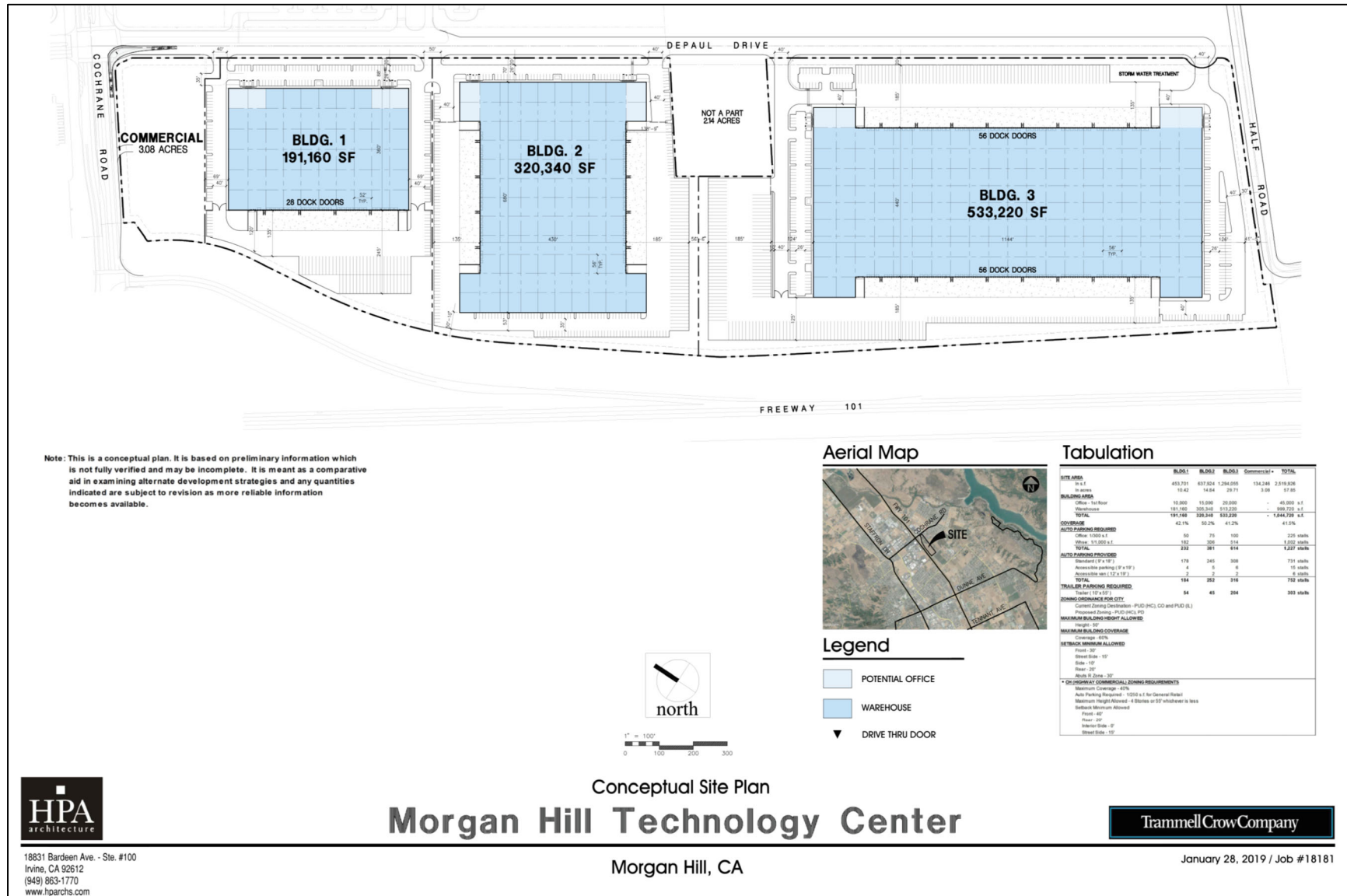


Table 15
Warehouse Alternative Project Trip Estimates

Land Use	Classification	Size	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
						In	Out	In	Out	Total		In	Out	In	Out	Total
Warehousing (ITE LU # 150) ¹	All Vehicles	1,105,000 Square Feet	1.740	1,923	0.170	77%	23%	145	43	188	0.190	27%	73%	57	153	210
Warehousing (ITE LU # 150) ¹	Auto Trips Only ²			1,538				116	34	150				46	122	168
Warehousing (ITE LU # 150) ¹	Truck Trips Only ²			385				29	9	38				11	31	42
Shopping Center (ITE LU # 820) ¹		50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³				-38				0	0	0				-18	-20	-38
Total (Warehouse & Retail Uses)		1,155,000 Square Feet		3,773				174	61	235				131	232	363
Single-Family Detached Housing (ITE LU # 210) ¹		319 Dwelling Units ⁴	9.440	3,011	0.740	25%	75%	59	177	236	0.990	63%	37%	199	117	316
Total (All Land Uses)				6,784				233	238	471				330	349	679
Notes: ¹ ITE Trip Generation Manual, 10 th Edition 2017 ² Land Use 150 - Warehousing in the ITE Trip Generation Manual, 9 th Edition 2012 indicates that trucks trips accounted for 20 percent of the weekday traffic. ³ A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill. ⁴ Includes 60 courtyard homes, 115 townhomes, and 72 duet units (each duet = two dwelling units)																

Table 16
Year 2035 General Plan Trip Generation Estimates (Proposed Commercial/Warehouse Alternative Site Only)

Land Use	Size	Daily		AM Peak Hour						PM Peak Hour					
		Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
					In	Out	In	Out	Total		In	Out	In	Out	Total
Proposed Land Uses															
Warehousing (ITE LU # 150) ¹	1,105,000 Square Feet	1.740	1,923	0.170	77%	23%	145	43	188	0.190	27%	73%	57	153	210
Warehousing (ITE LU # 150) ¹			1,538				116	34	150				46	122	168
Warehousing (ITE LU # 150) ¹			385				29	9	38				11	31	42
Shopping Center (ITE LU # 820) ¹	50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³			-38				0	0	0				-18	-20	-38
Total	1,155,000 Square Feet		3,773				174	61	235				131	232	363
GP Land Uses															
Research and Development Center (ITE LU # 760) ¹	76,000 Square Feet	11.260	856	0.420	75%	25%	24	8	32	0.490	15%	85%	6	31	37
General Office Building (ITE LU # 710) ¹	33,000 Square Feet	9.740	321	1.160	86%	14%	33	5	38	1.150	16%	84%	6	32	38
Shopping Center (ITE LU # 820) ¹	44,000 Square Feet	37.750	1,661	0.940	62%	38%	25	16	41	3.810	48%	52%	81	87	168
20% Pass-by Reduction ³			-33				0	0	0				-16	-17	-33
Total			2,805				82	29	111				77	133	210
Difference (Proposed - GP Land Uses)			968				92	32	124				54	99	153
Notes:															
¹ ITE Trip Generation Manual, 10 th Edition 2017															
² Land Use 150 - Warehousing in the ITE Trip Generation Manual, 9 th Edition 2012 indicates that trucks trips accounted for 20 percent of the weekday traffic.															
³ A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill.															
⁴ Includes 60 courtyard homes, 115 townhomes, and 72 duet units (each duet = two dwelling units)															

Table 17
Year 2035 General Plan Trip Generation Estimates (Buildout Project Alternative Site)

Land Use	Size	Daily		AM Peak Hour						PM Peak Hour					
		Rate	Trip	Rate	Split		Trip			Rate	Split		Trip		
					In	Out	In	Out	Total		In	Out	In	Out	Total
Proposed Land Uses															
Warehousing (ITE LU # 150) ¹	1,105,000 Square Feet	1.740	1,923	0.170	77%	23%	145	43	188	0.190	27%	73%	57	153	210
Warehousing (ITE LU # 150) ¹			1,538				116	34	150				46	122	168
Warehousing (ITE LU # 150) ¹			385				29	9	38				11	31	42
Shopping Center (ITE LU # 820) ¹	50,000 Square Feet	37.750	1,888	0.940	62%	38%	29	18	47	3.810	48%	52%	92	99	191
20% Pass-by Reduction ³			-38				0	0	0				-18	-20	-38
Sub-Total	1,155,000 Square Feet		3,773				174	61	235				131	232	363
Single-Family Detached Housing (ITE LU # 210) ¹	319 Dwelling Units ⁴	9.440	3,011	0.740	25%	75%	59	177	236	0.990	63%	37%	199	117	316
Total			6,784				233	238	471				330	349	679
GP Land Uses															
Research and Development Center (ITE LU # 760) ¹	76,000 Square Feet	11.260	856	0.420	75%	25%	24	8	32	0.490	15%	85%	6	31	37
General Office Building (ITE LU # 710) ¹	33,000 Square Feet	9.740	321	1.160	86%	14%	33	5	38	1.150	16%	84%	6	32	38
Shopping Center (ITE LU # 820) ¹	44,000 Square Feet	37.750	1,661	0.940	62%	38%	25	16	41	3.810	48%	52%	81	87	168
20% Pass-by Reduction ³			-33				0	0	0				-16	-17	-33
Single-Family Detached Housing (ITE LU # 210) ¹	345 Dwelling Units	9.440	3,257	0.740	25%	75%	64	191	255	0.990	63%	37%	215	127	342
Total			6,062				146	220	366				292	260	552
Difference (Proposed - GP Land Uses)			722				87	18	105				38	89	127
Notes:															
¹ ITE Trip Generation Manual, 10 th Edition 2017															
² Land Use 150 - Warehousing in the ITE Trip Generation Manual, 9 th Edition 2012 indicates that trucks trips accounted for 20 percent of the weekday traffic.															
³ A 20% pass-by reduction is typically applied for retail development within the City of Morgan Hill.															
⁴ Includes 60 courtyard homes, 115 townhomes, and 72 duet units (each duet = two dwelling units)															

Project Trip Distribution and Assignment

The same project trip distribution and assignment assumptions as used for the proposed light-industrial uses were applied to the warehouse alternative. Tabulation of the assignment of trips at each of the study intersection is presented in Appendix B.

Existing Plus Project Intersection Analysis

The results of the level of service analysis under existing plus project conditions are summarized in Table 18. The results show that the unsignalized intersection of Mission View and Half Road would operate at unacceptable levels under existing plus project conditions during the PM peak for both development scenarios. Additionally, the signal warrant analysis indicates that the intersection of Mission View Drive and Half Road is projected to have traffic conditions that would meet the traffic signal warrant during the PM peak-hour under existing plus project conditions for both development scenarios. Therefore, based on the City's impact criteria and signal warrant analysis, both development scenarios would result in a significant impact at this intersection.

Existing Plus Project Conditions Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under existing plus project conditions.

31. Mission View Drive and Half Road

Impact: This intersection is currently operating at an acceptable level of service (LOS C) during the PM peak hour. The addition of project traffic would degrade the intersection level of service to LOS E or worse under both development scenarios. Additionally, the signal warrant analysis indicates that the intersection of Mission View Drive and Half Road is projected to have traffic conditions that would meet the traffic signal warrant during the PM peak-hour under existing plus project conditions for both development scenarios. Therefore, based on the City's impact criteria and signal warrant analysis, both development scenarios would result in a significant impact at this intersection.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. Implementation of a traffic signal at this location would improve the level of service to LOS B during both peak hours under existing plus project conditions for both development scenarios. The Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under existing plus project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Freeway Segment Analysis

The results of the CMP freeway level of service analysis under existing plus commercial and warehouse components conditions and existing plus project buildout conditions are summarized in

Table 19. Traffic volumes on the study freeway segments under existing plus project conditions were estimated by adding project trips for each project components to the existing volumes obtained from the 2018 CMP Monitoring and Conformance Report.

Warehouse/Commercial Components

The results show that the same ten directional mixed-flow lanes and one directional HOV lane on the freeway segments analyzed that were shown to operate at an unacceptable LOS F during at least one peak hour under existing conditions would continue to operate at LOS F conditions with the addition of traffic from the warehouse and commercial components only. However, the warehouse/commercial components of the project would not result in an increase in traffic volumes of one percent or more of freeway capacity on any freeway segments studied, nor would the addition of project traffic from the warehouse/commercial components result in the degradation of LOS on any freeway segment currently operating at an acceptable LOS E to an unacceptable LOS F. Therefore, based on CMP impact criteria, the proposed warehouse/commercial component of the project would not have a significant impact on freeways.

Combined Components

The results show that the same ten directional mixed-flow lanes and one directional HOV lane on the freeway segments analyzed that were shown to operate at an unacceptable LOS F during at least one peak hour under existing conditions would continue to operate at LOS F conditions with the addition of traffic due to the development of all proposed land uses of the project.

Traffic associated with the development of all proposed land uses of the project would result in an increase in traffic volumes of more than one percent of freeway capacity on four of the directional mixed-flow lanes and one directional HOV lane freeway segments currently operating at an unacceptable LOS F:

Mixed-Flow Freeway Segment Unacceptable LOS

2. US 101, Northbound from San Martin Avenue to Tennant Avenue (AM Peak Hour)
3. US 101, Northbound from Tennant Avenue to East Dunne Avenue (AM Peak Hour)
4. US 101, Northbound from East Dunne Avenue to Cochrane Road (AM Peak Hour)
- 5. US 101, Northbound from Cochrane Road to Coyote Creek Golf Drive (AM Peak Hour) – Impact**
8. US 101, Southbound from SR 85 to Bailey Avenue (PM Peak Hour)
- 9. US 101, Southbound from Bailey Avenue to Coyote Creek Golf Drive (PM Peak Hour) – Impact**
- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact**
- 11. US 101, Southbound from Cochrane Road to East Dunne Avenue (PM Peak Hour) – Impact**
12. US 101, Southbound from East Dunne Avenue to Tennant Avenue (PM Peak Hour)
13. US 101, Southbound from Tennant Avenue to San Martin Avenue (PM Peak Hour)

HOV Freeway Segment Unacceptable LOS

- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact**

Table 18
Existing Plus Project Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing + Project (Commercial & Warehouse Components Only)										Existing + Project (Project Alternative Buildout)						
						Existing			Warrant			Incr. In		Incr. In		Warrant			Incr. In		Incr. In	
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Warrant Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Warrant Met?	Delay ¹	LOS	Crit. Delay
1	Monterey Road and Burdett Avenue	Signal	D	AM 03/28/19	--	15.0	B	--	15.0	B	0.0	0.001	--	15.0	B	-0.1	0.003	--	15.0	B	-0.1	0.003
				PM 03/28/19	--	9.7	A	--	9.7	A	0.0	0.002	--	9.8	A	0.1	0.005	--	9.8	A	0.1	0.005
2	Monterey Road and Madrone Parkway	Signal	D	AM 02/28/19	--	9.4	A	--	9.4	A	0.0	0.001	--	9.4	A	0.0	0.003	--	9.4	A	0.0	0.003
				PM 02/28/19	--	9.8	A	--	9.9	A	0.1	0.002	--	10.0	A	0.1	0.005	--	10.0	A	0.1	0.005
3	Monterey Road and Cochrane Road	Signal	E	AM 05/08/18	--	28.1	C	--	28.2	C	0.1	0.003	--	28.2	C	0.2	0.005	--	28.2	C	0.2	0.005
				PM 05/08/18	--	24.0	C	--	24.2	C	0.3	0.005	--	24.2	C	0.3	0.009	--	24.2	C	0.3	0.009
4	Monterey Road and Old Monterey Road	Signal	D	AM 05/08/18	--	10.4	B	--	10.4	B	0.0	0.003	--	10.4	B	0.0	0.003	--	10.4	B	0.0	0.003
				PM 05/08/18	--	13.0	B	--	13.0	B	0.1	0.002	--	13.0	B	0.1	0.002	--	13.0	B	0.1	0.002
5	Monterey Road and Wright Avenue	Signal	D	AM 03/28/19	--	19.1	B	--	19.1	B	0.0	0.000	--	19.1	B	0.0	0.000	--	19.1	B	0.0	0.000
				PM 03/28/19	--	20.4	C	--	20.4	C	0.0	0.000	--	20.4	C	0.0	0.000	--	20.4	C	0.0	0.000
6	Monterey Road and Central Avenue	TWSC	D	AM 03/28/19	No	19.5	C	No	19.5	C	N/A	N/A	No	19.5	C	N/A	N/A	No	19.5	C	N/A	N/A
				PM 03/28/19	No	15.7	C	No	15.7	C	N/A	N/A	No	15.7	C	N/A	N/A	No	15.7	C	N/A	N/A
7	Monterey Road and Main Avenue	Signal	F	AM 05/08/18	--	44.2	D	--	44.5	D	0.3	0.007	--	44.8	D	0.7	0.017	--	44.8	D	0.7	0.017
				PM 05/08/18	--	45.1	D	--	45.6	D	0.7	0.011	--	46.2	D	1.4	0.023	--	46.2	D	1.4	0.023
8	Monterey Road and Second Street	Signal	F	AM 03/28/19	--	10.6	B	--	10.6	B	0.0	0.001	--	10.6	B	0.1	0.003	--	10.6	B	0.1	0.003
				PM 03/28/19	--	12.6	B	--	12.6	B	0.0	0.000	--	12.6	B	0.0	0.000	--	12.6	B	0.0	0.000
9	Monterey Road and East Dunne Avenue	Signal	E	AM 05/08/18	--	28.9	C	--	29.0	C	0.1	0.002	--	29.0	C	0.1	0.002	--	29.0	C	0.1	0.002
				PM 05/08/18	--	31.4	C	--	31.6	C	0.2	0.004	--	31.6	C	0.3	0.006	--	31.6	C	0.3	0.006
10	East Dunne Avenue and Church Street	Signal	E	AM 06/06/18	--	17.8	B	--	17.8	B	-0.1	0.005	--	17.8	B	-0.1	0.006	--	17.8	B	-0.1	0.006
				PM 06/06/18	--	19.9	B	--	19.7	B	-0.2	0.006	--	19.6	B	-0.2	0.008	--	19.6	B	-0.2	0.008
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM 05/08/18	--	35.5	D	--	35.6	D	0.4	0.011	--	35.8	D	0.8	0.017	--	35.8	D	0.8	0.017
				PM 05/08/18	--	31.7	C	--	31.8	C	0.1	0.005	--	32.1	C	0.4	0.009	--	32.1	C	0.4	0.009
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM 03/28/19	--	18.4	B	--	18.4	B	0.0	0.003	--	18.4	B	0.0	0.004	--	18.4	B	0.0	0.004
				PM 03/28/19	--	28.5	C	--	28.4	C	0.0	0.002	--	28.4	C	-0.1	0.005	--	28.4	C	-0.1	0.005
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM 05/08/18	--	20.9	C	--	20.9	C	0.0	0.000	--	21.0	C	0.1	0.003	--	21.0	C	0.1	0.003
				PM 05/08/18	--	18.8	B	--	18.8	B	0.0	0.000	--	18.9	B	0.1	0.002	--	18.9	B	0.1	0.002
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM 05/08/18	--	5.3	A	--	5.3	A	0.0	0.001	--	5.2	A	-0.1	0.005	--	5.2	A	-0.1	0.005
				PM 05/08/18	--	11.8	B	--	11.7	B	0.0	0.004	--	11.6	B	0.0	0.006	--	11.6	B	0.0	0.006
15	East Dunne Avenue and Condit Road	Signal	E	AM 03/28/19	--	42.4	D	--	43.0	D	0.7	0.010	--	43.7	D	1.6	0.022	--	43.7	D	1.6	0.022
				PM 03/28/19	--	28.2	C	--	28.3	C	0.1	0.015	--	28.4	C	0.4	0.032	--	28.4	C	0.4	0.032
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM 03/28/19	--	18.9	B	--	18.9	B	0.0	0.003	--	19.0	B	0.1	0.004	--	19.0	B	0.1	0.004
				PM 03/28/19	--	11.8	B	--	11.8	B	0.0	0.004	--	11.8	B	0.0	0.006	--	11.8	B	0.0	0.006
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM 05/08/18	--	21.3	C	--	21.5	C	0.3	0.004	--	21.5	C	0.3	0.005	--	21.5	C	0.3	0.005
				PM 05/08/18	--	20.4	C	--	20.5	C	0.3	0.006	--	20.6	C	0.4	0.008	--	20.6	C	0.4	0.008
18	Butterfield Boulevard and Main Avenue	Signal	D	AM 05/08/18	--	27.6	C	--	27.8	C	0.3	0.009	--	28.2	C	0.4	0.009	--	28.2	C	0.4	0.009
				PM 05/08/18	--	29.8	C	--	30.3	C	0.6	0.013	--	30.9	C	1.6	0.028	--	30.9	C	1.6	0.028
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM 05/08/18	--	17.1	B	--	17.1	B	0.0	0.004	--	17.1	B	0.0	0.006	--	17.1	B	0.0	0.006
				PM 05/08/18	--	11.0	B	--	11.1	B	0.0	0.005	--	11.1	B	0.1	0.007	--	11.1	B	0.1	0.007
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM 05/08/18	--	11.7	B	--	11.8	B	0.1	0.004	--	11.8	B	0.1	0.006	--	11.8	B	0.1	0.006
				PM 05/08/18	--	12.8	B	--	12.8	B	0.0	0.006	--	12.9	B	0.1	0.008	--	12.9	B	0.1	0.008
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM 05/08/18	--	6.7	A	--	6.7	A	0.1	0.004	--	6.7	A	0.1	0.004	--	6.7	A	0.1	0.004
				PM 05/08/18	--	15.6	B	--	15.8	B	0.3	0.009	--	15.9	B	0.3	0.011	--	15.9	B	0.3	0.011
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM 05/08/18	--	12.3	B	--	12.4	B	0.1	0.004	--	12.4	B	0.1	0.004	--	12.4	B	0.1	0.004
				PM 05/08/18	--	12.0	B	--	12.0	B	0.1	0.003	--	12.0	B	0.1	0.003	--	12.0	B	0.1	0.003
23	Cochrane Road and Cochrane Circle	Signal	D	AM 05/08/18	--	10.5	B	--	10.4	B	0.0	0.002	--	10.4	B	0.0	0.004	--	10.4	B	0.0	0.004
				PM 05/08/18	--	10.9	B	--	11.0	B	0.1	0.004	--	11.0	B	0.1	0.007	--	11.0	B	0.1	0.007
24	Cochrane Road and Sutter Boulevard	Signal	D	AM 05/08/18	--	17.2	B	--	17.2	B	0.0	0.006	--	17.3	B	0.0	0.008	--	17.3	B	0.0	0.008
				PM 05/08/18	--	17.9	B	--	18.1	B	0.1	0.008	--	18.1	B	0.1	0.011	--	18.1	B	0.1	0.011

Table 18 (Continued)
Existing Plus Project Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing + Project (Commercial & Warehouse Components Only)												Existing + Project (Project Alternative Buildout)				
						Existing																
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C				
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM PM	05/08/18 05/08/18	-- --	19.1 31.4	B C	-- --	19.1 31.2	B C	0.0 -0.1	0.000 0.005	-- --	19.1 31.1	B C	-3.1 -0.2	0.001 0.010				
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM PM	05/08/18 05/08/18	-- --	12.8 16.5	B B	-- --	13.3 17.1	B B	0.7 0.7	0.053 0.030	-- --	13.6 18.4	B B	1.0 2.2	0.071 0.093				
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM PM	05/08/18 05/08/18	-- --	8.6 11.3	A B	-- --	9.1 11.6	A B	0.9 0.4	0.094 0.039	-- --	8.9 11.6	A B	1.3 0.7	0.147 0.082				
28	Cochrane Road and De Paul Drive	Signal	E	AM PM	05/08/18 05/08/18	-- --	17.7 18.7	B B	-- --	18.2 22.8	B C	0.3 2.8	0.048 0.188	-- --	18.7 23.7	B C	0.9 4.6	0.112 0.260				
29	Cochrane Road and Mission View Drive	Signal	D	AM PM	05/08/18 05/08/18	-- --	23.0 15.7	C B	-- --	27.3 17.2	C B	7.1 2.2	0.038 0.049	-- --	37.7 19.1	D B	24.4 5.1	0.082 0.099				
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM PM	03/28/19 03/28/19	No No	13.5 12.5	B B	No No	14.3 13.6	B B	N/A N/A	N/A N/A	No No	15.5 14.8	C B	N/A N/A	N/A N/A				
31	Mission View Drive and Half Road	OWSC	D	AM PM	03/28/19 03/28/19	No No	13.6 22.6	B C	No Yes	14.9 35.9	B E	N/A N/A	N/A N/A	No Yes	15.4 73.7	C F	N/A N/A	N/A N/A				
32	Half Road and De Paul Drive Extension	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --				
33	Main Avenue and Condit Road	Signal	D	AM PM	05/08/18 05/08/18	-- --	27.6 26.1	C C	-- --	28.5 28.4	C C	1.1 2.5	0.025 0.058	-- --	30.4 30.3	C C	3.4 4.7	0.064 0.096				
34	Main Avenue and Murphy Avenue	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --				
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM PM	03/28/19 03/28/19	No No	8.6 8.6	A A	No No	8.6 8.6	A A	N/A N/A	N/A N/A	No No	8.6 8.6	A A	N/A N/A	N/A N/A				
36	Condit Road and Diana Avenue	TWSC	D	AM PM	06/04/19 06/04/19	Yes No	14.7 13.6	B B	Yes No	15.2 14.2	C B	N/A N/A	N/A N/A	Yes No	15.5 14.6	C B	N/A N/A	N/A N/A				
37	Murphy Avenue and Diana Avenue	OWSC	D	AM PM	06/04/19 06/04/19	No No	11.4 9.9	B A	No No	11.4 9.9	B A	N/A N/A	N/A N/A	No No	11.4 9.9	B A	N/A N/A	N/A N/A				
38	Tennant Avenue and Condit Road	OWSC	E	AM PM	06/04/19 06/04/19	Yes Yes	14.7 14.6	B B	Yes Yes	15.2 14.8	C B	N/A N/A	N/A N/A	Yes Yes	15.2 15.0	C B	N/A N/A	N/A N/A				
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM PM	06/04/19 06/04/19	Yes No	21.3 11.9	C B	Yes No	21.5 12.0	C B	N/A N/A	N/A N/A	Yes No	21.7 12.1	C B	N/A N/A	N/A N/A				

Notes:

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.

Bold indicates unacceptable level of service or signal warrant met.

Bold and boxed indicate significant impact.

Table 19
Freeway Segment Levels of Service Summary – Warehouse Project Alternative

#	Freeway Segment	Direction	Peak Hour	Existing Plus Project (Commercial & Warehouse Components Only)										Project Trips						
				Mixed-Flow Lane					HOV Lane					Total Volume	Mixed-Flow Lane			HOV Lane		
				Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)		LOS	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101 from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,845	54	E	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	51.80	3	2,300	2,016	39	D	--	--	--	--	--	30	30	10	0.4	--	--
2	US 101 from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	902	87	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	60.00	3	2,300	1,812	30	D	--	--	--	--	--	30	30	10	0.4	--	--
3	US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	837	89	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	59.80	3	2,300	1,823	30	D	--	--	--	--	--	30	30	10	0.4	--	--
4	US 101 from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,440	69	F	--	--	--	--	--	41	41	14	0.6	--	--
		NB	PM	61.60	3	2,300	1,704	28	D	--	--	--	--	--	30	30	10	0.4	--	--
5	US 101 from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,459	66	F	71.41	1,650	816	11.0	B	16	13	4	0.2	3	0.2
		NB	PM	64.20	3	2,300	1,421	22	C	72.66	1,650	630	9.0	A	59	51	17	0.7	8	0.5
6	US 101 from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,773	55	E	75.29	1,650	-- ²	-- ²	-- ²	16	16	5	0.2	0	0.0
		NB	PM	64.00	3	2,300	1,461	23	C	76.15	1,650	-- ²	-- ²	-- ²	59	59	20	0.9	0	0.0
7	US 101 from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,885	50	E	65.21	1,650	1,332	20.0	C	16	13	4	0.2	3	0.2
		NB	PM	63.40	3	2,300	1,539	24	C	72.91	1,650	583	8.0	A	59	52	17	0.8	7	0.4
8	US 101 from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,645	26	D	73.82	1,650	393	5.0	A	48	44	15	0.6	4	0.2
		SB	PM	16.00	3	2,300	1,196	75	F	39.99	1,650	1,762	44.0	D	30	20	7	0.3	10	0.6
9	US 101 from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,446	23	C	73.79	1,650	399	5.0	A	48	44	15	0.6	4	0.2
		SB	PM	14.80	3	2,300	1,135	77	F	41.99	1,650	1,758	42.0	D	30	20	7	0.3	10	0.6
10	US 101 from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,596	25	C	63.14	1,650	1,432	23.0	C	48	37	12	0.5	11	0.7
		SB	PM	12.60	3	2,300	1,013	80	F	21.57	1,650	1,665	77.0	F	30	19	6	0.3	11	0.7
11	US 101 from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,653	27	D	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	25.00	3	2,300	1,601	64	F	--	--	--	--	--	54	54	18	0.8	--	--
12	US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,551	25	C	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	27.00	3	2,300	1,666	62	F	--	--	--	--	--	54	54	18	0.8	--	--
13	US 101 from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,551	25	C	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	25.40	3	2,300	1,615	64	F	--	--	--	--	--	54	54	18	0.8	--	--
14	US 101 from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,796	30	D	--	--	--	--	--	14	14	5	0.2	--	--
		SB	PM	37.80	3	2,300	1,930	51	E	--	--	--	--	--	54	54	18	0.8	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS.																				

Table 18
Existing Plus Project Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing + Project (Commercial & Warehouse Components Only)										Existing + Project (Project Alternative Buildout)				
						Existing			Warrant					Warrant					Incr. In	Incr. In
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C		
1	Monterey Road and Burdett Avenue	Signal	D	AM	03/28/19	--	15.0	B	--	15.0	B	0.0	0.001	--	15.0	B	-0.1	0.003		
				PM	03/28/19	--	9.7	A	--	9.7	A	0.0	0.002	--	9.8	A	0.1	0.005		
2	Monterey Road and Madrone Parkway	Signal	D	AM	02/28/19	--	9.4	A	--	9.4	A	0.0	0.001	--	9.4	A	0.0	0.003		
				PM	02/28/19	--	9.8	A	--	9.9	A	0.1	0.002	--	10.0	A	0.1	0.005		
3	Monterey Road and Cochrane Road	Signal	E	AM	05/08/18	--	28.1	C	--	28.2	C	0.1	0.003	--	28.2	C	0.2	0.005		
				PM	05/08/18	--	24.0	C	--	24.2	C	0.3	0.005	--	24.2	C	0.3	0.009		
4	Monterey Road and Old Monterey Road	Signal	D	AM	05/08/18	--	10.4	B	--	10.4	B	0.0	0.003	--	10.4	B	0.0	0.003		
				PM	05/08/18	--	13.0	B	--	13.0	B	0.1	0.002	--	13.0	B	0.1	0.002		
5	Monterey Road and Wright Avenue	Signal	D	AM	03/28/19	--	19.1	B	--	19.1	B	0.0	0.000	--	19.1	B	0.0	0.000		
				PM	03/28/19	--	20.4	C	--	20.4	C	0.0	0.000	--	20.4	C	0.0	0.000		
6	Monterey Road and Central Avenue	TWSC	D	AM	03/28/19	No	19.5	C	No	19.5	C	N/A	N/A	No	19.5	C	N/A	N/A		
				PM	03/28/19	No	15.7	C	No	15.7	C	N/A	N/A	No	15.7	C	N/A	N/A		
7	Monterey Road and Main Avenue	Signal	F	AM	05/08/18	--	44.2	D	--	44.5	D	0.3	0.007	--	44.8	D	0.7	0.017		
				PM	05/08/18	--	45.1	D	--	45.6	D	0.7	0.011	--	46.2	D	1.4	0.023		
8	Monterey Road and Second Street	Signal	F	AM	03/28/19	--	10.6	B	--	10.6	B	0.0	0.001	--	10.6	B	0.1	0.003		
				PM	03/28/19	--	12.6	B	--	12.6	B	0.0	0.000	--	12.6	B	0.0	0.000		
9	Monterey Road and East Dunne Avenue	Signal	E	AM	05/08/18	--	28.9	C	--	29.0	C	0.1	0.002	--	29.0	C	0.1	0.002		
				PM	05/08/18	--	31.4	C	--	31.6	C	0.2	0.004	--	31.6	C	0.3	0.006		
10	East Dunne Avenue and Church Street	Signal	E	AM	06/06/18	--	17.8	B	--	17.8	B	-0.1	0.005	--	17.8	B	-0.1	0.006		
				PM	06/06/18	--	19.9	B	--	19.7	B	-0.2	0.006	--	19.6	B	-0.2	0.008		
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM	05/08/18	--	35.5	D	--	35.6	D	0.4	0.011	--	35.8	D	0.8	0.017		
				PM	05/08/18	--	31.7	C	--	31.8	C	0.1	0.005	--	32.1	C	0.4	0.009		
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM	03/28/19	--	18.4	B	--	18.4	B	0.0	0.003	--	18.4	B	0.0	0.004		
				PM	03/28/19	--	28.5	C	--	28.4	C	0.0	0.002	--	28.4	C	-0.1	0.005		
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM	05/08/18	--	20.9	C	--	20.9	C	0.0	0.000	--	21.0	C	0.1	0.003		
				PM	05/08/18	--	18.8	B	--	18.8	B	0.0	0.000	--	18.9	B	0.1	0.002		
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM	05/08/18	--	5.3	A	--	5.3	A	0.0	0.001	--	5.2	A	-0.1	0.005		
				PM	05/08/18	--	11.8	B	--	11.7	B	0.0	0.004	--	11.6	B	0.0	0.006		
15	East Dunne Avenue and Condit Road	Signal	E	AM	03/28/19	--	42.4	D	--	43.0	D	0.7	0.010	--	43.7	D	1.6	0.022		
				PM	03/28/19	--	28.2	C	--	28.3	C	0.1	0.015	--	28.4	C	0.4	0.032		
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM	03/28/19	--	18.9	B	--	18.9	B	0.0	0.003	--	19.0	B	0.1	0.004		
				PM	03/28/19	--	11.8	B	--	11.8	B	0.0	0.004	--	11.8	B	0.0	0.006		
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM	05/08/18	--	21.3	C	--	21.5	C	0.3	0.004	--	21.5	C	0.3	0.005		
				PM	05/08/18	--	20.4	C	--	20.5	C	0.3	0.006	--	20.6	C	0.4	0.008		
18	Butterfield Boulevard and Main Avenue	Signal	D	AM	05/08/18	--	27.6	C	--	27.8	C	0.3	0.009	--	28.2	C	0.4	0.009		
				PM	05/08/18	--	29.8	C	--	30.3	C	0.6	0.013	--	30.9	C	1.6	0.028		
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM	05/08/18	--	17.1	B	--	17.1	B	0.0	0.004	--	17.1	B	0.0	0.006		
				PM	05/08/18	--	11.0	B	--	11.1	B	0.0	0.005	--	11.1	B	0.1	0.007		
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM	05/08/18	--	11.7	B	--	11.8	B	0.1	0.004	--	11.8	B	0.1	0.006		
				PM	05/08/18	--	12.8	B	--	12.8	B	0.0	0.006	--	12.9	B	0.1	0.008		
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM	05/08/18	--	6.7	A	--	6.7	A	0.1	0.004	--	6.7	A	0.1	0.004		
				PM	05/08/18	--	15.6	B	--	15.8	B	0.3	0.009	--	15.9	B	0.3	0.011		
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM	05/08/18	--	12.3	B	--	12.4	B	0.1	0.004	--	12.4	B	0.1	0.004		
				PM	05/08/18	--	12.0	B	--	12.0	B	0.1	0.003	--	12.0	B	0.1	0.003		
23	Cochrane Road and Cochrane Circle	Signal	D	AM	05/08/18	--	10.5	B	--	10.4	B	0.0	0.002	--	10.4	B	0.0	0.004		
				PM	05/08/18	--	10.9	B	--	11.0	B	0.1	0.004	--	11.0	B	0.1	0.007		
24	Cochrane Road and Sutter Boulevard	Signal	D	AM	05/08/18	--	17.2	B	--	17.2	B	0.0	0.006	--	17.3	B	0.0	0.008		
				PM	05/08/18	--	17.9	B	--	18.1	B	0.1	0.008	--	18.1	B	0.1	0.011		

Table 18 (Continued)
Existing Plus Project Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Existing Control	LOS Standard	Peak Hour	Count Date	Existing + Project (Commercial & Warehouse Components Only)												Existing + Project (Project Alternative Buildout)								
						Existing			Warrant			Incr. In			Incr. In			Warrant			Incr. In			Incr. In		
						Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Warrant Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C	Warrant Met?	Delay ¹	LOS	Crit. Delay	Crit. V/C			
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM PM	05/08/18 05/08/18	-- --	19.1 31.4	B C	-- --	19.1 31.2	B C	0.0 -0.1	0.000 0.005	-- --	19.1 31.1	B C	-3.1 -0.2	0.001 0.010								
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM PM	05/08/18 05/08/18	-- --	12.8 16.5	B B	-- --	13.3 17.1	B B	0.7 0.7	0.053 0.030	-- --	13.6 18.4	B B	1.0 2.2	0.071 0.093								
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM PM	05/08/18 05/08/18	-- --	8.6 11.3	A B	-- --	9.1 11.6	A B	0.9 0.4	0.094 0.039	-- --	8.9 11.6	A B	1.3 0.7	0.147 0.082								
28	Cochrane Road and De Paul Drive	Signal	E	AM PM	05/08/18 05/08/18	-- --	17.7 18.7	B B	-- --	18.2 22.8	B C	0.3 2.8	0.048 0.188	-- --	18.7 23.7	B C	0.9 4.6	0.112 0.260								
29	Cochrane Road and Mission View Drive	Signal	D	AM PM	05/08/18 05/08/18	-- --	23.0 15.7	C B	-- --	27.3 17.2	C B	7.1 2.2	0.038 0.049	-- --	37.7 19.1	D B	24.4 5.1	0.082 0.099								
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM PM	03/28/19 03/28/19	No No	13.5 12.5	B B	No No	14.3 13.6	B B	N/A N/A	N/A N/A	No No	15.5 14.8	C B	N/A N/A	N/A N/A								
31	Mission View Drive and Half Road	OWSC	D	AM PM	03/28/19 03/28/19	No No	13.6 22.6	B C	No Yes	14.9 35.9	B E	N/A N/A	N/A N/A	No Yes	15.4 73.7	C F	N/A N/A	N/A N/A								
32	Half Road and De Paul Drive Extension	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --								
33	Main Avenue and Condit Road	Signal	D	AM PM	05/08/18 05/08/18	-- --	27.6 26.1	C C	-- --	28.5 28.4	C C	1.1 2.5	0.025 0.058	-- --	30.4 30.3	C C	3.4 4.7	0.064 0.096								
34	Main Avenue and Murphy Avenue	Future	D	AM PM	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --								
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM PM	03/28/19 03/28/19	No No	8.6 8.6	A A	No No	8.6 8.6	A A	N/A N/A	N/A N/A	No No	8.6 8.6	A A	N/A N/A	N/A N/A								
36	Condit Road and Diana Avenue	TWSC	D	AM PM	06/04/19 06/04/19	Yes No	14.7 13.6	B B	Yes No	15.2 14.2	C B	N/A N/A	N/A N/A	Yes No	15.5 14.6	C B	N/A N/A	N/A N/A								
37	Murphy Avenue and Diana Avenue	OWSC	D	AM PM	06/04/19 06/04/19	No No	11.4 9.9	B A	No No	11.4 9.9	B A	N/A N/A	N/A N/A	No No	11.4 9.9	B A	N/A N/A	N/A N/A								
38	Tennant Avenue and Condit Road	OWSC	E	AM PM	06/04/19 06/04/19	Yes Yes	14.7 14.6	B B	Yes Yes	15.2 14.8	C B	N/A N/A	N/A N/A	Yes Yes	15.2 15.0	C B	N/A N/A	N/A N/A								
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM PM	06/04/19 06/04/19	Yes No	21.3 11.9	C B	Yes No	21.5 12.0	C B	N/A N/A	N/A N/A	Yes No	21.7 12.1	C B	N/A N/A	N/A N/A								

Notes:

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.

Bold indicates unacceptable level of service or signal warrant met.

Bold and boxed indicate significant impact.

Table 19 (Continued)
Freeway Segment Levels of Service Summary – Warehouse Project Alternative

#	Freeway	Segment	Direction	Peak Hour	Existing Plus Project (Project Alternative Buildout)										Project Trips						
					Mixed-Flow Lane					HOV Lane					Mixed-Flow Lane			HOV Lane			
					Speed ¹ (mi/h)	# of Lanes	Capacity (pc/hr/ln)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Speed ¹ (mi/h)	Capacity (vph)	Volume (pc/hr/ln)	Density (pc/hr/ln)	LOS	Total Volume	Volume (pc/hr/ln)	% of Capacity	Volume (pc/hr/ln)	% of Capacity	
1	US 101	from Masten Avenue to San Martin Avenue	NB	AM	34.20	3	2,300	1,851	54	E	--	--	--	--	--	47	47	16	0.7	--	--
			NB	PM	51.80	3	2,300	2,036	39	D	--	--	--	--	--	50	50	17	0.7	--	--
2	US 101	from San Martin Avenue to Tennant Avenue	NB	AM	10.40	3	2,300	908	87	F	--	--	--	--	--	47	47	16	0.7	--	--
			NB	PM	60.00	3	2,300	1,832	31	D	--	--	--	--	--	50	50	17	0.7	--	--
3	US 101	from Tennant Avenue to East Dunne Avenue	NB	AM	9.40	3	2,300	843	90	F	--	--	--	--	--	47	47	16	0.7	--	--
			NB	PM	59.80	3	2,300	1,843	31	D	--	--	--	--	--	50	50	17	0.7	--	--
4	US 101	from East Dunne Avenue to Cochrane Road	NB	AM	21.00	3	2,300	1,444	69	F	--	--	--	--	--	45	45	15	0.7	--	--
			NB	PM	61.60	3	2,300	1,719	28	D	--	--	--	--	--	45	45	15	0.7	--	--
5	US 101	from Cochrane Road to Coyote Creek Golf Drive	NB	AM	22.20	3	2,300	1,527	69	F	71.41	1,650	828	12.0	B	96	81	27	1.2	15	0.9
			NB	PM	64.20	3	2,300	1,467	23	C	72.66	1,650	637	9.0	A	112	97	32	1.4	15	0.9
6	US 101	from Coyote Creek Golf Drive to Bailey Avenue	NB	AM	32.20	3	2,300	1,853	58	E	75.29	1,650	-- ²	-- ²	-- ²	96	96	32	1.4	0	0.0
			NB	PM	64.00	3	2,300	1,514	24	C	76.15	1,650	-- ²	-- ²	-- ²	112	112	37	1.6	0	0.0
7	US 101	from Bailey Avenue to SR 85	NB	AM	37.60	3	2,300	1,950	52	E	65.21	1,650	1,347	21.0	C	96	78	26	1.1	18	1.1
			NB	PM	63.40	3	2,300	1,586	25	C	72.91	1,650	589	8.0	A	112	99	33	1.4	13	0.8
8	US 101	from SR 85 to Bailey Avenue	SB	AM	62.40	3	2,300	1,669	27	D	73.82	1,650	395	5.0	A	74	68	23	1.0	6	0.4
			SB	PM	16.00	3	2,300	1,256	79	F	39.99	1,650	1,791	45.0	D	119	80	27	1.2	39	2.4
9	US 101	from Bailey Avenue to Coyote Creek Golf Drive	SB	AM	64.00	3	2,300	1,470	23	C	73.79	1,650	401	5.0	A	74	68	23	1.0	6	0.4
			SB	PM	14.80	3	2,300	1,193	81	F	41.99	1,650	1,789	43.0	D	119	78	26	1.1	41	2.5
10	US 101	from Coyote Creek Golf Drive to Cochrane Road	SB	AM	62.80	3	2,300	1,616	26	D	63.14	1,650	1,438	23.0	C	74	57	19	0.8	17	1.0
			SB	PM	12.60	3	2,300	1,071	85	F	21.57	1,650	1,696	79.0	F	119	77	26	1.1	42	2.5
11	US 101	from Cochrane Road to East Dunne Avenue	SB	AM	62.00	3	2,300	1,666	27	D	--	--	--	--	--	27	27	9	0.4	--	--
			SB	PM	25.00	3	2,300	1,610	64	F	--	--	--	--	--	63	63	21	0.9	--	--
12	US 101	from East Dunne Avenue to Tennant Avenue	SB	AM	63.00	3	2,300	1,569	25	C	--	--	--	--	--	32	32	11	0.5	--	--
			SB	PM	27.00	3	2,300	1,678	62	F	--	--	--	--	--	66	66	22	1.0	--	--
13	US 101	from Tennant Avenue to San Martin Avenue	SB	AM	63.00	3	2,300	1,569	25	C	--	--	--	--	--	32	32	11	0.5	--	--
			SB	PM	25.40	3	2,300	1,627	64	F	--	--	--	--	--	66	66	22	1.0	--	--
14	US 101	from San Martin Avenue to Masten Avenue	SB	AM	60.00	3	2,300	1,814	30	D	--	--	--	--	--	32	32	11	0.5	--	--
			SB	PM	37.80	3	2,300	1,942	51	E	--	--	--	--	--	66	66	22	1.0	--	--
Notes: ¹ Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018. ² Speed exceeds the bound of the equation used to derive volume and density. Bold indicates unacceptable LOS. Boxed indicates significant impact.																					

Therefore, based on CMP impact criteria, the buildout of all proposed land use components of the project would have a significant impact on four study freeway segments.

Full mitigation of significant project impacts on freeway segments would require freeway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

Intersection Levels of Service under Year 2030 Cumulative Conditions

The level of service results under Year 2030 Cumulative without and with the warehouse/commercial only project conditions are summarized in Table 20. The results show that the following eight intersections would operate at unacceptable levels during Year 2030 Cumulative without and with only the warehouse and commercial components of the project during at least one peak hour when measured against the City of Morgan Hill level of service standards:

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 29. Cochrane Road and Mission View Drive (AM & PM Peak Hours)
- 30. Mission View Drive and Avenida De Los Padres (unsignalized) (PM Peak Hour)
- 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)
- 33. Main Avenue and Condit Road (AM & PM Peak Hours)
- 36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

Traffic associated with the proposed commercial and warehouse components of the project site would cause the critical delay at the signalized intersections of Cochrane Road and Mission View Drive and Main Avenue and Condit Road to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01 during at least one of the peak hours.

The peak-hour traffic signal warrant checks indicate that of the above identified study intersections projected to operate at unacceptable LOS, the following would have traffic volumes under Year 2030 Cumulative without and with the warehouse and commercial components of the project that meet thresholds that warrant signalization under at least one peak hour.

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)
- 36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The project would not have an impact the intersection of Monterey Road and Central Avenue during the AM peak hour because the proposed project would not result in the addition of trips to this intersection. Projected traffic volumes at the intersection of Mission View Drive and Avenida De Los Padres would not have traffic volumes that would warrant installation of a traffic signal.

Therefore, based on the City's impact criteria and signal warrant analysis, the proposed commercial and warehouse components of the project would result in a significant impact at the following study intersections.

Table 20
Year 2030 Cumulative Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Year 2030 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Warehouse Components Only)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Monterey Road and Burdett Avenue	Signal	D	AM	--	16.6	B	--	16.6	B	0.0	0.001
				PM	--	13.1	B	--	13.1	B	0.1	0.002
2	Monterey Road and Madrone Parkway	Signal	D	AM	--	12.2	B	--	12.2	B	0.0	0.001
				PM	--	15.8	B	--	16.0	B	0.2	0.002
3	Monterey Road and Cochrane Road	Signal	E	AM	--	30.3	C	--	30.4	C	0.1	0.003
				PM	--	26.9	C	--	27.2	C	0.3	0.005
4	Monterey Road and Old Monterey Road	Signal	D	AM	--	9.8	A	--	9.8	A	0.1	0.003
				PM	--	14.8	B	--	14.9	B	0.0	0.000
5	Monterey Road and Wright Avenue	Signal	D	AM	--	22.4	C	--	22.4	C	0.0	0.000
				PM	--	23.0	C	--	23.0	C	0.0	0.000
6	Monterey Road and Central Avenue	TWSC	D	AM	Yes	67.0	F	Yes	67.0	F	N/A	N/A
				PM	No	27.0	D	No	27.0	D	N/A	N/A
7	Monterey Road and Main Avenue	Signal	F	AM	--	47.8	D	--	48.2	D	0.5	0.007
				PM	--	49.1	D	--	49.9	D	1.0	0.011
8	Monterey Road and Second Street	Signal	F	AM	--	11.5	B	--	11.5	B	0.0	0.001
				PM	--	16.7	B	--	16.7	B	0.0	0.000
9	Monterey Road and East Dunne Avenue	Signal	E	AM	--	29.0	C	--	29.1	C	0.1	0.002
				PM	--	33.2	C	--	33.3	C	0.3	0.005
10	East Dunne Avenue and Church Street	Signal	E	AM	--	19.5	B	--	19.5	B	0.0	0.002
				PM	--	25.4	C	--	25.2	C	-0.2	0.006
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM	--	40.9	D	--	41.2	D	0.6	0.007
				PM	--	35.1	D	--	35.3	D	0.4	0.008
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM	--	18.9	B	--	18.9	B	0.0	0.003
				PM	--	27.8	C	--	27.8	C	0.0	0.002
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM	--	21.9	C	--	21.9	C	0.0	0.000
				PM	--	21.4	C	--	21.4	C	0.0	0.000
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM	--	6.2	A	--	6.2	A	0.0	0.001
				PM	--	11.3	B	--	11.3	B	0.0	0.001
15	East Dunne Avenue and Condit Road	Signal	E	AM	--	64.8	E	--	67.0	E	2.8	0.010
				PM	--	32.8	C	--	33.2	C	0.7	0.015
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM	--	20.5	C	--	20.5	C	0.1	0.003
				PM	--	14.4	B	--	14.4	B	0.0	0.004
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM	--	37.5	D	--	38.8	D	1.8	0.004
				PM	--	35.0	D	--	36.7	D	2.6	0.006
18	Butterfield Boulevard and Main Avenue	Signal	D	AM	--	31.1	C	--	31.5	C	0.6	0.009
				PM	--	36.3	D	--	37.1	D	1.3	0.013
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM	--	19.3	B	--	19.4	B	0.1	0.004
				PM	--	12.6	B	--	12.6	B	0.1	0.006
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM	--	16.0	B	--	16.2	B	0.4	0.004
				PM	--	17.8	B	--	18.0	B	0.3	0.006
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM	--	7.4	A	--	7.5	A	0.1	0.004
				PM	--	16.3	B	--	16.6	B	0.4	0.009
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM	--	12.8	B	--	12.9	B	0.1	0.004
				PM	--	14.8	B	--	14.8	B	0.2	0.003
23	Cochrane Road and Cochrane Circle	Signal	D	AM	--	10.4	B	--	10.4	B	0.0	0.002
				PM	--	12.2	B	--	12.2	B	0.1	0.004
24	Cochrane Road and Sutter Boulevard	Signal	D	AM	--	17.8	B	--	17.8	B	0.0	0.006
				PM	--	17.9	B	--	18.1	B	0.1	0.010
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM	--	19.1	B	--	19.1	B	0.0	0.000
				PM	--	32.3	C	--	32.2	C	-0.1	0.005
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM	--	14.5	B	--	15.5	B	1.6	0.053
				PM	--	22.2	C	--	24.1	C	2.9	0.030
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM	--	7.5	A	--	8.3	A	1.8	0.096
				PM	--	11.6	B	--	12.2	B	0.8	0.039
28	Cochrane Road and De Paul Drive	Signal	E	AM	--	26.0	C	--	25.8	C	-0.3	0.048
				PM	--	23.3	C	--	30.7	C	13.0	0.251
29	Cochrane Road and Mission View Drive	Signal	D	AM	--	148.0	F	--	167.1	F	30.1	0.038
				PM	--	58.1	E	--	77.5	E	28.3	0.049
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM	No	28.6	D	No	31.9	D	N/A	N/A
				PM	No	37.6	E	No	46.8	E	N/A	N/A
31	Mission View Drive and Half Road	OWSC	D	AM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
				PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
32	Half Road and De Paul Drive Extension	Future	D	AM	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--
33	Main Avenue and Condit Road	Signal	D	AM	--	51.5	D	--	56.8	E	6.4	0.025
				PM	--	79.8	E	--	98.5	F	22.6	0.058
34	Main Avenue and Murphy Avenue	Future	D	AM	--	--	--	--	--	--	--	--
				PM	--	--	--	--	--	--	--	--
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	No	8.6	A	No	8.6	A	N/A	N/A
				PM	No	8.6	A	No	8.6	A	N/A	N/A

Table 20
Year 2030 Cumulative Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Year 2030 Control	LOS Standard	Peak Hour	Year 2030 Cumulative No Project			Year 2030 Cumulative + Project (Commercial & Warehouse Components Only)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
36	Condit Road and Diana Avenue	TWSC	D	AM	Yes	36.8	E	Yes	40.5	E	N/A	N/A
				PM	Yes	26.9	D	Yes	29.0	D	N/A	N/A
37	Murphy Avenue and Diana Avenue	OWSC	D	AM	No	13.5	B	No	13.5	B	N/A	N/A
				PM	No	11.0	B	No	11.0	B	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	Yes	30.5	D	Yes	32.9	D	N/A	N/A
				PM	Yes	89.1	F	Yes	94.5	F	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	Yes	127.6	F	Yes	128.8	F	N/A	N/A
				PM	Yes	117.8	F	Yes	119.6	F	N/A	N/A

Notes:
¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
 Bold indicates unacceptable level of service or signal warrant met.
 Bold and boxed indicate significant impact.
 OVFL = Overflow (delay is greater than 250 seconds)

- 29. Cochrane Road and Mission View Drive (AM & PM Peak Hours)
- 31. Mission View Drive and Half Road (unsignalized) (AM & PM Peak Hours)
- 33. Main Avenue and Condit Road (AM & PM Peak Hours)
- 36. Condit Road and Diana Avenue (unsignalized) (AM Peak Hour)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

All other study intersections are projected to operate at acceptable levels of service under Year 2030 Cumulative without and with the warehouse and commercial components of the project, during each of the peak hours analyzed. The level of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Year 2030 Cumulative Conditions Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under Year 2030 Cumulative conditions.

29. Cochrane Road and Mission View Drive

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E or worse) during both peak hours under Year 2030 Cumulative no project conditions. The addition of project traffic associated with the proposed commercial and warehouse components of the project site would cause the critical delay to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01 during both peak hours. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at this intersection consists of the addition of a second northbound left-turn lane on Mission View Drive and a cycle length adjustment. The addition of the second northbound left-turn lane will require lane striping and signal modification but will fit within the existing curb-to-curb pavement width on Mission View Drive. Implementation of this improvement would

improve the intersection's level of service to LOS C during both peak hours under Year 2030 Cumulative with project conditions.

31. Mission View Drive and Half Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection would be the same as described under Existing plus Project conditions. Implementation of a traffic signal at this location would improve the level of service to LOS C during both peak hours under Year 2030 Cumulative with the warehouse and commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection

33. Main Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E) during the PM peak hour under Year 2030 Cumulative no project conditions. The addition of project traffic associated with the proposed commercial and warehouse components of the project site would cause the critical delay to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01. Additionally, this intersection is projected to operate at an acceptable LOS D during the AM peak hour under Year 2030 Cumulative no project conditions. The proposed commercial and warehouse components of the project site would cause the level of service to degrade to an unacceptable LOS E during the AM peak hour. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of an exclusive southbound right-turn lane on Condit Road. The addition of the right-turn lane will require signal modifications and lane striping on the intersection's southbound approach. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the warehouse and commercial components of the project. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

36. Condit Road and Diana Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS E) during the AM peak hour under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the AM peak hour under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project that meet thresholds that warrant

signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the AM peak hour under Year 2030 Cumulative with the warehouse and commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during the PM peak hour under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the PM peak hour under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS C conditions during the PM peak hour under Year 2030 Cumulative with the warehouse and commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both the AM and PM peak hours under Year 2030 Cumulative conditions without and with the warehouse and commercial components of the project. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during both peak hours under Year 2030 Cumulative without and with the warehouse and commercial components of the project that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS C conditions during both peak hours under Year 2030 Cumulative with the warehouse and commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Year 2035 General Plan Level of Service Analysis

The level of service results under Year 2035 General Plan without and with project alternative buildout conditions are summarized in Table 21. The results show that the following seven intersections would operate at unacceptable levels under Year 2035 General Plan without and with project buildout

Table 21
Year 2035 General Plan Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Year 2035 Control	LOS Standard	Peak Hour	Year 2035 No Project			Year 2035 + Project (Project Alternative Buildout)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In V/C
1	Monterey Road and Burdett Avenue	Signal	D	AM PM	-- --	16.0 25.0	B C	-- --	15.9 25.4	B C	-0.1 0.5	-0.003 0.001
2a.	Monterey Road and Madrone Parkway (N)	Signal	D	AM PM	-- --	19.0 35.2	B D	-- --	18.5 35.6	B D	-0.6 0.6	-0.004 0.001
2b.	Monterey Road and Madrone Parkway (E)	Signal	D	AM PM	-- --	14.9 14.0	B B	-- --	14.8 14.0	B B	0.0 0.0	-0.002 0.000
3	Monterey Road and Cochrane Road	Signal	E	AM PM	-- --	26.9 30.8	C C	-- --	27.0 30.9	C C	-1.9 0.1	-0.016 0.001
4	Monterey Road and Old Monterey Road	Signal	D	AM PM	-- --	14.1 17.7	B B	-- --	14.1 17.7	B B	0.0 0.0	-0.002 0.002
5	Monterey Road and Wright Avenue	Signal	D	AM PM	-- --	27.6 22.3	C C	-- --	27.3 22.4	C C	-0.4 0.1	-0.001 0.002
6	Monterey Road and Central Avenue	TWSC	D	AM PM	Yes No	240.6 39.4	F E	Yes No	229.4 39.8	F E	N/A N/A	N/A N/A
7	Monterey Road and Main Avenue	Signal	F	AM PM	-- --	99.7 51.9	F D	-- --	99.2 51.9	F D	-0.8 0.0	-0.002 0.000
8	Monterey Road and Second Street	Signal	F	AM PM	-- --	10.8 12.5	B B	-- --	10.8 12.4	B B	0.0 0.0	-0.002 0.002
9	Monterey Road and East Dunne Avenue	Signal	E	AM PM	-- --	30.7 36.7	C D	-- --	30.7 36.6	C D	0.0 -0.2	-0.001 -0.004
10	East Dunne Avenue and Church Street	Signal	E	AM PM	-- --	20.8 25.1	C C	-- --	20.8 25.1	C C	0.0 0.0	-0.001 0.001
11	Butterfield Boulevard and East Dunne Avenue	Signal	D	AM PM	-- --	38.9 34.8	D C	-- --	38.9 34.8	D C	-0.1 0.0	-0.002 0.001
12	East Dunne Avenue and Walnut Grove Drive	Signal	E	AM PM	-- --	20.3 28.0	C C	-- --	20.2 28.0	C C	0.0 0.0	-0.001 0.001
13	US 101 Southbound Ramps and East Dunne Avenue	Signal	E	AM PM	-- --	21.7 22.3	C C	-- --	21.7 22.6	C C	-0.1 0.4	-0.001 0.007
14	US 101 Northbound Ramps and East Dunne Avenue	Signal	E	AM PM	-- --	6.8 10.8	A B	-- --	7.0 10.7	A B	0.2 -0.1	-0.002 0.003
15	East Dunne Avenue and Condit Road	Signal	E	AM PM	-- --	48.4 30.5	D C	-- --	48.4 30.4	D C	0.1 -0.1	0.001 0.001
16	East Dunne Avenue and Murphy Avenue	Signal	D	AM PM	-- --	23.1 16.9	C B	-- --	23.3 17.1	C B	0.3 0.0	0.005 -0.002
17	Butterfield Boulevard and Diana Avenue	Signal	D	AM PM	-- --	22.7 23.5	C C	-- --	22.7 23.6	C C	0.0 0.2	0.000 0.002
18	Butterfield Boulevard and Main Avenue	Signal	D	AM PM	-- --	31.5 35.7	C D	-- --	31.5 35.9	C D	0.1 0.2	0.001 0.003
19	Butterfield Boulevard and East Central Avenue	Signal	D	AM PM	-- --	17.5 11.3	B B	-- --	17.5 11.3	B B	0.0 0.0	0.000 0.000
20	Butterfield Boulevard and Jarvis Drive (S)/Digital Drive	Signal	D	AM PM	-- --	12.1 13.2	B B	-- --	12.1 13.2	B B	0.0 0.0	0.000 0.001
21	Butterfield Boulevard and Sutter Boulevard	Signal	D	AM PM	-- --	16.2 25.7	B C	-- --	16.2 25.8	B C	0.0 0.1	-0.001 0.000
22	Butterfield Boulevard and Cochrane Road	Signal	D	AM PM	-- --	18.8 23.1	B C	-- --	18.8 23.1	B C	0.0 0.0	0.000 0.002
23	Cochrane Road and Cochrane Circle	Signal	D	AM PM	-- --	10.0 9.9	B A	-- --	10.0 10.0	B A	0.0 0.0	-0.003 0.001
24	Cochrane Road and Sutter Boulevard	Signal	D	AM PM	-- --	17.6 22.0	B C	-- --	17.6 22.1	B C	0.0 0.2	-0.001 0.005
25	Cochrane Road and Madrone Parkway/Cochrane Plaza	Signal	E	AM PM	-- --	18.5 29.0	B C	-- --	18.5 28.9	B C	0.0 0.0	-0.002 0.003
26	Cochrane Road and US 101 Southbound Ramps	Signal	E	AM PM	-- --	15.0 20.6	B C	-- --	15.1 21.1	B C	0.2 0.6	0.009 0.014
27	Cochrane Road and US 101 Northbound Ramps	Signal	E	AM PM	-- --	9.6 12.1	A B	-- --	10.0 12.2	A B	0.8 0.2	0.027 0.013
28	Cochrane Road and De Paul Drive	Signal	E	AM PM	-- --	40.2 68.3	D E	-- --	50.4 80.2	D F	23.5 25.9	0.059 0.052
29	Cochrane Road and Mission View Drive	Signal	D	AM PM	-- --	18.4 17.4	B B	-- --	18.5 17.4	B B	0.1 -0.1	0.007 -0.003
30	Mission View Drive and Avenida De Los Padres	TWSC	D	AM PM	No No	17.8 18.4	C C	No No	18.7 18.3	C C	N/A N/A	N/A N/A
31	Mission View Drive and Half Road	TWSC	D	AM PM	No Yes	28.5 19.3	D C	No Yes	29.2 19.7	D C	N/A N/A	N/A N/A
32	Half Road and De Paul Drive Extension	OWSC	D	AM PM	No Yes	14.9 61.7	B F	No Yes	14.1 41.9	B E	N/A N/A	N/A N/A
33	Main Avenue and Condit Road	Signal	D	AM PM	-- --	35.5 62.7	D E	-- --	35.6 65.7	D E	1.3 3.5	0.004 0.002

Table 21 (Continued)
Year 2035 General Plan Levels of Service – Warehouse Project Alternative

Int. #	Intersection	Year 2035 Control	LOS Standard	Peak Hour	Year 2035 No Project			Year 2035 + Project (Project Alternative Buildout)				
					Warrant Met?	Delay ¹	LOS	Warrant Met?	Delay ¹	LOS	Incr. In Crit. Delay	Incr. In V/C
34	Main Avenue and Murphy Avenue	AWSC	D	AM	Yes	209.3	F	Yes	218.0	F	N/A	N/A
				PM	Yes	81.5	F	Yes	93.6	F	N/A	N/A
35	Burdett Avenue and Vista De Lomas	OWSC	D	AM	No	11.0	B	No	11.0	B	N/A	N/A
				PM	No	9.5	A	No	9.5	A	N/A	N/A
36	Condit Road and Diana Avenue	TWSC	D	AM	Yes	17.0	C	Yes	17.0	C	N/A	N/A
				PM	No	15.3	C	No	14.9	B	N/A	N/A
37	Murphy Avenue and Diana Avenue	TWSC	D	AM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
				PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A
38	Tennant Avenue and Condit Road	OWSC	E	AM	Yes	24.3	C	Yes	24.4	C	N/A	N/A
				PM	Yes	75.1	F	Yes	75.8	F	N/A	N/A
39	Tennant Avenue and Murphy Avenue	AWSC	D	AM	Yes	213.7	F	Yes	214.7	F	N/A	N/A
				PM	Yes	OVFL	F	Yes	OVFL	F	N/A	N/A

Notes:

¹The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for one- and two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.

Bold indicates unacceptable level of service or signal warrant met.

Bold and boxed indicate significant impact.

OVFL = Overflow (delay is greater than 250 seconds)

conditions during at least one peak hour when measured against the City of Morgan Hill level of service standards:

- 6. Monterey Road and Central Avenue (unsignalized) (AM & PM Peak Hours)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 33. Main Avenue and Condit Road (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The peak-hour traffic signal warrant checks indicate that of the above identified study intersections projected to operate at unacceptable LOS, the following would have traffic volumes under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization under at least one peak hour.

- 6. Monterey Road and Central Avenue (unsignalized) (AM Peak Hour)
- 32. Half Road and De Paul Drive Extension (unsignalized) (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

The project would not have an impact at the intersections of Monterey Road and Central Avenue and Half Road and De Paul Drive Extension because the project is not projected to add trips to the intersections that would result in an increase in delay under Year 2035 General Plan with project buildout conditions.

The project also would not have an impact the intersection of Main Avenue and Condit Road during the PM peak hour because the proposed project buildout would not cause the critical delay at this intersection to increase by more than four seconds and the volume-to-capacity ratio (V/C) to increase by more than 0.01.

Additionally, the intersection level of service results show that one signalized study intersection, Cochrane Road and De Paul Drive, would deteriorate from an acceptable LOS E under Year 2035 General Plan no project conditions to an unacceptable LOS F under Year 2035 General Plan with project buildout conditions.

Therefore, based on the City's impact criteria and signal warrant analysis, the proposed project buildout would result in a significant impact at each of the following intersections under Year 2035 General Plan conditions:

- 28. Cochrane Road and De Paul Drive (PM Peak Hour)
- 34. Main Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)
- 37. Murphy Avenue and Diana Avenue (unsignalized) (AM & PM Peak Hours)
- 38. Tennant Avenue and Condit Road (unsignalized) (PM Peak Hour)
- 39. Tennant Avenue and Murphy Avenue (unsignalized) (AM & PM Peak Hours)

All other study intersections are projected to operate at acceptable levels of service under Year 2035 General Plan without and with project buildout conditions during each of the peak hours analyzed.

Year 2035 General Plan Impacts and Mitigation Measures

Described below are the intersection impacts and recommended mitigation measures under Year 2035 General Plan conditions.

28. Cochrane Road and De Paul Drive

Impact: This intersection is projected to operate at an acceptable level of service (LOS E) during the PM peak hour under Year 2035 General Plan no project conditions. The addition of project traffic associated with the proposed project buildout would degrade the intersection level of service to LOS F. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of an exclusive northbound left-turn lane and a separate eastbound right-turn lane. The addition of the northbound left-turn lane will require a signal modification (with split-phasing on the north and south approaches) and widening of the south approach (De Paul Drive) of the intersection by removing and reconstructing the curb and gutter along the project's frontage. The eastbound right-turn lane will require striping of the lane to the right of the existing bike lane along Cochrane Road. Implementation of these improvements would improve the intersection's level of service to LOS C during the PM peak hour under Year 2035 General Plan with project buildout conditions.

34. Main Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2035 General Plan conditions without and with the project buildout. Additionally, the peak-hour traffic signal warrant checks indicate that this intersection would have traffic volumes under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The signalization of the future intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS D and C during the AM and PM peak hours, respectively, under Year 2035 General Plan with the project buildout conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

37. Murphy Avenue and Diana Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both peak hours under Year 2035 General Plan conditions without and with the project buildout. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during both peak hours under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The signalization of the intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS C during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during the PM peak hour under Year 2035 General Plan conditions without and with the project buildout. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during the PM peak hour under Year 2035 General Plan conditions without and with project buildout conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection would be the same as described under Year 2035 General Plan conditions. The intersection would operate at LOS B conditions during the PM peak hour under Year 2030 Cumulative with the project buildout conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Impact: This intersection is projected to operate at an unacceptable level of service (LOS F) during both the AM and PM peak hours under Year 2035 General Plan conditions without and with the project buildout. Additionally, the peak-hour traffic signal warrant checks indicate that the intersection would have traffic volumes during both peak hours under Year 2035 General Plan without and with project buildout conditions that meet thresholds that warrant signalization. This constitutes a significant impact to the intersection based on the City's impact criteria.

Mitigation: The necessary improvement to mitigate the level of service impact at intersection would be the same as described under Year 2030 plus Project conditions. With implementation of a traffic signal at this location, the level of service would improve to LOS D during the peak hours under Year 2035 General Plan with the project buildout conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Vehicle Miles Traveled

Table 22 presents the projected VMT associated with the warehouse project alternative. The VMT results show that the warehouse project alternative would result in an increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/warehouse development uses on the project site. Additionally, the VMT per trip is shown to increase, representing longer trips associated with the proposed land use amendment for the site.

Intersection Impact Comparison

Table 23 presents a tabular summary of intersection impacts for both the proposed light industrial uses and warehouse project alternative under each of the study scenarios. The results of the analysis indicated that the warehouse project alternative will result in impacts at a total of 9 of the 39 study intersections during at least one of the scenarios studied. The proposed light industrial use was shown to result in impacts at a total of 11 intersections. The required mitigation at each of the intersections that were shown to be impacted by both the proposed light-industrial use and warehouse project alternative was the same at all impacted intersections however an additional intersection improvement would be required to mitigate the light-industrial project alternative. The intersection level of service results indicate that despite the fewer number of trips that would be generated when compared to the light industrial proposed project, the warehouse project alternative would result in impacts to only two fewer intersections.

Table 22
Year 2035 General Plan Vehicle Miles Traveled

Scenario	Daily		
	VMT	Trips	VMT per Trip
Existing 2035 General Plan	31,062	5,315	5.84
Project Warehouse Buildout	46,158	7,736	5.97
Change	15,096	2,421	0.12
Percent Change	49%	46%	2%
Source: City of Morgan Hill Travel Demand Model, Hexagon December 2019.			
<u>Notes:</u>			
VMT = Vehicle Miles Traveled associated with the project site.			

Table 23
Impact and Mitigation Summary Matrix

#	Intersection	Existing + Commercial & Light Industrial	Existing + Project Buildout	Year 2030 Cumulative + Commercial & Light Industrial	Year 2035 + Project Buildout	Existing + Commercial & Warehouse	Existing + Project Alternative Buildout	Year 2030 Cumulative + Commercial & Warehouse	Year 2035 + Project Alternative Buildout
28	Cochrane Road and De Paul Drive		Impact	Impact	Impact				Impact
	<i>Impact mitigated by providing a second northbound left-turn lane and an exclusive eastbound right-turn lane</i>		Yes	Yes	Yes				Yes
29	Cochrane Road and Mission View Drive	Impact	Impact	Impact				Impact	
	<i>Impact mitigated by providing a second northbound left-turn lane and cycle length adjustment</i>	Yes	Yes	Yes				Yes	
30	Mission View Drive and Avenida De Los Padres			Impact					
	<i>Impact mitigated by installation of a traffic signal</i>			Yes					
31	Mission View Drive and Half Road	Impact	Impact	Impact		Impact	Impact	Impact	
	<i>Impact mitigated by installation of a traffic signal</i>	Yes	Yes	Yes		Yes	Yes	Yes	
32	Half Road and De Paul Drive Extension				Impact				
	<i>Impact mitigated by restricting left turns</i>				Yes				
33	Main Avenue and Condit Road			Impact	Impact			Impact	
	<i>Impact mitigated by providing an exclusive southbound right-turn lane</i>				Yes			Yes	
	<i>Impact mitigated by providing exclusive southbound right-turn and eastbound right-turn lanes</i>			Yes					
34	Main Avenue and Murphy Avenue				Impact				Impact
	<i>Impact mitigated by installation of a traffic signal</i>				Yes				Yes
36	Condit Road and Diana Avenue			Impact				Impact	
	<i>Impact mitigated by installation of a traffic signal</i>			Yes				Yes	
37	Murphy Avenue and Diana Avenue				Impact				Impact
	<i>Impact mitigated by installation of a traffic signal</i>				Yes				Yes
38	Tennant Avenue and Condit Road			Impact	Impact			Impact	Impact
	<i>Impact mitigated by installation of a traffic signal</i>			Yes	Yes			Yes	Yes
39	Tennant Avenue and Murphy Avenue			Impact	Impact			Impact	Impact
	<i>Impact mitigated by installation of a traffic signal</i>			Yes	Yes			Yes	Yes

7. Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project site, including:

- Vehicular site access
- On-site circulation
- Intersection operations analysis – vehicle queuing and left-turn pocket storage at intersections
- Potential impacts to bike, pedestrian and transit facilities

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Site Access and Circulation

A review of the site plans for both the proposed commercial/light-industrial and commercial/warehouse project alternative was performed to determine if adequate site access is provided and to identify any access and circulation issues that should be improved. This review was completed in accordance with generally accepted traffic engineering standards. A detailed site plan review of the residential component of the project was not completed since there is no formal development plan available.

Site Access

The site plans, project trips at site access points, and driveway numbers are presented in Figures 20 and 21. A total of eight access points are shown in the commercial/light-industrial project site plan while six access points are shown to serve the site in the commercial/warehouse alternative plan. One right-in only access point (driveway 1) would be located along Cochrane Road and provide direct access to the commercial site. The Cochrane Road access points would not provide access to the light-industrial or warehouse buildings and would not be used by trucks that are bound for the light-industrial or warehouse buildings. Each of the access points along DePaul Drive would provide shared access to the light-industrial and warehouse buildings. Although all of the driveways proposed along DePaul Drive are shown to be full-access driveways, it is recommended that the northernmost driveway be restricted to right-in and right-out only operations due to its proximity (approximately 250 feet) from the DePaul Drive and Cochrane Road intersection.

Figure 21
Project Trips at Site Access Points for the Commercial and Light Industrial Components

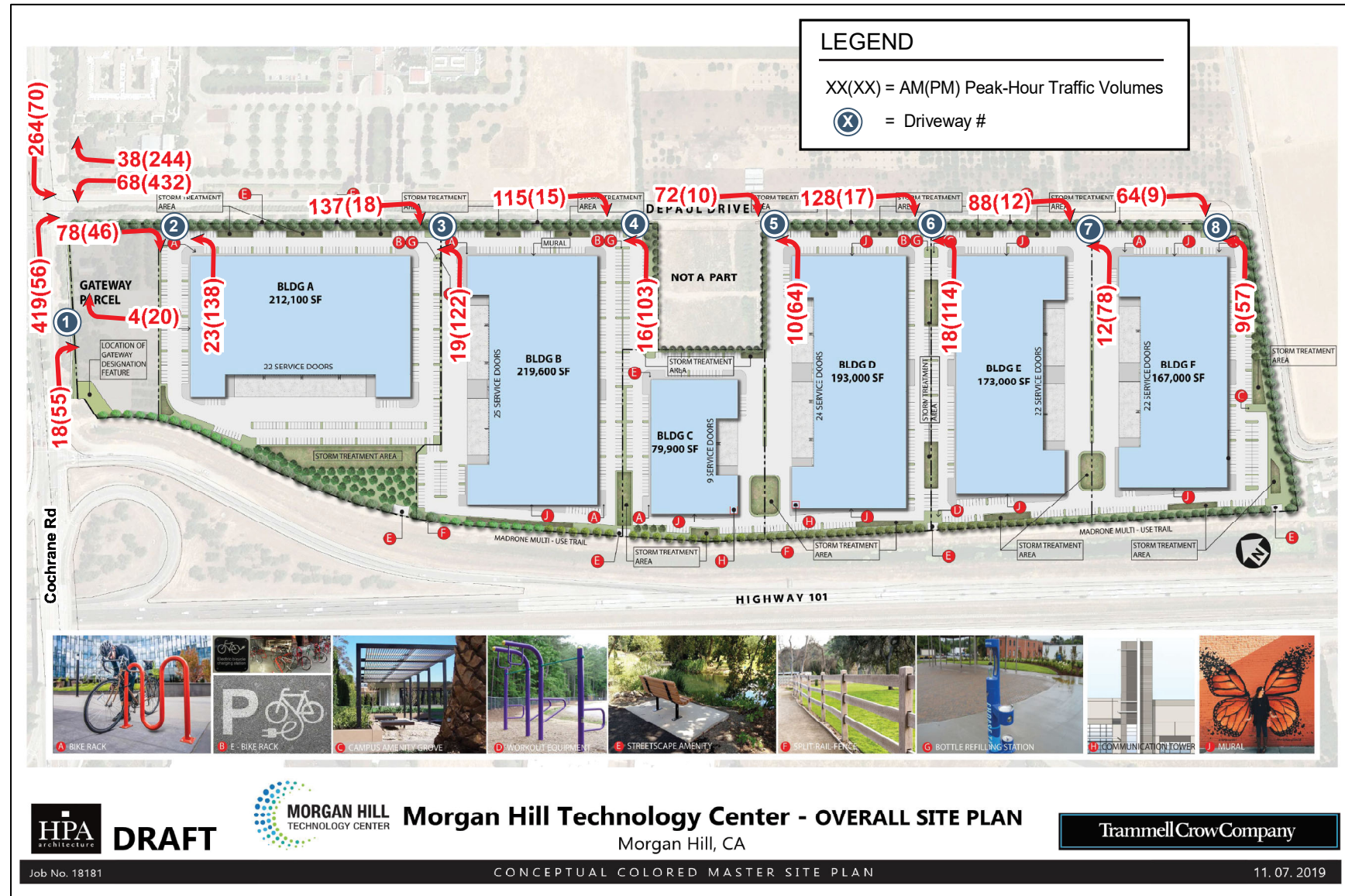
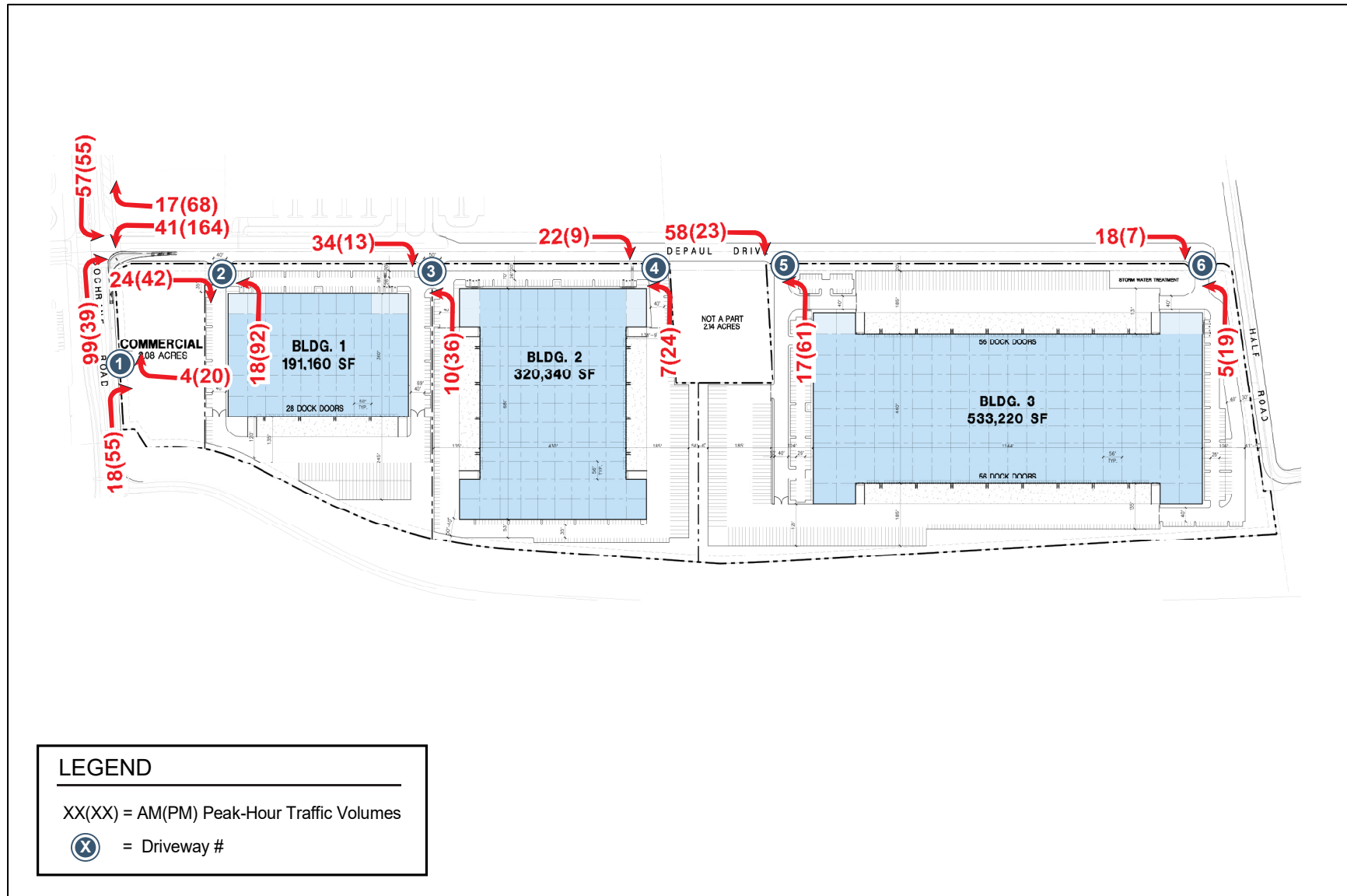


Figure 22
Project Trips at Site Access Points for the Commercial and Warehouse Components



On-Site Circulation

The commercial/light-industrial plan does not indicate a physical separation of parking areas on the site. Therefore, circulation throughout the site and around all parking areas will be possible.

The commercial/warehouse site plan indicates that there is no proposed on-site connection between the two northern warehouse buildings (Buildings 1 and 2) and the southern warehouse building (Building 3). The planned internal roadway network provides for mostly continuous vehicular circulation within each of the northern and southern portions of the warehouse site. However, gates providing access to truck loading areas create dead-end drive aisle for vehicles that cannot enter the loading areas. Vehicles will need to make a U-turn within a drive aisle or reverse out of the drive aisle if they cannot enter a gate. However, the proposed drive aisle width of 40 feet along most of the on-site drive aisles should be sufficient for making U-turns. The proposed drive aisle width also will be sufficient for accessing the proposed 90-degree vehicle parking stalls on-site.

The project site plans show continuous pedestrian connections between all proposed land uses on site and pedestrian walkways along the project site frontages. The proposed pedestrian walkways along the project site frontages would provide a connection to other existing pedestrian facilities (sidewalks, crosswalks, bus stops, etc.) east and west of the project site.

The project site should be designed following City of Morgan Hill design standards and provide adequate width and turn-radii at and along all drive/parking aisles to allow for two-way circulation and adequate circulation of larger vehicles (such as emergency trucks, garbage truck, and delivery trucks) throughout the project site. Adhering to City of Morgan Hill standards and requirements, and implementing the above recommendations, the proposed site access points and layout of the surface parking areas would be adequate to accommodate circulation of both passenger and emergency vehicles.

Truck Access and Circulation

All trucks will utilize the driveways located along DePaul Drive to access loading docks. The commercial/light-industrial plan (shown on Figure 21) indicates that truck docks will be located along one side of each of the six proposed buildings.

The commercial/warehouse plan indicate that truck docks will be located along the western side of Building 1, the northern and southern sides of Building 2, and the western and eastern sides of Building 3. Each of the 192 truck docks will be approximately 60 feet in length. An additional 60 feet of drive aisle space will be provided behind each of the loading dock areas. Approximately 60-foot truck parking spaces also are provided within the gated truck loading areas.

Truck Traffic

It is estimated that up to 248 and 385 daily truck trips may be generated by the proposed general light industrial and warehouse uses on the project site, respectively. Presuming operations at the manufacturing buildings could occur between 6:00 AM and 12:00 AM (18 hours of operation), it is estimated that an average of 14 and 21 truck trips per hour will be generated by the proposed general light industrial and warehouse uses on the project site, respectively.

It is expected that all truck traffic would originate from and be bound for US 101. Trucks will utilize the Cochrane Road freeway ramps and Cochrane Road to access the project driveways along DePaul Drive. Trucks will not use other interchanges at Dunne Avenue or Tennant Avenue. The project does not propose to locate driveways that would serve truck traffic along Cochrane Road. Based on the

identified truck route, the additional truck traffic estimated to be generated by the proposed general light industrial and warehouse uses on the project site will only result in an increase in truck traffic along Cochrane Road and DePaul Drive. Table 24 provides an estimate of the projected increase in truck traffic on surrounding streets.

Intersection Operations Analysis

The analysis of intersection level of service was supplemented with an analysis of intersection operations for selected intersections where the project would add a significant number of left-turning vehicles. The operations analysis is based on vehicle queuing for high demand left-turn movements at intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

$$P(x=n) = \frac{\lambda^n e^{-\lambda}}{n!}$$

Where:

$P(x=n)$ = probability of “n” vehicles in queue per lane

n = number of vehicles in the queue per lane

λ = Average number of vehicles in the queue per lane (vehicles per hour per lane/signal cycles per hour)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future left-turn storage requirements at intersections. The 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95 percent of the signal cycles. Likewise, a queue length larger than the 95th percentile queue would only occur on 5 percent of the signal cycles (about 3 cycles during the peak hour for a signal with a 60-second cycle length). Therefore, left-turn storage pocket designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time. The 95th percentile queue length is also known as the “design queue length”.

Since truck trips do not have the same effect on the transportation network as auto trips, the estimated project truck traffic was factored up using a heavy vehicle adjustment factor of 2.0 to yield passenger vehicle equivalent trips (a truck trip is considered to represent 2.0 passenger-vehicles) for the purpose of estimating vehicular queue lengths.

The vehicle queue estimates and a tabulated summary of the findings are provided in Table 25. The vehicular queuing analysis (Poisson probability calculations) is included in Appendix E.

Cochrane Road and DePaul Drive

Northbound

The queuing analysis indicates that the maximum vehicle queues for the northbound approach at the Cochrane Road and DePaul Drive intersection are projected to be less than the existing/planned storage capacities provided. However, to ensure efficient operations, it is recommended that a separate eastbound right-turn lane be provided at the Cochrane Road and DePaul Drive intersection. The separate eastbound right-turn lane should extend from DePaul Drive to approximately 150 feet west of the commercial driveway on Cochrane Road.

Table 24
Roadway Segment Traffic Composition

#	Segment	Existing Volumes				Commercial & Light Ind. Components Only					Project Buildout				
		Date	Project Trips			Existing + Project				Project Trips		Existing + Project			
			All Veh.	Trucks	%	All Veh.	Trucks	%		All Veh.	Trucks	All Veh.	Volumes	%	
1	Cochrane Road, between US 101 and DePaul Drive	03/29/19	22,823	299	1%	4,494	248	27,317	547	2%	6,452	248	29,275	547	2%
2	DePaul Drive, south of Cochrane Road	03/29/19	383	0	0%	6,534	248	6,917	248	4%	7,589	248	7,972	248	3%
3	Mission View Drive, between Avenida De Los Padres and Half Road	03/29/19	7,277	61	1%	2,410	0	9,687	61	1%	3,464	0	10,741	61	1%
4	Half Road, between Mission View Drive and Condit Road	03/29/19	4,998	30	1%	2,410	0	7,408	30	0%	3,314	0	8,312	30	0%
5	Condit Road, between Main Avenue and Diana Avenue	03/29/19	7,375	66	1%	908	0	8,283	66	1%	1,224	0	8,599	66	1%
6	Main Avenue, between US 101 and Condit Road	03/29/19	7,575	63	1%	1,152	0	8,727	63	1%	1,680	0	9,255	63	1%
#	Segment	Existing Volumes				Commercial & Warehouse Components Only					Project Alternative Buildout				
		Date	Project Trips			Existing + Project				Project Trips		Existing + Project			
			All Veh.	Trucks	%	All Veh.	Trucks	%		All Veh.	Trucks	All Veh.	Volumes	%	
1	Cochrane Road, between US 101 and DePaul Drive	03/29/19	22,823	299	1%	2,440	385	25,263	684	3%	4,396	385	27,219	684	3%
2	DePaul Drive, south of Cochrane Road	03/29/19	383	0	0%	3,054	385	3,437	385	11%	4,109	385	4,492	385	9%
3	Mission View Drive, between Avenida De Los Padres and Half Road	03/29/19	7,277	61	1%	1,166	0	8,443	61	1%	2,220	0	9,497	61	1%
4	Half Road, between Mission View Drive and Condit Road	03/29/19	4,998	30	1%	1,166	0	6,164	30	0%	2,070	0	7,068	30	0%
5	Condit Road, between Main Avenue and Diana Avenue	03/29/19	7,375	66	1%	438	0	7,813	66	1%	756	0	8,131	66	1%
6	Main Avenue, between US 101 and Condit Road	03/29/19	7,575	63	1%	558	0	8,133	63	1%	1,084	0	8,659	63	1%

Table 25
Vehicle Queuing Analysis

Measurement	Cochrane Road and DePaul Drive						Mission View Drive and Cochrane Road	
	Northbound		Westbound Left		Eastbound		Northbound Left	
	AM	PM	AM	PM	AM	PM	AM	PM
Existing Conditions								
Cycle Length (sec)	60	60	60	60	60	60	60	60
Lanes	1	1	1	1	2	2	1	1
Volume (vph) ²	7	18	6	15	336	603	512	183
Volume (vphpl)	7	18	6	15	168	302	512	183
95 th % Queue (veh/ln.)	1	1	1	1	6	9	14	6
95 th % Queue (ft./ln.) ¹	25	25	25	25	150	225	350	150
Storage (ft./ln.)	950+	950+	100	100	600	600	100	100
Adequate (Y/N)	YES	YES	YES	YES	YES	YES	NO	NO
Existing + Project (Commercial & Light Industrial Components Only)								
Cycle Length (sec)	60	60	60	60	60	60	60	60
Lanes	1	1	1	1	2	2	1	1
Volume (vph)	118	721	269	85	790	683	742	237
Volume (vphpl)	118	721	269	85	395	342	742	237
Avg. Queue (veh/ln.)	2.0	12.0	4.5	1.4	6.6	5.7	12.4	4.0
Avg. Queue ² (ft./ln.)	50	300	113	35	165	143	310	100
95 th % Queue (veh/ln.)	5	18	8	4	11	10	18	8
95 th % Queue (ft./ln.) ¹	125	450	200	100	275	250	450	200
Storage (ft./ln.)	950+	950+	100	100	600	600	100	100
Adequate (Y/N)	YES	YES	NO	YES	YES	YES	NO	NO
Existing + Project (Project Buildout)								
Cycle Length (sec)	60	60	60	60	60	60	60	60
Lanes	1	1	1	1	2	2	1	1
Volume (vph)	180	762	269	85	828	813	804	278
Volume (vphpl)	180	762	269	85	414	407	804	278
Avg. Queue (veh/ln.)	3.0	12.7	4.5	1.4	6.9	6.8	13.4	4.6
Avg. Queue ² (ft./ln.)	75	318	113	35	173	170	335	115
95 th % Queue (veh/ln.)	6	19	8	4	11	11	20	8
95 th % Queue (ft./ln.) ¹	150	475	200	100	275	275	500	200
Storage (ft./ln.)	950+	950+	100	100	600	600	100	100
Adequate (Y/N)	YES	YES	NO	YES	YES	YES	NO	NO
Notes:								
¹ Assumes 25 feet per vehicle queued								
² Include heavy vehicle factor of 2 to account for trucks.								

Westbound Left-Turn

The queuing analysis indicates that the maximum vehicle queue for westbound left-turn movement at the Cochrane Road and De Paul Drive intersection is projected to be 200 feet long and would exceed the provided turn pocket storage space by 100 feet during the AM peak hour under existing plus commercial/light industrial components only and project buildout conditions. It is recommended that this turn pocket be lengthened by 100 feet to accommodate the projected queue.

Cochrane Road and Mission View Drive

The queuing analysis indicates that the maximum vehicle queue for northbound left-turn movement at the Cochrane Road and Mission View Drive intersection currently exceeds the provided turn pocket storage space during the AM and PM peak hours under existing conditions.

The addition of traffic from the commercial/light-industrial components and buildout of all land uses on the project site would lengthen the northbound queue by 100 feet and 150 feet, respectively, during the AM peak-hour under the existing plus project conditions. The extension of the northbound left-turn pocket at the Cochrane Road and Mission View Drive intersection by 400 feet would provide the necessary storage space. However, a second northbound left-turn lane is recommended to improve intersection operations.

Project-generated traffic at other locations would be too low to have a measurable effect on queue lengths.

Transit, Pedestrian and Bicycle Analysis

The project site is served by one bus route, Local Route 87. In addition, three express lines provide service from the project area (Cochrane Road west of US 101) to the Morgan Hill Caltrain Station during PM commute periods. A typical mode split in Morgan Hill would be a three percent transit share. Assuming up to three percent transit mode share for the project equates to no more than 31 transit riders during the AM peak hour and 35 riders during the PM peak hour.

Sidewalks are provided along the north side of Cochrane Road in the immediate project area. However, sidewalks along the south side of Cochrane Road are intermittent, with no sidewalk currently provided between the US 101 northbound ramps and De Paul Drive (the north project frontage), and a short segment west of Mission View Drive. The project would provide a sidewalk along its entire frontage and result in a continuous connection to the existing sidewalk along the southside of Cochrane Road to provide a safe connection between the project site and other surrounding land uses in the area. The project also will provide a sidewalk along its frontage along De Paul Drive. A controlled crossing of Cochrane Road is provided at the signalized De Paul Drive and Cochrane Road intersection that will provide a connection between the project site and retail uses on the north side of Cochrane Road.

Bike lanes are currently provided along the length of Cochrane Road, including along the north project frontage. There also are bike lanes along Main Avenue beginning at Live Oak High School and continuing west across US-101 to Peak Avenue. An unpaved bike path, the Madrone Channel Trail, along the east side of US 101, between Tennant Avenue and Cochrane Road runs along the west project frontage of the proposed commercial/industrial use of the project. It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could potentially generate no more than 12 new bicycle trips during each of the peak hours. The demand generated by the proposed project could be accommodated by the existing bicycle facilities in the vicinity of the project site.

8. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Morgan Hill and the Santa Clara Valley Transportation Authority (VTA). The study included an analysis of AM and PM peak-hour traffic conditions for 28 signalized intersections, nine unsignalized intersections, two planned future intersections, and 14 directional freeway segments during the weekday AM and PM peak hours. The weekday AM peak hour of traffic is generally between 7:00 and 9:00 AM and the weekday PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday.

The impacts of the project on intersections were identified on the basis of the City of Morgan Hill Level of Service standards. Project impacts on other transportation facilities, such as pedestrian facilities, bicycle facilities and transit, were determined on the basis of engineering judgment.

Existing Plus Project Intersection Levels of Service Analysis

The results show that two study intersections would be significantly impacted by the commercial and industrial components only and three study intersections would be significantly impacted by buildout of the project under Existing Plus Project conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impacts are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of an exclusive northbound left-turn lane and a separate eastbound right-turn lane. The addition of the northbound left-turn lane will require a signal modification (with split-phasing on the north and south approaches) and widening of the south approach (De Paul Drive) of the intersection by removing and reconstructing the curb and gutter along the project's frontage. The eastbound right-turn lane will require striping of the lane to the right of the existing bike lane along Cochrane Road. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under existing plus project buildout conditions.

29. Cochrane Road and Mission View Drive

Mitigation: The necessary improvement to mitigate the level of service impact at intersection consists of the addition of a second northbound left-turn lane on Mission View Drive and a cycle length adjustment. The addition of the second northbound left-turn lane will

require lane striping and signal modification, but will fit within the existing curb-to-curb pavement width on Mission View Drive. Implementation of this improvement would improve the intersection's level of service to LOS B during the AM peak hour under existing plus project conditions for both development scenarios.

31. Mission View Drive and Half Road

Mitigation: The necessary improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. Implementation of a traffic signal at this location would improve the level of service to LOS B during both peak hours under existing plus project conditions for both development scenarios. The Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under existing plus project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Freeway Segment Levels of Service Analysis

The results show that the same ten directional mixed-flow lanes and one directional HOV lane on the freeway segments analyzed that were shown to operate at an unacceptable LOS F during at least one peak hour under existing conditions would continue to operate at LOS F conditions with the addition of traffic due to both development scenarios.

Traffic associated with the light industrial and commercial components and the development of all proposed land uses of the project would result in an increase in traffic volumes of more than one percent of freeway capacity on six and ten of the directional mixed-flow lanes, respectively, and one directional HOV lane freeway segments currently operating at an unacceptable LOS F:

Mixed-Flow Freeway Segment Unacceptable LOS

- 2. US 101, Northbound from San Martin Avenue to Tennant Avenue (AM Peak Hour) – Impact under both development scenarios**
- 3. US 101, Northbound from Tennant Avenue to East Dunne Avenue (AM Peak Hour) – Impact under both development scenarios**
- 4. US 101, Northbound from East Dunne Avenue to Cochrane Road (AM Peak Hour) – Impact under both development scenarios**
- 5. US 101, Northbound from Cochrane Road to Coyote Creek Golf Drive (AM Peak Hour) – Impact under project buildout scenario only**
- 8. US 101, Southbound from SR 85 to Bailey Avenue (PM Peak Hour) – Impact under project buildout scenario only**
- 9. US 101, Southbound from Bailey Avenue to Coyote Creek Golf Drive (PM Peak Hour) – Impact under project buildout scenario only**
- 10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only**
- 11. US 101, Southbound from Cochrane Road to East Dunne Avenue (PM Peak Hour) – Impact under both development scenarios**
- 12. US 101, Southbound from East Dunne Avenue to Tennant Avenue (PM Peak Hour) – Impact under both development scenarios**
- 13. US 101, Southbound from Tennant Avenue to San Martin Avenue (PM Peak Hour) – Impact under both development scenarios**

HOV Freeway Segment Unacceptable LOS

10. US 101, Southbound from Coyote Creek Golf Drive to Cochrane Road (PM Peak Hour) – Impact under project buildout scenario only

Therefore, based on CMP impact criteria, the general light industrial/commercial components and buildout of all proposed land use components of the project would have a significant impact on six and ten study freeway segments, respectively.

Full mitigation of significant project impacts on freeway segments would require freeway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

Year 2030 Intersection Levels of Service Analysis

The results show that eight study intersections would be significantly impacted by the commercial and general light industrial components only under Year 2030 Cumulative conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impact are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of the improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project.

29. Cochrane Road and Mission View Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project.

30. Mission View Drive and Avenida De Los Padres

Mitigation: Implementation of a traffic signal at this location would improve the level of service to LOS B during the AM peak hour under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

31. Mission View Drive and Half Road

Mitigation: As discussed under existing plus project conditions, the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half

Road to Diana Avenue as identified within the Year 2035 General Plan roadway network. However, the extension of Mission View Drive is not presumed to be completed under Year 2030 conditions. Implementation of a traffic signal at this location would improve the level of service to LOS D during both peak hours under Year 2030 Cumulative with the industrial/commercial components of the project. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road and an exclusive eastbound right-turn lane on Main Avenue. The addition of the right-turn lanes will require signal modifications and lane striping on the southbound and eastbound approaches. Implementation of this improvement would improve the intersection's level of service to LOS D during both peak hours under Year 2030 Cumulative with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

36. Condit Road and Diana Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the AM peak hour under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would operate at LOS C conditions during the PM peak hour under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS C during the peak hours under Year 2030 Cumulative with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Year 2035 General Plan Intersection Levels of Service Analysis

The results show that seven study intersections would be significantly impacted by the project buildout under Year 2035 General Plan conditions according to the City of Morgan Hill impact criteria. The proposed improvements to mitigate the impact are described below.

28. Cochrane Road and De Paul Drive

Mitigation: The necessary improvement to mitigate the level of service impact at this location would be the same as described under Existing plus Project conditions. Implementation of this improvement would improve the intersection's level of service to LOS C during the PM peak hour under Year 2035 General Plan with the project buildout conditions.

32. Half Road and De Paul Drive

Mitigation: It was presumed that a full access intersection would be provided at the De Paul Drive and Half Road intersection under Year 2035 General Plan with project conditions. Though peak-hour traffic signal warrant checks indicate that the traffic volumes at the intersection are projected to meet thresholds that warrant signalization, signalization of the intersection is not recommended. Since the Mission View Drive and Half Road intersection would be signalized as part of the Mission View extension from Half Road to Diana Avenue as identified within the Year 2035 General Plan roadway network, it is recommended that turn movements at the De Paul Drive and Half Road intersection be restricted to right-turns only. The turn restriction will restrict the use of De Paul Drive and Condit Road as cut-through routes. Implementation of the turn restrictions at the De Paul Drive and Half Road intersection along with a traffic signal at Mission View Drive and Half Road would result in LOS B conditions during the PM peak hour at the Mission View Drive and Half Road intersection the under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle could also be considered in place of a new traffic signal at the intersection.

33. Main Avenue and Condit Road

Mitigation: The necessary improvement to mitigate the level of service impact at this location is the addition of an exclusive southbound right-turn lane on Condit Road. Implementation of this improvement would improve the intersection's level of service to LOS D during the PM peak hour under Year 2035 General Plan with the project conditions. This intersection is under the jurisdiction of Santa Clara County. Therefore, implementation of the recommended improvements will require County approval.

34. Main Avenue and Murphy Avenue

Mitigation: The signalization of the future intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS D and C during the AM and PM peak hours, respectively, under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

37. Murphy Avenue and Diana Avenue

Mitigation: The signalization of the intersection would likely be completed concurrently with the planned extension of Murphy Avenue from Diana Avenue to Half Road. With implementation of a traffic signal at this location, the level of service would improve to LOS C during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

38. Tennant Avenue and Condit Road

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. The intersection would operate at LOS B conditions during the PM peak hour under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

39. Tennant Avenue and Murphy Avenue

Mitigation: The necessary intersection improvement to mitigate the impact at this intersection would consist of the implementation of a traffic signal. With implementation of a traffic signal at this location, the level of service would improve to LOS D during both peak hours under Year 2035 General Plan with the project conditions. Alternatively, implementation of a traffic circle or turn restrictions could also be considered in place of a new traffic signal at the intersection.

Year 2035 Vehicle Miles Traveled Analysis

A comparison of Vehicle Miles Traveled (VMT) for the Year 2035 General Plan no project conditions versus the Year 2035 General Plan with the proposed project was made to determine the effects of the proposed project on traffic patterns within the City.

The VMT results show that the proposed project would result in a significant increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/industrial development uses on the project site. However, the VMT per trip is shown to only minimally increase.

Project Alt Project Alternative Evaluation

The industrial component of the project was presumed to consist of six buildings that would provide a total of 1,089,600 square feet of light industrial space. However, the site zoning could ultimately allow for various industrial land uses on the site including advanced manufacturing, warehouse distribution, supporting office, and other similar uses. In terms of trip generation, warehouse and manufacturing space generally generates much less auto trips than light-industrial space. However, the composition of truck traffic tends to be greater for warehouse uses when compared to light-industrial space. Therefore, the City requested that an alternative project scenario, consisting of warehouse uses on the entirety of the industrial portion of the site, be evaluated to reflect the potential for the project site uses to generate a fewer number of vehicular trips and typical truck trips for warehouse uses than estimated for the light industrial uses for the site.

For the purpose of completing the requested project alternative evaluation, the project applicant developed a conceptual development plan for the industrial portion of the site that would consist of three buildings that could provide up to 1,105,000 s.f. of warehouse space along with the same 50,000 s.f. of commercial space and 319 residential units. The warehouse project alternative was analyzed to the same level as was completed for the proposed light industrial uses under each of the same study scenarios. The following development scenarios were evaluated:

Warehouse & Commercial Components Only - The warehouse/commercial component of the project is evaluated independently for each of the scenarios since there is a current plan for its development.

Project Alternative Buildout - There is no specific development plan for the residential component of the project, therefore the residential is evaluated only in combination with the warehouse & commercial components for each scenario.

The analysis of each of the scenarios includes an evaluation of intersection and freeway levels of service, roadway segments and queuing as was completed and presented in previous chapters for the proposed light industrial use. The same methodology and standards of evaluation were used for the evaluation of the warehouse project alternative.

The results of the analysis indicated that the warehouse project alternative will result in impacts at a total of 9 of the 39 study intersections during at least one of the scenarios studied. The proposed light industrial use was shown to result in impacts at a total of 11 intersections. The required mitigation at each of the intersections that were shown to be impacted by both the proposed light-industrial use and warehouse project alternative was the same at all impacted intersections however an additional intersection improvement would be required to mitigate the light-industrial project alternative. The intersection level of service results indicate that despite the fewer number of trips that would be generated when compared to the light industrial proposed project, the warehouse project alternative would result in impacts to only two fewer intersections.

Year 2035 Vehicle Miles Traveled Analysis (Project Alternative)

The VMT results show that the warehouse project alternative would result in an increase in daily VMT when compared to the adopted GP land uses for the site. The increase in VMT is due to the significant increase in the commercial/warehouse development uses on the project site. Additionally, the VMT per trip is shown to increase, representing longer trips associated with the proposed land use amendment for the site.

Other Transportation Issues

Truck Traffic

It is estimated that up to 248 and 385 daily truck trips may be generated by the proposed general light industrial and warehouse uses on the project site, respectively. Presuming operations at the manufacturing buildings could occur between 6:00 AM and 12:00 AM (18 hours of operation), it is estimated that an average of 14 and 21 truck trips per hour will be generated by the proposed general light industrial and warehouse uses on the project site, respectively.

It is expected that all truck traffic would originate from and be bound for US 101. Trucks will utilize the Cochrane Road freeway ramps and Cochrane Road to access the project driveways along DePaul Drive. Trucks will not use other interchanges at Dunne Avenue or Tennant Avenue. The project does not propose to locate driveways that would serve truck traffic along Cochrane Road. Based on the identified truck route, the additional truck traffic estimated to be generated by the proposed general light industrial and warehouse uses on the project site will only result in an increase in truck traffic along Cochrane Road and DePaul Drive. Table 24 provides an estimate of the projected increase in truck traffic on surrounding streets.

Intersection Operations Analysis

The queuing analysis indicates that the maximum vehicle queues for the northbound approach at the Cochrane Road and DePaul Drive intersection are projected to be less than the existing/planned

storage capacities provided. However, to ensure efficient operations, it is recommended that a separate eastbound right-turn lane be provided at the Cochrane Road and DePaul Drive intersection. The separate eastbound right-turn lane should extend from DePaul Drive to approximately 150 feet west of the commercial driveway on Cochrane Road.

Additionally, the queuing analysis indicates that the maximum vehicle queue for westbound left-turn movement at the Cochrane Road and De Paul Drive intersection is projected to be 200 feet long and would exceed the provided turn pocket storage space by 100 feet during the AM peak hour under existing plus commercial/light industrial components only and project buildout conditions. It is recommended that this turn pocket be lengthened by 100 feet to accommodate the projected queue.

The queuing analysis also indicates that the maximum vehicle queue for northbound left-turn movement at the Cochrane Road and Mission View Drive intersection currently exceeds the provided turn pocket storage space during the AM and PM peak hours under existing conditions. The addition of traffic from the commercial/light-industrial components and buildout of all land uses on the project site would lengthen the northbound queue by 100 feet and 150 feet, respectively, during the AM peak-hour under the existing plus project conditions. The extension of the northbound left-turn pocket at the Cochrane Road and Mission View Drive intersection by 400 feet would provide the necessary storage space. However, a second northbound left-turn lane is recommended to improve intersection operations.

Transit, Pedestrian, and Bicycle Analysis

The project site is served by one bus route, Local Route 87. In addition, three express lines provide service from the project area (Cochrane Road west of US 101) to the Morgan Hill Caltrain Station during PM commute periods. A typical mode split in Morgan Hill would be a three percent transit share. Assuming up to three percent transit mode share for the project equates to no more than 31 transit riders during the AM peak hour and 35 riders during the PM peak hour.

Sidewalks are provided along the north side of Cochrane Road in the immediate project area. However, sidewalks along the south side of Cochrane Road are intermittent, with no sidewalk currently provided between the US 101 northbound ramps and De Paul Drive (the north project frontage), and a short segment west of Mission View Drive. The project would provide a sidewalk along its entire frontage and result in a continuous connection to the existing sidewalk along the southside of Cochrane Road to provide a safe connection between the project site and other surrounding land uses in the area. The project also will provide a sidewalk along its frontage along De Paul Drive. A controlled crossing of Cochrane Road is provided at the signalized De Paul Drive and Cochrane Road intersection that will provide a connection between the project site and retail uses on the north side of Cochrane Road.

Bike lanes are currently provided along the length of Cochrane Road, including along the north project frontage. There also are bike lanes along Main Avenue beginning at Live Oak High School and continuing west across US-101 to Peak Avenue. An unpaved bike path, the Madrone Channel Trail, along the east side of US 101, between Tennant Avenue and Cochrane Road runs along the west project frontage of the proposed commercial/industrial use of the project. It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could potentially generate no more than 12 new bicycle trips during each of the peak hours. The demand generated by the proposed project could be accommodated by the existing bicycle facilities in the vicinity of the project site.